14th Congress of the Middle East Society for Organ Transplantation

5th Middle East Transplant Games 2014

10-13 September, 2014
Istanbul, Turkey
EDITORIAL POLICY

MISSION

Experimental and Clinical Transplantation (ECT) is the official journal of the Middle East Society for Organ Transplantation (MESOT). The Society was originally founded in Turkey in 1987, and was subsequently incorporated at Bern, Switzerland, in 1988 as a non-profit, international, scientific organization comprising 20 countries of the Middle East, North Africa, Mid-Asia, and neighboring nations.

The aim of the journal is to provide a medium forum for where clinical scientists, basic scientists, ethicists, and public health professionals to communicate ideas and advances in the field of experimental and clinical organ and tissue transplantation, and to discuss related social and ethical issues. The topics will be of interest to transplant surgeons, clinicians in all major disciplines and subspecialties, basic science researchers, and other professionals involved with sociological aspects of experimental and clinical transplantation.

SCOPE

The scope of the journal includes the following:
- Surgical techniques, innovations, and novelties
- Immunobiology and immunosuppression
- Clinical results
- Complications
- Infection
- Malignancies
- Organ donation
- Organ and tissue procurement and preservation
- Sociological and ethical issues
- Xenotransplantation

ETHICS

The Journal expects that all procedures and studies involving human subjects have been reviewed by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in The Helsinki Declaration as well as The Declaration of Istanbul on Organ Trafficking and Transplant Tourism. Manuscripts must contain a statement to this effect.

All authors are required to sign an ethical disclosure form stating that they have not been involved in commercial transactions or other unethical practices in obtaining donor organs, and that no organs or tissues from executed prisoners have been used in this research.

SUBSCRIPTION RATES

MESOT Members*
- Single Issue: $20.00
- Annual Subscription: $100.00

Non-MESOT Members
- Single Issue: $50.00
- Annual Subscription: $250.00

Institutions
- Annual Subscription: $1000.00

* These rates and terms are not applicable, if membership dues not paid for two consecutive years.

Shipping Outside Turkey
- Surface Delivery: No additional charge
- Air Mail Delivery: Add $8.00 extra

For all editorial and business matters, please send correspondence to or contact:

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Taskent Caddesi, No:77, Kat 4, Bahcelievler, Ankara, 06490 Turkey
Telephone: +90 (312) 212 73 93 Fax: +90 (312) 215 08 35
E-mail: ectrx@baskent-ank.edu.tr
MESOT Fellowship Program
in Organ Transplantation

The MESOT (Middle East Society for Organ Transplantation) is pleased to announce the establishment of the MESOT Fellowship Program. The program, which will be 1-2 years in duration, has been created for physicians and surgeons from the Middle East region willing to acquire particular skills related to clinical and medical aspects of organ transplantation.

The objective of this program is to promote and advance organ transplantation in underserved areas of the region by helping physicians to establish new programs or improve already existing ones.

A limited number of grants will also be available, with recipients being determined by the Fellowship Program Committee.

Further information can be found online at http://www.mesot-tx.org/home/fellowship.php, where candidates may also apply online. The application deadline is the 30th of June of each year.

Inquiries may be directed to the Chairman of the MESOT Fellowship Program Committee:

Mustafa Al-Mousawi, MD, FRCS
Chairman, MESOT Fellowship Program Committee
P.O. Box 288, Safat 13003
Kuwait
Fax: +965 24848615
Email: drmosawi@yahoo.com
It gives me great pleasure to invite you to come and share our knowledge and experience for the benefit of humanity to a symposium that celebrates 40 years of our philosophy in action bringing health and education “free with dignity” to the disfranchised of our country.

Dr Adib Rizvi
Chairman Organizing Committee
Regenerative Medicine Applications in Organ Transplantation

Edited by
Giuseppe Orlando
Jan P Lerut
Shay Soker
Robert J Stratta

Regenerative Medicine Applications in Organ Transplantation

Regenerative Medicine Applications in Organ Transplantation illustrates exactly how these two fields are coming together and can benefit one another. It discusses technologies being developed, methods being implemented, and which of these are the most promising. The text encompasses tissue engineering, biomaterial sciences, stem cell biology, and developmental biology, all from a transplant perspective. Organ systems considered include liver, renal, intestinal, pancreatic, and more. Leaders from both fields have contributed chapters, clearly illustrating that regenerative medicine and solid organ transplantation speak the same language and that both aim for similar medical outcomes. The overall theme of the book is to provide insight into the synergy between organ transplantation and regenerative medicine.

Recent groundbreaking achievements in regenerative medicine have received unprecedented coverage by the media, fueling interest and enthusiasm in transplant clinicians and researchers. Regenerative medicine is changing the premise of solid organ transplantation, requiring transplantation investigators to become familiar with regenerative medicine investigations that can be extremely relevant to their work. Similarly, regenerative medicine investigators need to be aware of the needs of the transplant field to bring these two fields together for greater results.
52nd
ERA-EDTA CONGRESS
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UNITED KINGDOM
MAY 28TH-31ST
www.era-edta2015.org
Save The Dates!

2014

10-13 December

12th Congress of the Arab Society of Nephrology and Renal Transplantation & 6th ISN - EMAN Update Course in Nephrology

InterContinental Dubai Festival City | Dubai, UAE

Submit Your Abstract

www.nephrology.emanuae.com

Important Dates

Abstracts Submission Deadline
1st October 2014

Early Bird Registration Deadline
15th October 2014

Late & Onsite Registration
16th October - 13th December 2014

Organized by

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Congress Secretariat: MCI Middle East, United Arab Emirates, Tel: +971 4 311 6300, Fax: +971 4 311 6301, Email: eman@mci-group.com
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Başkent University
Turkish Transplantation Society (TOND)
World Academy of Medical, Biomedical and Ethical Sciences (WAMBES)
Haberal Educational Foundation (HEV)
Turkish Transplantation and Burn Foundation
Başkent University Improvement Foundation (BÜGEV)
International Haberal Transplantation and Educational Foundation (IHTEF)
The Transplantation Society (TTS)
European Society for Organ Transplantation (ESOT)
Dear Colleagues,

It has been a great honor for me to have the privilege of serving MESOT for the last two years. Convening at the biennial meeting has always been the major undertaking of our society and I am pleased to welcome you to the 2014 MESOT congress in the city of Istanbul, a city with a large repertoire of organizational experience in international conventions.

I will not hesitate to invest my utmost efforts in the promotion of this highly esteemed society which constitutes a respected and great epicenter in the scientific development of the region. Turkey as the venue has also been the host of important international efforts to discourage organ commercialism and related trades which have marred the face of our revered profession over the recent past. To combat and contain this evil, a larger pool of expert opinion is required to approach the optimal solution.

Aside from the major theme of the congress, scientific issues dealing with transplantation medicine will also be discussed in great detail and by renowned figures from the whole world.

We are confident that your visit to this congress will not only enrich and update your medical information, but also broaden your scope of the contemporary history of the region, to the shaping of which Turkey has played a pivotal role.

Seyed Ali Malek Hosseini, MD

President, Middle East Society for Organ Transplantation
Dear Colleagues,

It is my great honor and pleasure to welcome you to Istanbul for the 14th Congress of the Middle East Society for Organ Transplantation and the 5th Middle East Transplant Games.

Organ and tissue transplantation in the Middle East has reached new heights and the expansion of fields and transplant activities in our region is very encouraging. However, we still have many battles to win, and one of these is to ensure that organ trade and transplant tourism are combated. As such, the theme of the 2014 MESOT Congress will be “Organ Donation and Ethical Conduct.”

As is the custom, the meeting is designed to provide an innovative and comprehensive overview of the latest research developments in the field of experimental and clinical tissue and organ transplantation. The conference will match the high standards set by our previous international meetings, with a comprehensive range of enlightening presentations and exhibits to inform you of the latest progress in our field.

We are equally excited about the 5th MESOT Transplant Games. This occasion for transplant athletes to participate in sporting events is also an opportunity to demonstrate the physical success of transplant surgery and raise awareness of the need to increase organ donation.

Both the local organizing committee and the Program committee, comprised of international leaders in Transplantation, have been committed to providing a program that reflects current problems and represents a collection of scientific, educational, and practical information. This will be an excellent opportunity for both younger members of the profession and distinguished faculty from the world over to partake in intellectual exchange, share experiences and present their work.

In addition to the scientific events, an enjoyable social program awaits our guests in the historically and culturally diverse city of Istanbul where you will experience Turkish hospitality at its best.

Mehmet Haberal, MD, FACS (Hon), FICS (Hon), FASA (Hon)
Founder, Founder President, and President-Elect, Middle East Society for Organ Transplantation
Chair, 14th Congress of the Middle East Society for Organ Transplantation
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Nadey Hakim
Paul Keown
Josep Lloberas
Elmi Müller
Anwar Naqvi
Aytül Noyan
Adibul Rizvi
Bassam Saeed
Faisal Shaheen
Gültekin Süleymanlar
Sedat Yıldırım

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Gürsel Yılmaz
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Tuncer Karpuzoğlu
Gökhan Moray

Aytül Noyan
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Hakan Özdoğu
Atilla Sezgin
Gültekin Süleymanlar
Yaman Tokat
Sedat Yıldırım
Gürsel Yılmaz
Sezai Yılmaz

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CHAIR
Bengü Güven Karahan

COORDINATORS
Ünsal Sığırl

Hatice Akkoç
Local Transplant Patients

Selen Kelecek
Table Tennis

Atahan Altıntaş
Track & Field (Athletics)

Tunc Uğurdağ
Event Project

Feyza Meryem Kara
Bowling

Atakan Yılmaz
Swimming
INTERNATIONAL FACULTY & GUEST SPEAKERS

George Abouna (USA)
Atsushi Aikawa (Japan)
Mustafa Al-Mousawi (Kuwait)
Mona Al-RuKhaimi (UAE)
Mohammed Al-Sebayel (Saudi Arabia)
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Roy Calne (UK)
Andrew M. Cameron (USA)
Jeremy Chapman (Australia)
Abdallah Daar (Canada)
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Francis Delmonico (USA)
Beatriz Dominguez-Gil (Spain)
Aziz El-Matri (Tunisia)
Riadh Fadhil (Qatar)
John Fung (USA)
Ahad Ghods (Iran)
Ahmet Gurarak (USA)
Nadey Hakim (United Kingdom)
Vivekanand Jha (India)
Refaat Kamel (Egypt)
Hatem Khalaf (Qatar)
Murat Kilç (Turkey)
Gregory Alan Knoll (Canada)
Alkiviadis Kostakis (Greece)
Jerzy Kupiec-Weglinski (USA)

Nancy Man Kwan (Hong Kong)
Walter Land (Germany)
Robert Langer (Hungary)
Jacob Lavee (Israel)
Josep Lloveras (Spain)
Joren C. Madsen (USA)
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Marti Manyalich (Spain)
Marwan Masri (Lebanon)
Arthur Matas (USA)
Ibrahim Mostafa (Egypt)
Elmi Muller (South Africa)
Anwar Naqvi (Pakistan)
Philip O’Connell (Australia)
Gerhard Opelz (Germany)
John Renz (USA)
Jorge Reyes (USA)
Oleg N. Reznik (Russia)
Adibul Rizvi (Pakistan)
Leo Roels (NL)
Bassam Saeed (Syria)
David Sachs (USA)
Faissal Shaheen (Saudi Arabia)
Nasser Simforoosh (Iran)
Andrew Singer (USA)
Hans Sollinger (USA)
Goce Spasovski (Macedonia)
Henry A.F. Stephens (UK)
Catherine Stravopolous-Giokas (Greece)
Gültakin Süleymanoğlu (Turkey)
Megan Sykes (USA)
Akin Tekin (USA)
Annika Tibell (Sweden)
Luis Toledo-Pereyra (USA)
Kathryn Wood (UK)
Hasan Yersiz (USA)
Sezai Yılmaz (Turkey)
Abdelaziz Zeadat (Jordan)
GENERAL INFORMATION

CONGRESS DATES
September 10-13, 2014

CONGRESS VENUE
WOW Convention Center
Istanbul World Trade Center
34149 Yeşilköy / İstanbul
Tel: +90 212 468 50 00
Fax: +90 212 465 06 75
www.wowconventionistanbul.com
info@wowconventionistanbul.com

CONGRESS WEB SITE
The official web site of the congress is
http://mesot2014-istanbul.org/. For updated
information and other details related to the congress
please visit the site.

REGISTRATION
On-Site registration will be available
September 10-13, 2014, from 8:00 a.m. to 7:00 p.m.
The registration fee for the delegates includes:
• Access to the scientific sessions and the exhibition
  area
• Congress badge
• Conference bag (containing a copy of the final
  program and the abstract book)
• Invitation to the Welcome Reception
• Lunch vouchers
• Coffee breaks
• Ticket to the Gala Dinner

The registration fee for the accompanying person
includes:
• Invitation to the Welcome Reception
• Ticket to the Gala Dinner

Registration Table
Late and On-Site
(After October 20, 2013) Categories
€ 450.00 Members of
• TOND (Turkish Transplantation Society)
• TTS (The Transplantation Society)
• MESOT (Middle East Society for Organ
  Transplantation)
€ 550.00 Non-Members
€ 350.00 Non-Physicians
€ 300.00 Accompanying Persons
€ 0.00 Students

BADGES
Only delegates with conference badges shall be
allowed to attend the scientific sessions.

CERTIFICATE OF ATTENDANCE
A Certificate of Attendance will be provided at the
registration desk at the close of the congress.

SOCIAL PROGRAM
In addition to the Gala Dinner, which is included in
the registration fees of all registered delegates and
accompanying persons, various social and cultural
events and sightseeing tours will be made available to
the attendees.

PRACTICAL INFORMATION FOR YOUR
STAY

Time Zone
Local time is two hours ahead of Greenwich Mean
Time (GMT+2)

Currency
The Turkish currency is the Turkish Lira (TL)
Cash may be exchanged at banks and exchange
offices during office hours. Major hotels will also
exchange foreign currency and travelers cheques.
The official exchange rate is listed daily at all banks,
exchange offices, and newspapers. ATMs are located
throughout the city; logos displayed on the ATMs
indicate which cards are accepted.

Some hotels, shops and restaurants may also accept
certain foreign currencies.
Shopping
Most shops are open from Friday to Saturday 09:00-20:00 (on Sunday 10:00-19:00). Shopping centers are open seven days a week from 10:00-12:00. Most major credit cards are accepted at hotels, restaurants and shops.

Tipping
Service is not included in restaurants, so it is customary to add a 10-15% tip to the total. Bellhops, porters and doormen generally receive 5-10 TL per service rendered. It is not necessary to tip taxi drivers.

Electricity
The electrical current in Turkey is 220 V, 50 Hz. Socket type is standard European two-pin. Most hotels have wall sockets with 110 volts.

Communication
The international dialing code for Turkey is 90, and the code for Istanbul is 212.

National calls: 0 + city code + telephone number.
International calls: 00 + country code + city code + telephone number.

Payphones (operated with tokens, pre-paid cards and credit cards) are available throughout the city as well as at the airport, meeting venue, hotels, ports, major bus stations and tourist areas. Pre-paid phone cards and tokens are widely available in nearby shops.

Turkey’s GSM operators have a wide range of roaming agreements with foreign operators. It is possible to use most cellular phones with international operators in Turkey.

INSURANCE
The congress organizers cannot accept liability for any personal injuries sustained, or any loss or damage of property belonging to congress delegates and/or accompanying persons, either during or as a result of the congress. Please ensure that you have full coverage in your personal insurance policy.

PUBLIC TRANSPORTATION IN ISTANBUL
Bus: The public bus network is extensive and has a wide web of services across the city. The fare is around 1.-Euro. Pre-purchased tickets are required to board the buses.

Taxi: Taxis are available 24 hours a day, 7 days a week throughout the city. Taxis operate by the meter and start with an opening charge of around 1.-Euro.

Boat: Ferry boats, fast catamarans and sea taxis operate between the European and Asian shores of Istanbul.

Tramway and Light Metro: Modern tramways and a light metro operate in the suburbs of the European side of Istanbul. The network extends to the airport and Aksaray in the old city.

Metro: An underground metro system is available between Taksim Square and 4th Levent.
SCHEDULE OF ACTIVITIES

SCIENTIFIC SESSIONS
Location: A Block (Safir A, Safir B, Oniks, Zirkon)

Wednesday, September 10, 2014  11:00 – 18:00
Thursday, September 11, 2014  08:00 – 18:00
Friday, September 12, 2014  08:00 – 18:00
Saturday, September 13, 2014  08:00 – 16:30

POSTER SESSIONS
Location: Safir A Hall

Wednesday - Saturday, September 10-13, 2014
Viewing Time:  08:00 – 17:00
Presentation Time:  12:30 – 13:30

EXHIBIT HOURS
Location: A Block Foyer

Wednesday, September 10, 2014  08:00 – 18:00
Thursday, September 11, 2014  08:00 – 18:00
Friday, September 12, 2014  08:00 – 18:00
Saturday, September 13, 2014  08:00 – 18:00

CYBER CAFÉ HOURS
Location: Zirkon Business Center

The Cyber Café will be open during the following hours:

Wednesday, September 10, 2014  08:00 – 18:00
Thursday, September 11, 2014  08:00 – 18:00
Friday, September 12, 2014  08:00 – 18:00
Saturday, September 13, 2014  08:00 – 14:00

EVENTS

OPENING CEREMONY
Wednesday, September 10, 2014  09:00 – 10:30
Location: Safir B Hall

WELCOME RECEPTION
Wednesday, September 10, 2014  19:00 – 21:00
Location: WOW Convention Center Foyer

GALA DINNER
Friday, September 12, 2014  20:00 – 23:30
Location: Feriye Restaurant

MEETINGS

MESOT EXECUTIVE COUNCIL MEETING
Tuesday, September 9, 2014  18:00 – 20:00

MESOT NOMINATING COMMITTEE MEETING
Thursday, September 11, 2014  12:30 – 13:30

MESOT GENERAL ASSEMBLY
Thursday, September 11, 2014  18:00 – 19:00
Location: Safir B Hall
### PROGRAM-AT-A-GLANCE

#### FLOOR PLAN

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00</td>
<td>METCO Course Registration</td>
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<td>OPENING CEREMONY</td>
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<td>PARALLEL A3 Immunosuppression</td>
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## Saturday, September 13

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![Conference Floor Plan](image-url)
14th Congress of the
Middle East Society
for Organ Transplantation

5th Middle East Transplant Games 2014

10-13 September, 2014
Istanbul, Turkey

Scientific Program
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<td><strong>Mitra Mahdavi-Mazdeh</strong> (Iran)</td>
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<td><strong>Alireza Heidary Rouchi</strong> (Iran)</td>
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<td><strong>Mustafa Al-Mousawi</strong> (Kuwait)</td>
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<td>ETHICAL ASPECTS: ORGAN HARVESTING IS IT COMPATIBLE WITH THE RESPECT OF</td>
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Wednesday, September 10

07:00-18:00  On-Site Registration

09:00-10:30  Opening Ceremony
Safir B Hall

10:30-11:00  Coffee Break

11:00-18:00  MESOT/METCO Course

11:00-12:30  Plenary Session 1
Safir B Hall

Chairpersons
Mehmet Haberal, Adibul Rizvi, Roy Calne

L1  Roy Calne (UK)
GENE AND STEM CELL THERAPY FOR DIABETES

L2  Seyed Ali Malek-Hosseini (Iran)
HOW WE ESTABLISHED A HUGE, PIONEER ORGAN TRANSPLANT CENTER IN SHIRAZ, SOUTH OF IRAN

L3  John Fung (USA)
SAFELY EXPANDING THE POOL OF DECEASED DONOR LIVERS

12:30-13:30  Lunch & Poster Rounds
Safir A Hall

13:30-14:30  Plenary Session 2
Safir B Hall

Chairpersons
Seyed Ali Malek-Hosseini, Anwar Naqvi

L4  Faissal Shaheen (Saudi Arabia)
DECEASED DONOR PROGRAMS AND ORGAN SHARING IN MESOT COUNTRIES: WHERE TO GO?

L5  Nadey Hakim (UK)
INITIAL PROCEEDINGS: METABOLIC PHENOTYPING THE RENAL TRANSPLANT SURGICAL JOURNEY

14:30-14:45  Coffee Break

14:45-16:15  Parallel Session A1
PEDIATRIC LIVER TRANSPLANTATION
Safir B Hall

Chairpersons
Roy Calne, Gökhan Moray

L6  Jorge Reyes (USA)
PEDIATRIC TRANSPLANTATION: AN UNEXPECTED JOURNEY

O1  EVALUATION OF UNDERLYING LIVER DISEASE AND ITS SEVERITY IN CHILDREN WHO REFERRED FOR LIVER TRANSPLANTATION
1Shiraz Transplant Research Center, and 2Shiraz University of Medical Sciences, Shiraz, Iran

O2  PREDICTORS OF IMMEDIATE TRACHEAL EXTUBATION IN THE OPERATING ROOM AFTER PEDIATRIC LIVER TRANSPLANTATION
Aytekin Ünlükaplan, Adnan Torgay, Arash Pirat, Gülnaz Arslan, Mehmet Haberal
1Department of Anesthesiology, Istanbul Medipol Mega Hospitals Complex, Istanbul; Departments of 2Anesthesiology and 3General Surgery, Baskent University Faculty of Medicine, Ankara, Turkey

O3  RESULTS OF PEDIATRIC LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE
Gökhan Moray, Tugan Teczcaner, Aydincan Akdur, Figen Özçay, Atilla Sezgin, Mahir Kurnap, Sedat Yıldırım, Gülnaz Arslan, Mehmet Haberal
Departments of 1General Surgery, 2Pediatric Gastroenterology, 3Cardiovascular Surgery, and 4Anesthesiology, Baskent University, Ankara, Turkey

O4  OUR EXPERIENCE OF ABO-INCOMPATIBLE LIVING RELATED LIVER TRANSPLANTATION IN CHILDREN
Mohammad Ali Shaghrani, Martin Burdelski, Talal Al goufi, Firas Zahr Eldeen, Hamad Al Bahili, Mohammad Al Sebayel, Dieter Broering
Department of Liver and Small bowel Transplantation and Hepatobiliary–Pancreatic Surgery, King Faisal Specialty Hospital, Riyadh, Saudi Arabia
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<td>Kidney Transplantation</td>
<td>Mustafa Al-Mousawi, Hüseyin Gülay</td>
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<td><strong>HIGH RISK RENAL TRANSPLANTATIONS: &quot;MISSION IMPOSSIBLE&quot;?</strong></td>
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<td><strong>LONG TERM STUDY OF STEROID AVOIDANCE IN RENAL TRANSPLANT PATIENTS: A SINGLE CENTER EXPERIENCE</strong></td>
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<td><strong>THE OUTCOMES OF PROTOCOL-SPECIFIED MODIFICATION OF IMMUNOSUPPRESSIVE REGIMEN DIRECTED TO HISTOLOGICAL DIAGNOSIS BY EARLY SURVEILLANCE PROTOCOL BIOPSY: A RETROSPECTIVE LONGITUDINAL PROPENSITY SCORE-MATCHED STUDY</strong></td>
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<td><strong>COMPARISON OF SIROLIMUS AND EVEROLIMUS BASED IMMUNOSUPPRESSIVE THERAPY IN RENAL TRANSPLANT PATIENTS: WHICH IS MORE EFFECTIVE?</strong></td>
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<td><strong>SUCCESSFUL SALVAGE OF A RESistant ACute ANTIbody MEDIATED RENAL GRAFT REJECTION WITH ECULIZUMAB</strong></td>
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<td><strong>EFFECT OF CONVERSION FROM MYCOPHENOLATE MOFETIL TO AZATHIOPRINE IN LIVING DONOR KIDNEY TRANSPLANTATION WITH CYCLOSPORINE BASED IMMUNOSUPPRESSANT</strong></td>
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**Notes:**
- Program schedule for Wednesday.
- Sessions include talks on kidney transplantation, immunosuppression, and related topics.
- Chairpersons listed for each session.
- Talks cover high-risk kidney transplantations, steroid avoidance, long-term studies, and more.
- Specific details and locations noted for each presentation.
14:45-16:15 Parallel Session A4
Zirkon Hall
Registry, Donation

Chairpersons
Faissal Shaheen, Aydın Dalgıç

L9 Behrooz Broumand (Iran)
THE GLOBAL REGISTRY: HOPE FOR THE FUTURE

O13 IRODAT, THE INTERNATIONAL REGISTRY IN ORGAN DONATION AND TRANSPLANTATION. A MIDDLE EAST OVERVIEW
M. Manyalich, B. Pérez, R. Valero, C. Ballesté, G. Páez, MP. Gómez
Donation and Transplantation Institute, Barcelona, Spain

O14 LIVING DONOR OBSERVATORY (LIDOBS)
Marti Manyalich¹, Xavier Torres¹,
Ignacio Revuelta¹, Fritz Diekmann¹,
Josep M. Peri¹, Constantino Fondevila¹,
David Paredes¹, Entela Kondo¹, ELIPSY Project Consortium¹, FIS project Consortium¹, Ana Menjivar²
¹Hospital Clinic of Barcelona, ²Fundació Clinic per la Recerca Biomèdica, Barcelona, Spain

O15 EUROPEAN LIVING DONOR PSYCHOSOCIAL FOLLOW-UP (ELIPSY PROJECT)
Marti Manyalich¹, Xavier Torres¹,
Christina Papachristou³,
Ingela Fehrman-Ekholm¹, Christian Hiesse⁴,
Leonidio Dias⁵, Inês Alexandra Carvalho³,
Levent Yucetin⁶, Nidias Kvarnström³,
Enterla Kondo¹, Ignacio Revuelta¹,
Fritz Diekmann¹, David Paredes¹,
Constantino Fondevila¹, Josep M. Peri¹,
ELIPSY Project Consortium¹, Ana Menjivar²
¹Hospital Clinic of Barcelona, ²Fundació Clinic per la Recerca Biomèdica, Barcelona, Spain

O16 ORGAN DONATION IN SHAHID BEHESHTI UNIVERSITY ORGAN PROCUREMENT UNIT OF IRAN, AN EXCELLENT 9 YEAR EXPERIENCE
Omid Ghebodi, Majid Dargahi, Hamid Reza Khoddami Vishteh, Shadi Shafaghi, Katayoun Najafizadeh
Lung Transplantation Research Center, Masih Daneshvari Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

16:15-16:30 Coffee Break

16:30-18:00 Parallel Session B1
Safir B Hall
Liver Transplantation

Chairpersons
Nancy Man Kwan, Ibrahim Mostafa

L10 Sezai Yılmaz (Turkey)
ANOMALOUS PORTAL VENOUS BRANCHING RECONSTRUCTION IN RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION

O17 MAJOR VASCULAR COMPLICATIONS AFTER LDLT: SINGLE CENTER TEAM EXPERIENCE
Refaat Kamel¹, Yasser Hatata¹, Mohamed Taha¹,
Karim Hosny¹, Ayman Abd El Wahab¹
¹Ein Shams University, ²Fayoum University, ³Liver Institute Menoufia, and ⁴Cairo University, Egypt

O18 SPLENIC ARTERY ANEURYSM IN LIVER TRANSPLANT PATIENTS
Mohsen Reza Mansoorian¹, Alireza Rasekhi¹,
Kourosh Kazemi¹, Alireza Shamsaeefar¹,
Siavash Gholami¹, Goli Mehrdad¹,
Saman Nikeghbalian¹, Seyed Ali Malek Hosseini¹
¹Transplant Center, Namazi Hospital; ²Department of Radiology, Shiraz University of Medical Sciences, Shiraz, Iran

O19 MANAGEMENT OF BILIARY COMPLICATIONS AFTER LIVER TRANSPLANTATION: RESULTS OF A SINGLE CENTER
Sedat Yıldırım¹, Hatice Ebru Ayvazoğlu Soy¹,
Ayduncan Akgür¹, Mahir Kirnap¹, Fatih Boyvat¹,
Feza Yarbuğ Karakayalı¹, Adnan Torgay¹,
Gökhan Moray¹, Mehmet Haberal¹
Departments of ¹General Surgery, ²Radiology, and ³Anesthesiology, Baskent University, Ankara, Turkey
O20 WHAT IS THE PERFERRED METHOD FOR BILIARY RECONSTRUCTION IN LIVER TRANSPLANT PATIENTS WITH PRIMARY SCLEROSING CHOLLANGITIS?
Kourosh Kazemi¹, Mohammad Shafiee¹, Maryam Moini¹, Saman Nikeghbalian¹, Alireza Shamseefar¹, Siavash Ghomali¹, Nasir Fakhar¹, Nasrin Motazedian², Goli Mehrdad¹, Seyed Ali Malekhosseini¹
¹Shiraz Organ Transplant Center and ²Shiraz HIV/AIDS Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

16:30-18:00 Parallel Session B2
Safir C Hall
Kidney Transplantation
Chairpersons
Ahad Ghods, B. Handan Özdemir

L11 Lina Assad (Syria)
PATHOLOGY OF ACUTE RENAL ALLOGRAFT DYSFUNCTION

O21 BIOIMPEDANCE ANALYSIS REVEALS GRAFT FUNCTION IN RENAL TRANSPLANT RECIPIENTS
S. Sezer¹, B. Gürel Demirci¹, O. Guliyev¹, T. Çolak¹, C.B. Sayın¹, E. N. Özdemir Acar¹, M. Haberal¹
¹Departments of Nephrology, and ²General Surgery, Baskent University Faculty of Medicine, Ankara, Turkey

O22 ASSOCIATION OF URIC ACID AND METABOLIC SYNDROME IN RENAL TRANSPLANT RECIPIENTS- SINGLE CENTER STUDY
Maryam Hami, Mahin Ghorban Sabbagh, Arash Sefidgaran, Mohammad Javad Mojahedi, Boshra Hasanzamani
Kidney Transplantation Complications Research Center, Ghaem Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

O23 ELEVATED FGF-23 LEVEL COULD PREDICT PROGRESSIVE ARTERIAL STIFFENING AND GRAFT LOSS IN KIDNEY TRANSPLANT RECIPIENTS
Siren Sezer, Zeynep Bal, Mehtap Erkmen Uyar, Orhan Guliye, Begüm Erdemir, Turan Çolak, Mehmet Haberal
Baskent University Faculty of Medicine, Ankara, Turkey

O24 FIBROBLAST GROWTH FACTOR 23/ KLOTHO AXIS IS A RISK FACTOR FOR KIDNEY TRANSPLANT LOSS
Baskent University Faculty of Medicine, Ankara, Turkey

16:30-18:00 Parallel Session B3
Oniks Hall
Infectious Diseases
Chairpersons
Vivekanand Jha, Hande Arslan

L12 Andrew Singer (USA)
Organ Transplantation from Infectious Risk Donors

O25 EPSTEIN-BARR VIRAL LOAD BEFORE A LIVER TRANSPLANT IN CHILDREN WITH CHRONIC LIVER DISEASE
Naser Honar¹, Seyed Mohsen Dehghani², Nader Shakibazad¹, Ali Bahador¹, Ali Reza Shamseefar², Koorosh Kazemi², Saman Nikeghbalian², Siavash Ghomali¹, Goli Mehrdad¹, Seyed Ali Malekhosseini²
¹Shiraz University of Medical Sciences, and ²Shiraz Transplant Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

O26 THE CONTRAST PATTERN OF CYTOMEGALOVIRUS AND EPSTEIN-BARR VIRUS INFECTION IN PEDIATRIC LIVING DONOR LIVER TRANSPLANT RECIPIENTS
Hamed Elgendy¹, Shinji Uemoto², Nafady Hego³
¹Department of Anesthesia, Assiut University, Egypt; ²Department of Hepato-Pancreato-Biliary Surgery and Transplantation, Kyoto University, Japan; ³Department of Microbiology and Immunology, Assiut University, Egypt

O27 IL-17 MRNA EXPRESSION UP-REGULATED IN CYTOMEGALOVIRUS INFECTED LIVER TRANSPLANT PATIENTS
Afsoon Afshari¹, Ramin Yaghobi², Mohammad Hossein Karimi², Mojtaba Darbouy⁴, Negar Azarpira², Bita Geramizadeh⁵, Seyed Ali Malek-Hosseini¹, Saman Nikeghbalian³
¹Department of Molecular Genetics, Science and Research, Islamic Azad University, Fars; ²Shiraz Transplant Research Center, and ³Shiraz Transplant Center, Shiraz University of Medical Sciences, Shiraz, Iran
THE ASSOCIATION BETWEEN IL-21 GENE EXPRESSIONS LEVELS AND CYTOMEGALOVIRUS INFECTION IN LIVER TRANSPLANTED PATIENTS
Ramin Yaghobi¹, Afsoon Afshari², Mojtaba Darbouy ², Mohammad Hossein Karimi¹, Negar Azarpira¹, Bita Geramizadeh¹, Seyed Ali Malek-Hosseini³, Saman Nikeghbalian³
¹Shiraz Transplant Research Center, Shiraz University of Medical Sciences, Shiraz; ²Department of Molecular Genetics, Science and Research, Islamic Azad University, Fars; ³Shiraz Transplant Center, Shiraz University of Medical Sciences, Shiraz, Iran

SELLING YOUR BODY FOR CASH
Ines Reith
Graduate School "The Economics of the Internationalization of the Law", funded by the DFG (German Research Foundation), Institute of Law and Economics, University of Hamburg, Germany

TRAVEL FOR TRANSPLANTATION IN IRAN: CONS AND PROS REGARDING IRANIAN MODEL
Shahrzad Ossareh¹, Behrooz Broumand²
¹Nephrology Section, Hasheminejad Kidney Center, Iran University of Medical Sciences; and ²Nephrology Ward, Pars Hospital, Tehran, Iran

TRANSPLANT TOURISM FROM THE MIDDLE EAST
David Matas
Faculty of Law, University of Manitoba, Winnipeg, Canada

CROSS-BORDER QUEST: PATIENTS GOING ABROAD FOR PAID ORGAN TRANSPLANTS
L. van Balen¹, J.A.E. Ambagtsheer¹, N. Ivanovski², M. Gunnarson¹, S. Lundin¹, I. Byström³, W. Weimar¹
¹Erasmus MC, Department of Internal Medicine, Section Transplantation and Nephrology, Rotterdam, the Netherlands; ²University of St. Cyril and Methodius, Skopje, Republic of Macedonia; ³Lund University, Department of Arts and Cultural Sciences, Lund, Sweden

16:30-18:00 Parallel Session B4
Zirkon Hall
Ethics
Chairpersons
Mirela Bušić, Alireza Bagheri

L13 Mona Al-Rukhaimi (UAE)
TRANSPLANT ETHICS AND EXTRATERRITORIAL JURISDICTIONS

19:00-21:00 Welcome Reception
WOW Convention Center Foyer
Thursday, September 11

07:00-18:00  On-Site Registration

08:00-09:00  Plenary Session 3
Safir B Hall

Chairpersons
Jeremy Chapman, Josep Lloveras

L14  Mustafa Al-Mousawi (Kuwait)
DIFFICULTIES IN FAMILY APPROACH FOR ORGAN DONATION FROM DECEASED EXPATS IN KUWAIT

L15  Leo Roels (The Netherlands)
OPTIMIZING ORGAN DONATION FROM DECEASED DONORS: THE DONOR ACTION® EXPERIENCE

09:00-09:15  Coffee Break

09:15-10:45  Parallel Session C1
Safir B Hall
Donation

Chairpersons
Riadh Fadhil, Marti Manyalich

L16  Abdel-Hadi Breizat (Jordan)
ORGAN DONATION AND TRANSPLANTATION IN A MESOT COUNTRY (JORDAN)

L17  Ahad Ghods (Iran)
ORGAN DONATION AND TRANSPLANTATION IN ISLAMIC COUNTRIES

L18  John Renz (USA)
A TEN-YEAR ANALYSIS OF LIVER ALLOGRAFT UTILIZATION WITHIN THE UNITED STATES

09:15-10:45  Parallel Session C2
Safir C Hall
Liver Transplantation

Chairpersons
Andrew Cameron, Murat Kılıç

L19  Hasan Yersiz (USA)
OPTIMIZING AND EXPANDING THE CADAVERIC LIVER DONOR OPERATION

O33  DOES ADDITION OF N-ACETYLCYSTEINE TO UNIVERSITY OF WISCONSIN SOLUTION DECREASE THE RATE OF ISCHEMIA-REPERFUSION INJURY IN ADULT ORTHOTOPIC LIVER TRANSPLANT?
Mohsen Aliakbarian1,2, Saman Nikeghbalian2, Sina Ghaffaripour2, Amin Bahreini2, Mohammad Shafiee2, Mohammad Rashidi2, Seyed Ali Malekhosseini2
1Surgical Oncology Research Center, Imam Reza Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad; 2Shiraz University of Medical Sciences, Shiraz Transplant Research Center, Shiraz, Iran

O34  AN ANALYSIS OF OUTCOME FOR LIVER RETRANSPLANTATION IN ADULTS: 12 YEARS SINGLE CENTER EXPERIENCE AND FIRST MIDDLE EAST REPORT
Mohamed R. Abdelfattah1,2, Mohammed Al-sebayel1, Dieter Broering1
1Department of Liver Transplantation and Hepatobiliary Surgery, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia; 2Department of Hepatobiliary-Pancreatic Surgery, Faculty of Medicine, University of Alexandria, Egypt

O35  THE EVALUATION OF HEMODYNAMIC CHANGES DURING REPERFUSION PHASE IN ADULT LIVING DONOR TRANSPLANTATIONS: THE ROLE OF CARDIOVASCULAR PROBLEMS
Asude Ayhan1, Çoskun Araz1, Özgür Kömürçi1, Şerife Kaplan1, Zeynep Dayıcan1, Adnan Torgay1, Mehmet Haberal2
Departments of 1Anesthesiology and Reanimation, and 2General Surgery, Baskent University Faculty of Medicine, Ankara, Turkey

O36  PRECEDENTS OF HYPERNATREMIA AND LIVER TRANSPLANTATION OUTCOME
Tayebeh Piryaee1, Katayoun Najafizadeh1, Siavash Gholami2, Saman Nikeghbalian3, Omid Ghobadi1, Sahar Sajedi1, Shadi Shafagh1
1Lung Transplantation Research Center, Masih Daneshvari Hospital, Shahid Beheshti University of Medical Sciences, Tehran; 2Organ Transplant Center, Namazi Hospital, Shiraz University of Medical Sciences, Shiraz, Iran
09:15-10:45  Parallel Session C3  
Oniks Hall  
Kidney Transplantation  

Chairpersons  
Aziz El Matri,  
Catherine Stavropoulos-Giokas

L20  Arthur Matas (USA)  
LONG-TERM LIVING KIDNEY DONOR OUTCOMES

O37  PULMONARY HYPERTENSION IS CLOSELY RELATED WITH ARTERIAL STIFFNESS IN PATIENTS WITH RENAL TRANSPLANTATION  
Zeynep Bal, Siren Sezer, Mehtap Erkmen Uyar, Uğur Bal, Orhan Guliyev, Bahar Gürlek Demirci, Emre Tütal, Mehmet Haberal  
Baskent University Faculty of Medicine, Ankara, Turkey

O38  DOES HYPERTENSION REMAIN AFTER KIDNEY TRANSPLANTATION?  
Gholamreza Pourmand, Sanaz Dehghani, Mohammad Reza Rahmati, Abdolrasoul Mehrsai, Shahram Gooran, Farimah Alizadeh  
Urology Research Center, Tehran University of Medical Sciences, Tehran, Iran

O39  MORNING BLOOD PRESSURE PULSE IN RENAL TRANSPLANT RECIPIENTS: ITS RELATION WITH GRAFT FUNCTION AND ARTERIAL STIFFNESS  
Siren Sezer¹, Bahar Gürlek Demirci¹, Turan Çolak¹, Emre Tütal¹, Mehmet Haberal²  
Departments of ¹Nephrology, and ²General Surgery, Baskent University Faculty of Medicine, Ankara, Turkey

O40  AGE-MATCHING IMPROVES GRAFT SURVIVAL AFTER LIVING DONOR KIDNEY TRANSPLANTATION  
Chang-Kwon Oh¹, Su Hyung Lee¹, Gyu Tae Shin², Heungsoo Kim³, Se Joong Kim³, Sun Il Kim³  
Departments of ¹Surgery, ²Nephrology, and ³Urology, Ajou University School of Medicine, Suwon, Korea

09:15-10:45  Parallel Session C4  
Zirkon Hall  
Infection

L21  Vivekanand Jha (India)  
POST-TRANSPLANT INFECTIONS: AN OUNCE OF PREVENTION

O41  BLOODSTREAM INFECTIONS AMONG SOLID ORGAN TRANSPLANT RECIPIENTS: EIGHT YEARS’ EXPERIENCE FROM BASKENT UNIVERSITY  
Ayşegül Yeşilkaya¹, Özlem Kurt Azap¹, Melike Hamiyet Demirkaya¹, Mehtap Akçal Ok², Hande Arslan³, Aydincan Akdur³  
Departments of ¹Infectious Diseases and Clinical Microbiology, Baskent University Faculty of Medicine; ²Statistics and Computer Science, Baskent University Faculty of Science and Letters; and ³General Surgery, Baskent University Faculty of Medicine, Ankara, Turkey

O42  MYCOBACTERIUM TUBERCULOSIS INCIDENCE AND OUTCOME POST SOLID ORGANS TRANSPLANTATION  
Hassan A. Aleid¹, Suad Al Mukhaini², Hanan Hakami², Fatma Alduraibi², Haifa Altalhi², Abdulrahman Alrajhi²  
Departments of ¹Kidney and Pancreas Transplantation, and ²Internal Medicine, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia

O43  POST KIDNEY TRANSPLANT TUBERCULOSIS IN IRAQ: PREVALENCE, CLINICAL COURSE & OUTCOME  
Iqdam Kamal Shakir, Nidam Abdullatef Jalil  
Alkarama Kidney Transplant Center, Baghdad, Iraq

O44  IGRA FOR THE DIAGNOSIS OF LATENT TUBERCULOSIS IN KIDNEY TRANSPLANT RECIPIENTS  
King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia

10:45-11:00  Coffee Break
11:00-12:30  Parallel Session D1  
*Safir B Hall*
Liver Transplantation

**Chairpersons**
Dieter Broering, Hasan Yersiz

L22  Mohammed Al-Sebayel (Saudi Arabia)  
LIVING DONOR LIVER TRANSPLANT VS CADAVERIC LIVER TRANSPLANT: SINGLE CENTER EXPERIENCE IN MORE THAN 500 CASES

L23  Hatem Khalaf (Qatar)  
LIVER TRANSPLANTATION IN ARAB WORLD: AN UPDATE

O45  STUDY OF THE ASSOCIATION BETWEEN GLUTATHIONE S-TRANSFERASE (GSTM1) POLYMORPHISM WITH POST LIVER TRANSPLANT DIABETES IN IRAN  
Zahra Musavi1, Elham Mosayer1, Negar Azarpira1, Masumeh Darai1, Koorosh Kazemi2, Mahdokht Aghdai1  
1Transplant Research Center and 2Transplant Center, Shiraz University of Medical Sciences, Shiraz, Iran

11:00-12:30  Parallel Session D2  
*Safir C Hall*
Kidney Transplantation

**Chairpersons**
Alkiviadis Kostakis, Tuncay Aki

L24  Atsushi Aikawa (Japan)  
NEW TREND OF ABO INCOMPATIBLE KIDNEY TRANSPLANTATION

O46  RESCUE OF ABOI TRANSPLANTS WITH ANTIBODY MEDIATED REJECTION. A SINGLE CENTRE EXPERIENCE  
Rachael Coates  
Freeman Hospital, Newcastle and the University of Newcastle, UK

O47  FRACtalkINE RECEPTOR GENE POLYMORPHISMS AND ALLOGRAFT OUTCOMES  
Kaan Gülleroğlu1, Esra Baskın1, Feride Şahin1, Atsushi Aikawa2, Gökhan Moray2, Mehmet Haberal2  
1Pediatric Nephrology, 2Department of General Surgery, Baskent University, Ankara, Turkey

O48  CONVERSION FROM TACROLIMUS TO CYCLOSPORINE IN PATIENTS WITH NEW ONSET DIABETES AFTER RENAL TRANSPLANT: AN OPEN LABEL RANDOMIZED PROSPECTIVE PILOT STUDY  
Manish Rathi1, Venkatesh Rajkumar1, Namrato Rao1, Ashish Sharma2, Raja Ramachandran1, Vivek Kumar1, Harbir Singh Kohli1, Krishan Lal Gupta1, Vinay Sahuja1  
Departments of 1Nephrology and 2Transplant Surgery, PGIMER, Chandigarh, India

11:00-12:30  Parallel Session D3  
*Oniks Hall*
Donation

**Chairpersons**
Behrooz Broumand, Goce Spasovski

L25  Jacob Lavee (Israel)  
THE SUCCESS OF THE NEW ISRAELI ORGAN TRANSPLANT LAW IN COMBATING TRANSPLANT TOURISM AND PROMOTING LOCAL DECEASED AND LIVING ORGAN DONATION

O50  WHO IS "WILLING" TO DONATE?  
Bilkay Baştürk1, Bircan Kantaroğlu2, Miray Kılavuzlu2, Çağla Sarıtürk2  
Departments of 1Infectious Diseases and Clinical Microbiology, 2Immunology-Tissue Typing Laboratory, and 3Biostatistics Unit, Başkent University Adana Research and Medical Center, Adana, Turkey

O51  LOOKING FOR SOLUTIONS: AN INSIGHT INTO CONTRIBUTING FACTORS AND THERE SOLUTIONS FOR DECEASED ORGAN DONATION AMONG BRITISH MINORITY POPULATION  
Kugananda Sri Paranthaman1, Abbas Ghazanfar1,2  
1St Georges University of London, 2St Georges Healthcare NHS Trust, London, UK
O52  THE IMPACT OF MASS-MEDIA ON ORGAN DONATION: COMPREHENSIVE REVIEW OF LITERATURE
Adam Uslu, Ahmet Aykas
Social Security Company of the Turkish Republic, Bozyaka Teaching and Research Hospital, Organ Transplantation Center, Izmir, Turkey

O53  ATTITUDES OF BAHRAINI PEOPLES TOWARD KIDNEY DONATION
Amgad El-Agroudy, Sumaya Ghareeb, Sameer Alarrayed, Salah Sharqawi, Balij Dandi, Mohamed Nowrooz
Nephrology Department, Salmaniya Medical Complex, Manama, Bahrain

11:00-12:30  One Lambda Sponsored Symposium
Zirkon Hall
A Paradigm in Flux: Understanding the Role of Antibodies in Transplant Rejection

Chairpersons
Duska Dragun

Duska Dragun
ANTIBODIES TARGETING VASCULAR RECEPTORS: FROM MECHANISM TO CLINICAL SIGNIFICANCE

Carmen Lafaucheur
NEW PARADIGMS IN ANTIBODY MEDIATED REJECTION

12:30-13:30  Lunch & Poster Rounds
Safir A Hall

12:30-13:30  Women in Transplantation Networking Event

13:30-14:30  Plenary Session 4
Safir B Hall

Chairpersons
John Fung, Mustafa Al-Mousawi

L26  Andrew M. Cameron (USA)
ORGAN DONATION AND SOCIAL MEDIA: ETHICAL CONDUCT

L27  Philip O’Connell (Australia)
THE FUTURE CHALLENGES FOR TRANSPLANTATION

14:30-14:45  Coffee Break

14:45-16:15  Parallel Session E1
Safir B Hall
Ethics

Chairpersons
Annika Tibell, Walter Land

L28  Gabriel Danovitch (USA)
THE DECLARATION OF ISTANBUL: PAST, PRESENT, FUTURE

L29  Riadh Fadhil (Qatar)
DOHA MODEL: A NATIONAL IMPLEMENTATION OF THE DECLARATION OF ISTANBUL, THREE YEARS OUTCOME SUCCESSES AND CHALLENGES

L30  Goce Spasovski (Macedonia)
THE IMPROVEMENT IN KIDNEY TRANSPLANTATION ON THE BALKANS AFTER ISTANBUL DECLARATION: WHERE DO WE STAND TODAY?

14:45-16:15  Parallel Session E2
Safir C Hall
Pediatric Liver Transplantation

Chairpersons
Jorge Reyes, Sedat Yıldırım

L31  Dieter Broering (Saudi Arabia)
MINIMALLY INVASIVE LIVING DONOR HEPATECTOMY: TECHNIQUE AND RESULTS

O54  PREVALENCE OF METABOLIC SYNDROME IN PEDIATRIC LIVER TRANSPLANTATION
Farzad Vafaei1, Seyed Mohsen Dehghanii, Saman Nikeghbalian1, Ali Bahador1, Koorosh Kazemi1, Ali Reza Shamsaeifar1, Siavash Gholami1, Heshmatollah Salahi1, Seyed Ali Malekhosseini1
1Shiraz Transplant Research Center, 2Shiraz University of Medical Sciences, Shiraz, Iran

O55  OUTCOME OF CRITICALLY-ILL CHILDREN AFTER LIVING- DONOR LIVER TRANSPLANTATION
Hamed Elgendy1, Walid M. El Moghazy2, Hanaa Hego1, Shinji Uemoto1
1Department of Anesthesia, Assiut University; 2Department of Surgery, Sohag University; 3Department of Microbiology and Immunology, Assiut University, Egypt; and 4Department of Hepato-Pancreato-Biliary Surgery and Transplantation, Kyoto University, Japan
O56 EFFECT OF PARENTS EDUCATIONAL LEVEL ON MORTALITY AND MORBIDITY OF CHILDREN AFTER LIVER TRANSPLANTATION
Zahra Bahador, Seyed Mohsen Dehghani, Ali Bahador, Nematollah Hafezi, Seyed Ali Malekhosseini, Saman Niknejhadbian
Shiraz University of Medical Sciences, Shiraz, Iran

O57 LARGE FOR SIZE LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE
Aydincan Akdur1, Mahir Kernap, Figen Özçay2, Atilla Sezgin3, Hattice Ebru Ayyazoğlu Soy1, Feza Yarbuğ Karakayali1, Sedat Yıldırım1, Gökhan Moray1, Gülnaz Arslan4, Mehmet Haberal1
Departments of 1General Surgery, 2Pediatric Gastroenterology, 3Cardiovascular Surgery, and 4Anesthesiology, Baskent University, Ankara, Turkey

14:45-16:15 Parallel Session E3
Oniks Hall
Kidney Transplantation

Chairpersons
Nurhan Özdemin, Hüseyin Gül

L32 Gültekin Süleymanlar (Turkey)
THE BURDEN OF CHRONIC KIDNEY DISEASE IN TURKEY: A GROWING PUBLIC HEALTH PROBLEM

O58 NEW ONSET DIABETES AFTER RENAL TRANSPLANTATION: A NEW PREDICTIVE MODEL
Hassan Ali Aleid1, Ahmad Alhurstaji1, Abdallah Alqarawii1, Abdulmonem Eldali1, Mai Althal1, Ammar Abdulbaki1, Tariq Ali1
Departments of 1Kidney and Pancreas Transplantation, 2Internal Medicine, and 3Epidemiology and Biostatistics King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia

O59 HYPERPROTEINURIA AS A CARDIOVASCULAR RISK FACTOR IN RENAL TRANSPLANT RECIPIENTS
Orhan Guliyev1, Mehtap Erkmen Uyar1, Siren Sezer1, Zeynep Bal1, Turan Çolak1, Bahar Gürlek Demirci1, Nurhan Özdemir Acar1, Mehmet Haberal2
Departments of 1Nephrology, and 2General Surgery, Baskent University Medical School, Turkey

O60 STUDY OF THE RISK FACTORS AND THE COMPLICATIONS OF DIABETES MELLITUS AFTER LIVE KIDNEY DONATION
Ayman Maher Nagib, Mohamed Megahed Abobag, Megahed Ab Elmagg, Mohamed Adel Bakr, Ayman Fathi Refaei, Yasser Abdulla Elhendi, Mohamed Fouda, Hanzada Elmaghraby
Department of Nephrology, Mansoura University, Mansoura, Egypt

O61 PRE-TRANSPLANT RENAL ARTERIAL VASCULOPATHY PREDICTS POOR RENAL ALLOGRAFT SURVIVAL
B. Handan Özdemin1, F. Nurhan Özdemin2, Gökhan Moray3, Mehmet Haberal3
Departments of 1Pathology, 2Nephrology, and 3Transplant Surgery, Baskent University, Faculty of Medicine, Turkey

14:45-16:15 Parallel Session E4
Zirkon Hall
Organ Procurement

Chairpersons
Sola Aoun Bahous, Ayhan Dinçkan

L33 Bassam Saeed (Syria)
THE IMPACT OF LIVING UNRELATED TRANSPLANT ON ESTABLISHING DECEASED DONOR LIVER PROGRAM IN SYRIA

O62 IMPACT OF TRANSFER PROCESS OF BRAIN DEAD POTENTIAL DONORS ON HEMODYNAMIC STABILITY AND OXYGENATION
Meysam Mojtabaee, Sahar Sajedi, Mahdis Mojtabaee, Shadi Shafaghi, Majid Dargahi, Katayoun Najafizadeh
Organ Donation Research Center, Organ Donation and Transplantation Unit, National Research Institute of TB and Lung Diseases, Shaheed Beheshti University of Medical Sciences, Tehran, Iran

O63 ORGAN VIABILITY ASSESSMENT DURING THE PRESERVATION PERIOD USING NOVEL REAL-TIME RAPID SAMPLING MICRODIALYSIS MONITORING: A PROMISING NEW TOOL FOR MARGINAL KIDNEY ALLOGRAFTS
Karim Hamoui1, Sally Gowers2, Martyn Boutelle1, Vassilios Papalois1,2
Departments of 1Surgery and, 2Bio-engineering, Imperial College London, and 3Imperial Renal and Transplant Centre, Hammersmith Hospital, London, UK
**O64** EARLY ACTIVE MANAGEMENT OF BRAIN DEAD POTENTIAL DONORS: GOOD RENAL TRANSPLANT OUTCOME
Shadi Shafaghi, Omid Ghobadi, Maryam Moftakhari, Hamid Reza Khoddami Visthte, Mahdieh Hazrat, Katayoun Najafizadeh
Lung Transplantation Research Center, Masih Daneshvar Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

**O65** HLA-DR MISMATCHED PAEDIATRIC RENAL TRANSPLANTATION: PATIENT AND GRAFT OUTCOME WITH DIFFERENT KIDNEY DONOR SOURCES
Hamed Al-Essa Organ Transplant Center, Kuwait

**O66** LESSONS LEARNED FROM LIVING DONOR LIVER TRANSPLANTATION AT CAIRO UNIVERSITY: SINGLE CENTER EXPERIENCE
Sherif Mogawer, Adel Hosny, Ayman Salah, Ezz Korashi, Mosta Elshazli, Shaimaa Elkholy
Department of Internal Medicine, Cairo University Faculty of Medicine, Cairo, Egypt

**O67** LIVING DONOR LIVER TRANSPLANTATION EXPERIENCE AT KHM (JORDAN)
Department of General Surgery, KHMC, Amman, Jordan

**O68** RESULTS OF LIVER TRANSPLANTATION OF ELDERLY PATIENTS: A SINGLE CENTER EXPERIENCE
Aydincan Akdur¹, Cihan Fidan², Hatice Ebru Ayyazoglu Soy³, Mahir Kırnap¹, Feza Yarbuğ Karakayali¹, Adnan Torgay³, Sedat Yildirim¹, Gökhan Moraya³, Mehmet Haberal¹
Departments of ¹General Surgery, ²Family Medicine, and ³Anesthesiology, Baskent University, Ankara, Turkey

**L34** Anwar Naqvi (Pakistan)
STARTING A DECEASED DONOR PROGRAM IN AN EMERGING ECONOMY

**L35** Robert Langer (Hungary)
INCREASING TRANSPLANTATION ACTIVITY IN HUNGARY AFTER JOINING EUROTRANSPLANT

**L36** Rashad Barsoum (Egypt)
EIGHT-YEAR OUTCOMES OF "THE CKC SEQUENTIAL PROTOCOL"

16:15-16:30  **Coffee Break**

16:30-18:00  **Parallel Session F1**
**Safir B Hall**
**International Experiences**

**Chairpersons**
Gerhard Opelz, Antoine Stephan

**L37** Abdelaziz Zeada (Jordan)
DONOR OUTCOME IN LIVING DONOR LIVER TRANSPLANT

16:30-18:00  **Parallel Session F2**
**Safir C Hall**
Liver Transplantation

**Chairpersons**
Abdel-Hadi Breizat, Ibrahim Astarcioğlu

16:30-18:00  **Parallel Session F3**
**Oniks Hall**
Urologic Problems in Kidney Transplantation

**Chairpersons**
Adibul Rizvi, Adam Uslu

**L38** Tuncay Aki (Turkey)
UROLOGICAL DISORDERS IN LIVING KIDNEY DONOR CANDIDATES: WHO IS ELIGIBLE, WHO IS NOT?
O70  THE IMPACT OF INSERTION OF DOUBLE J URETRAL STENT ON UROLOGICAL COMPLICATIONS IN RENAL TRANSPLANT RECIPIENTS: A SINGLE CENTRE EXPERIENCE
Rehan Mohsin, Nazish Ghazanfar, Asad Shahzad, Bux Ali, Murli Lal, Manzoor Hussain, Altaf Hashmi, S. Adibul Rizvi
Sindh Institute of Urology and Transplantation, Civil Hospital, Karachi, Pakistan

O71  DOES LOWER URINARY TRACT STATUS AFFECT RENAL TRANSPLANTATION OUTCOMES IN CHILDREN?
Fazıl Tuncay Akı, Ahmet Murat Aydın, Hasan Serkan Doğan, Muhammet İrfan Dönmez, İlhan Erkan, Serdar Tekgül
Department of Urology, Hacettepe University Faculty of Medicine, Ankara, Turkey

O72  THE EFFECT OF RENAL TRANSPLANTATION ON FERTILITY IN UREMIC MEN ON HEMODIALYSIS
M. R. Mohammadi Fallah1, Z. Bartani2
1The Nephrology and Kidney Transplantation Center, Urmia University of Medical sciences, Iran
2Department of Urology, Kermanshah University of Medical Sciences, Iran

O73  RECURRENT URINARY TRACT INFECTION AMONG RENAL TRANSPLANT RECIPIENTS: RISK FACTORS AND LONG TERM OUTCOME
Hamed Al-Essa Organ Transplant Center, Kuwait

O75  THE LONG TERM PATIENTS AND GRAFT SURVIVAL OF KIDNEY TRANSPLANT PATIENTS: AKDENIZ UNIVERSITY EXPERIENCE
Filiz Güneren1, Sema Akman1, Mustafa Koyun2, Zeki Ertuğ, Gültękn Süleymanlar4, Ayhan Dinçkan3, Hüseyin Koçak3
Departments of Infectious Diseases, Pediatrics, Anesthesiology, Nephrology, Transplantation Center, Akdeniz University Faculty of Medicine, Antalya, Turkey

O76  SURGICAL COMPLICATIONS OF RENAL TRANSPLANTATION AND RESULTS OF MANAGEMENT EXPERIENCE WITH 2100 CONSECUTIVE IN 2100 RECIPIENTS
Reza Mahdavi Zafarghandi, Mahmoud Tavakkoli, Rahim Taghavi, Masoud Mahdavi Zafarghandi
Urology ward, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

O77  POST-TRANSPLANT C-REACTIVE PROTEIN PREDICTS GRAFT FUNCTION IN KIDNEY TRANSPLANT RECIPIENTS
Bahar Gürlek Demirci1, Siren Sezer1, Turan Çolak1, Emre Tutar1, Mehmet Haberal2
1Departments of Nephrology, and 2General Surgery, Baskent University Faculty of Medicine, Ankara, Turkey

18:00-19:00  MESOT General Assembly
Safir B Hall

16:30-18:00  Parallel Session F4
Zirkon Hall
Kidney Transplantation

Chairpersons
Mona Al-Rukhaimi, Siren Sezer

L39  Lydia Benhocine (Algeria)
SURGICAL COMPLICATIONS AFTER RENAL TRANSPLANTATION

O74  ORGAN TRANSPLANTATION IN AZERBAIJAN
Mirjalal Kazimi, Eldar Ahmadov, Elnur Faracov
Surgery and Organ Transplantation Center, Central Hospital of Oil Workers, Baku, Azerbaijan
Friday, September 12

07:00-18:00  On-Site Registration

08:00-09:00  Plenary Session 5
  Safir B Hall

  Chairpersons
  Antoine Barbari, Abdullah Daar

L40  Jeremy Chapman (Australia)
THE FUTURE OF COMMUNICATION IN TRANSPLANTATION: PATIENTS, CLINICIANS AND SCIENTISTS

L41  Kathryn Wood (UK)
IMMUNOREGULATION IN TRANSPLANTATION – FROM MECHANISMS TO MEDICINE

09:00-09:15  Coffee Break

09:15-10:45  Parallel Session G1
  Safir B Hall
  Organ Donation and Procurement

  Chairpersons
  Francis Delmonico, Özcan Gökçe

L42  Francis Delmonico (USA)
THE COUNCIL OF EUROPE CONVENTION AGAINST ORGAN TRAFFICKING

L43  Jerzy Kupiec-Weglinski (USA)
TARGETING ORGAN ISCHEMIA-REPERFUSION INJURY TO EXPAND DONOR TRANSPLANT POOL

L44  Marti Manyalich (Spain)
TPM: THE SUCCESSFUL SPANISH MODEL. 25 YEARS’ EXPERIENCE

O78  EFFICACY AND SAFETY OF LAMIVUDINE AND/OR TENOFOVIR PLUS A YEAR OF HEPATITIS B IMMUNOGLOBULIN AGAINST HBV RECURRENT AFTER LIVER TANSPLANTATION
Hepatobiliary and Liver Transplantation Research Center, Tehran, Iran

O79  INTERLEUKIN 28B GENOTYPE AS A PREDICTOR OF RESPONSE TO THERAPY WITH PEGYLATED INTERFERON PLUS RIBAVIRIN IN HCV INFECTED EGYPTIAN PATIENTS
Mohammed Sherif Elhawary, Wael Mohammed Aref, Mona Mohammed Fathy, Mohammad El Sherbiny Abo Taleb
Department of Internal Medicine, Cairo University Faculty of Medicine, Cairo, Egypt

O80  HBV / HDV-RELATED LIVER TRANSPLANTATION RESULTS OF OUR PATIENTS: SINGLE-CENTER DATA
Serkan Öcal1, Murat Korkmaz1, Özgür Harmancı1, Fatih Ensaroğlu1, Aydincan Akdur2, Haldun Selçuk1, Gökhan Moray2, Mehmet Haberal2
Departments of ¹Gastroenterology and ²General Surgery, Baskent University Faculty of Medicine, Ankara, Turkey

O81  LATENT TUBERCULOSIS INFECTION IN LIVER TRANSPLANTATION OF ADULTS IN IRAN: CHEMOPROPHYLAXIS AND THE EFFECT ON SURVIVAL RATE
Gholamreza Pouladfar1, Roohollah Adelian2, Seyed Ali Malek Hosseini3, Seyed Mohsen Dehghani1, Parisa Janghorban1, Siavash Gholami1
¹Professor Alborzi Clinical Microbiology Research Center, Nemazee Hospital; ²Shiraz Student Research Committee; ³Shiraz Transplant Research Center, Nemazee Hospital, Shiraz University of Medical Sciences, Shiraz, Iran

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Gholamreza Pouladfar1, Roohollah Adelian2, Seyed Ali Malek Hosseini3, Seyed Mohsen Dehghani1, Parisa Janghorban1, Siavash Gholami1
¹Professor Alborzi Clinical Microbiology Research Center, Nemazee Hospital; ²Shiraz Student Research Committee; ³Shiraz Transplant Research Center, Nemazee Hospital, Shiraz University of Medical Sciences, Shiraz, Iran
**Parallel Session G3**
Oniks Hall
Pediatric Kidney Transplantation

**Chairpersons**
Anwar Naqvi, Esra Baskın

**L46**
Henry A.F. Stephens (UK)
IMMUNOGENETIC SURVEILLANCE OF RENAL TRANSPLANT REJECTION IN LONDON

**O82**
PREDICTORS OF CYTOMEGALOVIRUS INFECTION IN CHILDREN WITH RENAL TRANSPLANTATION, A SYSTEMATIC REVIEW AND META-ANALYSIS

Rozita Hoseini¹, Hasan Otukesh¹, Shirin Sayahfar¹, Nahid Rahimzadeh¹
Departments of ¹Pediatric Nephrology and ³Pediatric Infectious Disease, Pediatric Transplantation and Dialysis Research Center, Iran University of Medical Sciences, Tehran, Iran

**O83**
RENAL ALLOGRAFT BIOPSY FINDINGS IN 475 Pediatric Live Related RENAL TRANSPLANT PATIENTS FROM A SINGLE CENTER

Muhammed Mubarak, Javed Kazi, Tahir Aziz, Ali Lanewala, Sajid Sultan, S. Anwar Naqvi, S. Adibul H. Rizvi
Sindh Institute of Urology and Transplantation, Civil Hospital, Karachi, Pakistan

**O84**
OUTCOME AFTER RENAL TRANSPLANTATION IN PEDIATRIC PATIENTS: RESULTS OF 20 YEARS EXPERIENCE IN A SINGLE CENTER

Rahim Taghavi, Reza Mahdavi, M. Tavakkoli, Masih Naghibi, Farzane Sharifipoor, Fateme Nazemian, Abbasali Zerati
Kidney Transplantation Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

**O85**
eFFECTS OF INTERLEUKIN 2 RECEPTOR BLOCKERS ON PATIENT AND GRAFT SURVIVAL IN RENAL-TRANSPLANTED CHILDREN

Mostafa Sharifian, BanaÃ§eh Arad, Nasser Simforoosh, Abbas Basiri, Nasrin Esfandiar, Soudabeh Farhangi, Masoumeh Karamatkhah
Pediatric Nephrology Research Center (PNRC) and Pediatric Infections Research Center (PIRC), Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

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**Parallel Session G4**
Zirkon Hall
Viral Infections

**Chairpersons**
Marwan Masri, Hande Arslan

**L47**
Elmi Muller (South Africa)
HIV POSITIVE-TO-POSITIVE TRANSPLANTATION

**O86**
PREVALENCE OF BK VIRUS AMONG UNITED ARAB EMIRATES KIDNEY TRANSPLANT RECIPIENTS: A SINGLE CENTER RESULTS

Nephrology Division, Tawam Hospital, Al Ain, UAE

**O87**
MANAGEMENT AND OUTCOME OF BK VIREMIA IN RENAL TRANSPLANT RECIPIENTS: A PROSPECTIVE SINGLE CENTRE STUDY

Tahir Aziz, Rana Muzaffar, Fazal Akhtar, S. Anwar Naqvi, S. Adibul H. Rizvi
Sindh Institute of Urology and Transplantation, Civil Hospital, Karachi, Pakistan

**O88**
IMPACT OF CYTOMEGALOVIRUS ON ANGIOGENESIS IN RENAL ALLOGRAFTS AND ITS ASSOCIATION WITH INTERSTITIAL FIBROSIS AND GRAFT SURVIVAL

B. Handan Özdemir¹, F. Nurhan Özdemir³, Siren Sezer², Esra Baskın³, Mehmet Haberal⁴
Departments of ¹Pathology, ³Nephrology, ²Pediatric Nephrology, and ⁴General Surgery, Baskent University Faculty of Medicine, Turkey

**O89**
WHICH CMV VIRAL LOAD THRESHOLD SHOULD BE DEFINED AS CMV INFECTION IN KIDNEY TRANSPLANT PATIENTS?

Reza Hekmat, Hamid Eshraghi
Mashhad University of Medical Sciences, Tehran, Iran

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**Coffee Break**

**Parallel Session H1**
Safir B Hall
Stem Cell

**Chairpersons**
Megan Sykes, Balamurugan Appakalai

**L48**
Marwan Masri (Lebanon)
STEM CELL THERAPY: A BRIDGE TO TRANSPLANT
L49  Catherine Stavropoulos-Giokas (Greece)
CORD BLOOD BANKS: THE FUTURE

L50  Abdalla S. S. Awwdi (Jordan)
STEM CELL RESEARCH AND APPLICATIONS IN JORDAN

O90  DIFFERENTIATION OF UMBILICAL CORD DERIVED MESENCHYMAL STEM CELLS TO INSULIN PRODUCING CLUSTERS
Masumeh Nekui, Elaheh Esfandiari, Negar Azarpira
Shiraz Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

O94  RADIO-EMBOLIZATION USING YTTRIUM-90 MICROSHERES AS BRIDGING AND DOWNSTAGING TREATMENT FOR UNRESECTABLE HEPATOCELLULAR CARCINOMA PRIOR TO LIVER TRANSPLANTATION: INITIAL SINGLE CENTER EXPERIENCE
Mohamed R. Abdelfattah¹,³, Mohammed Al-Sebayel¹, H. Alsuaibani², Dieter Broering³
Departments of ¹Liver transplantation and Hepatobiliary Surgery and ²Radiology, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia; and ³Department of Hepatobiliary-Pancreatic Surgery, Faculty of Medicine, University of Alexandria, Egypt

11:00-12:30  Parallel Session H2
Safir C. Hall
Hepatocellular Carcinoma

Chairpersons
Refaat Kamel, Cüneyt Kayaalp

L51  Ibrahim Mostafa (Egypt)
LIVER TRANSPLANTATION FOR HCC: 12 YEARS EXPERIENCE

O91  RADIOThERAPY AS DOWN STAGING TREATMENT TO LIVING DONOR LIVER TRANSPLANTATION FOR HEPATOCellular CARCINOMA
Jinyong Choi, Seungrim Han, Dongkyu Oh, Jae-Won Joh
Department of General Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

O92  PREDICTORS OF TUMOR FREE SURVIVAL AFTER LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA
Saman Nikhefbalian¹, Alireza Shamsaeefar¹, Kourosh Kazemi², Heshmatollah Salahi², Siavash Gholami³, Nasrin Motazedian³, Goli Mehrrad¹, Seyed Ali Malehossein¹
¹Shiraz Organ Transplant Center and ²Shiraz HIV/AIDS Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

O95  POST-TRANSPLANTATION ANEMIA PREDICTS CARDIOVASCULAR MORBIDITY IN KIDNEY TRANSPLANT RECIPIENTS: A SINGLE CENTRE EXPERIENCE
Bahar Gürlek Demirci¹, Siren Sezer¹, Emre Tutar¹, Mehtap Erkmen Uyar¹, F. Nurhan Özdemir Acar, Mehmet Haberal³
¹Department of Nephrology, and ³General Surgery, Başkent University Faculty of Medicine, Turkey

O96  RENAL TRANSPLANTATION IN HTLV-1 RECIPIENTS: A SINGLE CENTRE STUDY
Reza Mahdavi Zafarghandi, Masih Naghibi, Fatemeh Nazemian, Mahmoud Tavakkoli, Alireza Ghoreifi
Department of Urology and Renal Transplant, Imam Reza Hospital, Mashhad University of Medical Sciences, Iran

O97  PERSISTENT HYPERCALCEMIA AFTER KIDNEY TRANSPLANTATION
Aygül Çeltik¹, Mümtaz Yılmaz¹, Meltem Seziş-Demirci³, Gülay Aşcı³, Abdülkerim Furkan Tamer¹, Cüneyt Hoşçökün², Hüseyin Toz², Erkan Ok²
Departments of ¹Internal Medicine, Division of Nephrology and ²General Surgery, Ege University, School of Medicine, Izmir, Turkey
O098 DUAL KIDNEY TRANSPLANTATION: SINGLE CENTER EXPERIENCE
Y. Aawsaj, D. Talbot, T. Dosani, G. Sen, C. Wilson, S. White, D. Manas
Freeman Hospital, Newcastle, UK

11:00-12:30 Parallel Session H4
Zirkon Hall
Pancreas, Intestine, Multivisceral Transplantation

Chairpersons
Hans Sollinger, Münci Kalayoğlu

L053 Akin Tékin (USA)
INTESTINAL AND MULTIVISCERAL TRANSPLANTATION; CURRENT STATUS AND LONG TERM RESULTS

O099 PROCUREMENT DAMAGE OF DCD PANCREAS ALONE GRAFTS IS IT A PROBLEM – A SINGLE CENTRE EXPERIENCE?
Rachael Coates
Freeman Hospital, Newcastle and the University of Newcastle, UK

O100 TOTAL PANCREATECTOMY FOLLOWED BY AUTOLOGOUS ISLET TRANSPLANTATION (TP-AIT) FOR THE TREATMENT OF REFRACTORY CHRONIC PANCREATITIS – A SINGLE CENTER EXPERIENCE
Rauf Shahbazov¹, Morihito Takita¹, Mazhar A. Kanak¹, Sharon G. Bruer², Faisal Kunnathodi¹, Michael C. Lawrence¹, Peter T. Kim², Nicholas Onaca², Bashoo Naziruddin², Marlon F. Levy²
¹Baylor Annette C. and Harold C. Simmons Transplant Institute, Dallas-Fort Worth; ²Islet Cell Laboratory, Baylor Research Institute, Dallas, Texas, USA

O102 PANCREATIC MACHINE ORGAN PERFUSION - EXPERIMENTAL MODELS USING
Karim Hamou³, Daniel Casanova³, Vassilios Papalois³
¹Department of Surgery, Imperial College London, UK; ²Department of Surgery, University of Cantabria, Santander, Spain; ³Imperial Renal and Transplant Centre, Hammersmith Hospital, London, UK

12:30-13:30 Lunch & Poster Rounds
Safir A Hall

13:30-14:30 Plenary Session 6
Safir B Hall

Chairpersons
Philip O'Connell, Faissal Shaheen

L054 Refaat Kamel (Egypt)
TWELVE YEARS EGYPTIAN EXPERIENCE IN LIVING DONOR LIVER TRANSPLANTATION

L055 Annika Tibell (Sweden)
LIVE KIDNEY DONATION – NEW CHALLENGES IN THE ERA OF GLOBALIZATION

14:30-14:45 Coffee Break

14:45-16:15 Parallel Session I1
Safir B Hall
Liver Transplantation, Biliary Reconstruction

Chairpersons
Hatem Khalaf, Sezai Yılmaz

L056 Murat Kılıç (Turkey)
DUCT-TO-DUCT BILIARY RECONSTRUCTION IN RIGHT LOBE LIVE DONOR LIVER TRANSPLANTATION

L057 Remzi Emiroğlu (Turkey)
BILIARY COMPLICATIONS: ARE THEY DESTINY?

L058 İbrahim Astarcıoğlu (Turkey)
EARLY AND LATE BILIARY COMPLICATIONS AFTER LIVING AND DECEASED DONOR LIVER TRANSPLANTATION: A SERIES OF 500 LIVER TRANSPLANTS
14:45-16:15  Parallel Session I2  
*Safir C Hall*  
Kidney Transplantation  

**Chairpersons**  
Nasser Simforoosh, Gökhan Moray

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**L59**  
Abdullah Daar (Canada)  
Can Regenerative Medicine Significantly Contribute to Addressing Organ Shortage in the Future?

**O103**  
Graft Function at the Time of Transplantation: Risk Factors and Impact on Long Term Outcome in Pediatric Renal Transplant Recipients  
Hamed Al Essa Organ Transplant Center, Kuwait

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**O104**  
Safety and Effectiveness of Bariatric Surgery in Dialysis Patients and Kidney Transplantation Candidates  
Mohammad H. Jamal, Ricard Corcelles, Christofer R. Daigle, Thomasz Rogula, Mathew Kroh, Philip R. Schauer, Stacy A. Brethauer  
Cleveland Clinic, Cleveland, OH, USA

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**O105**  
Impact of Body Mass Index on Kidney Transplant Recipients’ Outcome, Single Centre Experience  
S. Raza, A. Chabalous, I. Ahmadi, S. Khan, A. Basheer, T. Ali, A. Alyami, M. Altalhi, K.s Almeshari, A. Pall, H. Aleid  
Kidney and pancreas Department, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia

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**O106**  
Percutaneous Transluminal Balloon Angioplasty (PTA) in Transplanted Renal Artery Stenosis (TRAS) - A Developing Country Experience  
Syed Muhammad Faiq, Muhammad Farid, S. Adibul H. Rizvi  
Sindh Institute of Urology and Transplantation, Civil Hospital, Karachi, Pakistan

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14:45-16:15  Parallel Session I3  
*Oniks Hall*  
Heart, Lung, Uterus Transplantation  

**Chairpersons**  
Joren C. Madsen, Jacob Lavee, Atilla Sezgin

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**L60**  
Joren C. Madsen (USA)  
Successful Induction of Heart and Lung Tolerance in Large Animals  

**O107**  
The Effect of Waiting List Time on Risk of Death Post Lung Transplantation in Iran  
Fatemeh Sadat Hosseini Baharanchi¹, Ebrahim Hajizadeh¹, Katayoun Najafizadeh², Ahmad Reza Baghestani³, Shadi Shafaghi³  
¹Department of Biostatistics, Faculty of Medical Sciences, Tarbiat Modares University; ²Lung Transplant Research Center, Masih Daneshvari Hospital, NRITLD, and ³Department of Biostatistics, Faculty of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

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**O108**  
Maximal Information Component Analysis of Gene Expression in Advanced Heart Failure Patients Following Mechanical Circulatory Support Device  
Nicholas Wisniewski, Christoph Rau, Martin Cadeiras, Galyna Bondar, Mario Deng  
Department of Medicine, University of California Los Angeles, LA, USA

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**O109**  
Survival Rates in Iranian Lung Transplant Recipients and Associated Factors  
Fatemeh Sadat Hosseini Baharanchi¹, Ebrahim Hajizadeh¹, Katayoun Najafizadeh², Ahmad Reza Baghestani³, Shadi Shafaghi³  
¹Department of Biostatistics, Faculty of Medical Sciences, Tarbiat Modares University; ²Lung Transplant Research Center, Masih Daneshvari Hospital, NRITLD, and ³Department of Biostatistics, Faculty of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

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**O110**  
Clinical Uterus Transplantation Trial with Live Donors: Six Months Follow Up Report  
Randa Akouri, Liza Johannesson, Andreas Tzakis, Michael Olausson, Mats Brännström  
Department of Obstetrics and Gynecology, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden
**14:45-16:15 Parallel Session I4**  
Zirkon Hall  
Organ Procurement  

*Chairpersons*  
Jerzy Kupiec-Weglinski, Akin Tekin

**L61 Oleg N. Reznik (Russia)**  
UNCONTROLLED DONORS AFTER CARDIAC DEATH AND THEIR CONTROLLED REPERFUSION IN SITU AND EX VIVO: PROMISING APPROACH FOR EXPANDING DONORS’ POOL

**O111 IMPACT OF TRANSFER PROCESS ON PA02/FIO2 RATIO IN BRAIN DEAD POTENTIAL DONORS AND EFFECT OF RECRUITMENT MANEUVER ON ITS REVERSAL: A CONTROLLED CLINICAL TRIAL**  
Meysam Mojtabaei, Sahar Sajedi, Shadi Shafaghi, Javad Ghasemi, Seyed Keyhan Hadisadegh, Omid Gholbadi, Mohammad Jamali, Katayoun Najafizadeh  
Organ donation Research Center, Organ Donation and Transplantation Unit, National Research Institute of Tuberculosis and Lung Diseases, Shaheed Beheshti University of Medical Sciences, Tehran, Iran

**O112 TARGETED ANTI-COAGULATION AND ORGAN PRE-CONDITIONING IN EX-VIVO RENAL MACHINE PERFUSION MODELS**  
Karim Hamaoui¹, Richard Smith², Tony Dorling³, Vassilios Papalois²  
¹Department of Surgery, Imperial College London; ²MRC Centre for Transplantation, King’s College London; ³Imperial Renal and Transplant Centre, Hammersmith Hospital, London, UK

**O113 PPDDP, THE MAIN CAUSE OF INCREASING DETECTED POSSIBLE DONORS IN SBMU-OPU**  
Omid Gholbadi, Keyhan Hadisadegh, Mahdiyeh Hazrati, Hamid Reza Khoddami Vishteh, Katayoun Najafizadeh  
Lung Transplantation Research Center, Masih Daneshvari Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

**O114 MANAGEMENT WITH SYMPATHOMIMETIC AMINES IN BRAIN DEATH DONORS**  
Carmen Pantis, A.G. Mohan, Cristina Oana Daciava Teodoroscu  
Emergency Clinical County Hospital Oradea ICU, Oradea, Romania

**16:15-16:30 Coffee Break**

**16:30-18:00 Parallel Session J1**  
Safir B Hall  
Liver Transplantation  

*Chairpersons*  
Abdelaziz Zeadat, Feza Karakayalı

**L62 Alireza Bagheri (Iran)**  
LIVER TRANSPLANT FOR PATIENTS WITH ALCOHOLIC LIVER DISEASE: AN ETHICAL ANALYSIS

**O115 LIVER TRANSPLANTATION AND WHIPPLE SURGERY COMBINED WITH CHEMO-RADIOThERAPY FOR HILAR CHOLANGIOCARCINOMA IN THE CONTEXT OF PRIMARY SCLEROSING CHOLANGITIS**  
Saman Nikeghbalian, Ahad Eshraghian, Alireza Shamsaeefar, Koroush Kazemi, Ali Bahador, Heshmatollah Salahi, Seyed Ali Malek-Hosseini  
Organ Transplant Center, Namazi hospital, Shiraz University of Medical Sciences, Shiraz, Iran

**O116 LIVER AND KIDNEY TRANSPLANTATION IN PRIMARY HYPEROXALURIA: A SINGLE CENTER EXPERIENCE**  
Gökhan Moray¹, Tugan Tezcaner¹, Figen Özçay², Esra Başkın¹, Aydincan Akdur¹, Mahir Kirnap¹, Sedat Yıldırım¹, Gülnaz Arslan², Mehmet Haberal³  
¹Departments of ¹General Surgery ²Pediatric Gastroenterology, ³Pediatric Nephrology, and ³Anesthesiology, Baskent University, Ankara, Turkey

**O117 SEVERELY MALNOURISHED LIVING DONOR LIVER TRANSPLANT RECIPIENTS HAD POOR POST OPERATIVE OUTCOME**  
Mohamed Said⁴, Osama Fekry⁵, Walid Fouad⁶, Ayman Yosry⁷  
⁴Department of Endemic Medicine and Hepatology, ⁵Tropical Medicine Research Institute and Cairo University Faculty of Medicine, Cairo, Egypt

**O118 FIRST REPORT OF DOMINO LIVER TRANSPLANTATION IN IRAN**  
Organ Transplant Center, Namazi Hospital, Shiraz University of Medical Sciences, Shiraz, Iran
**16:30-18:00 Parallel Session J2**

**Safir C Hall**

**Kidney Transplantation**

**Chairpersons**

Rania Derani, Lydia Benhocine

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**L63 Aydin Dalgic (Turkey)**

ROBOT ASSISTED LIVING DONOR NEPHRECTOMY

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**O119**

RELATIONSHIP BETWEEN PHOSPHORUS LEVEL AND PEAK OXYGEN UPTAKE IN HEMODIALYSIS PATIENTS WHO ARE WAITING FOR RENAL TRANSPLANTATION

Boshra Hasanzamani¹, Maryam Hami¹, Mahin Ghorban Sabagh¹, Abbasali Zeraati¹, Farzaneh Sharifipour¹, Saba Khajehdargi²

¹Kidney Transplantation Complications Research Center, Montaserieh Hospital, Mashhad University of Medical Sciences, Mashhad; and ²Zahedan University of Medical Science, Zahedan, Iran

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**O120**

NON-DIPPING HYPERTENSION IN RENAL TRANSPLANT RECIPIENTS

Siren Sezer¹, Mehtap Erkmen Uyar¹, Zeynep Bal¹, Orhan Guliyev¹, Burak Sayin¹, Turan Colak¹, Nurhan Ozdemir Acar¹, Mehmet Haberal²

Departments of ¹Nephrology, and ²General Surgery, Baskent University Medical School, Ankara, Turkey

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**O121**

RECURRENTENCE OF DISEASES FOLLOWING RENAL TRANSPLANTATION—A SINGLE CENTRE STUDY

Tahir Aziz, Muhammad Mubarak, Fazal Akhtar, Ejaz Ahmed, S. Anwar Naqvi, S. Adibul H. Rizvi

Sindh Institute of Urology and Transplantation, Civil Hospital, Karachi, Pakistan

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**O122**

FIBROMYALGIA AND ITS CLINICAL RELEVANCE IN RENAL TRANSPLANT RECIPIENTS

Mehtap Erkmen Uyar¹, Siren Sezer¹, Zeynep Bal¹, Orhan Guliyev¹, Emre Tural¹, Bahar Gurlek Demirci¹, Nurhan Ozdemir Acar¹, Mehmet Haberal²

Departments of ¹Nephrology, and ²General Surgery, Baskent University Medical School, Turkey

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**16:30-18:00 Parallel Session J3**

**Oniks Hall**

**Transplantation Experiences and Outcomes**

**Chairpersons**

Rashad Barsoum, George Abouna

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**L64 Luis Toledo-Pereyra (USA)**

ALLOPURINOL IN ORGAN TRANSPLANTATION: FOUR DECADES LATER

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**L65**

Adibul H. Rizvi (Pakistan)

HLA IDENTICAL RENAL TRANSPLANTS: IMMUNOLOGICALLY PRIVILEGED WHY DO THEY FAIL?

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**O123**

HYPERURICEMIA AS A CARDIOVASCULAR RISK FACTOR IN RENAL TRANSPLANT RECIPIENTS

Mehtap Erkmen Uyar¹, Siren Sezer¹, Zeynep Bal¹, Orhan Guliyev¹, Turan Colak¹, Bahar Gurlek Demirci¹, Mehmet Haberal²

Departments of ¹Nephrology, and ²General Surgery, Baskent University Medical School, Ankara, Turkey

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**O124**

RISK ANALYSIS FOR SMALL-FOR-SIZE SYNDROME AND ACUTE RENAL INJURY AFTER LIVING DONOR LIVER TRANSPLANTATION

Yuzo Umeda, Takahito Yagi, Susumu Shinoura, Ryuichi Yoshida, Daisuke Nobuoka, Masashi Utsumi, Kousei Takagi, Toshiyoshi Fujiwara

Gastroenterological Surgery, Okayama University, Japan

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**16:30-18:00 Parallel Session J4**

**Zirkon Hall**

**Donation**

**Chairpersons**

Elmi Muller, Robert Langer

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**L66 Marti Manyalich (Spain)**

ODEQUIS - ORGAN DONATION EUROPEAN QUALITY SYSTEM
 **O125** KEEPING FAMILY CONSENT RATE FOR ORGAN DONATION UP TO 90% DURING LAST 2.5 YEARS BY PEIP METHOD
Omid Ghobadi, Keyhan Hadisadegh, Majid Dargahi, Maryam Moftakhari, Mohammad Jamali, Mahdieh Hazrati, Katayoun Najafizadeh
Lung Transplantation Research Center, Masih Daneshvari Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

**O126** TRAGIC COMPLICATIONS OF COMMERCIAL RENAL TRANSPLANTATION (CRT) AS A CONSEQUENCE OF DISREGARD OF THE PREOPERATIVE ADVERSE FACTORS OF RECIPIENTS AND DEFICIENT INVESTIGATION OF THE DONORS
Yousef Almaslamani, Riadh Fadhil, Abdalla Alansari, Omar Ali
Hamad Medical Corporation, Doha, Qatar

**O127** QUALITY AND QUANTITY OF KIDNEY DONORS HEALTH EVALUATION BEFORE AND AFTER DONATION IN IRAN
Nasrin Nikravan¹, Farzaneh Alimohammasi², Mohammad Reza Khatami²,³
¹Iran University of Medical Sciences; ²Transplant Unit, Imam Khomeini Hospital, and ³Nephrology Research Center, Tehran University of Medical Sciences, Tehran, Iran

**O128** THE BENEFITS OF TRANSPLANT PROCUREMENT MANAGEMENT (TPM) TRAINING ON PROFESSIONAL COMPETENCE DEVELOPMENT AND CAREER EVOLUTIONS OF DONATION AND TRANSPLANT RELATED HEALTH CARE WORKERS
Gloria Páez¹, Melania G. Istrate¹, Tyler R. Harrison¹, Ricardo Valero³, Susan E. Morgan¹, Quan Zhou¹, Martí Manyalich¹
¹Transplant Procurement Management (TPM)- Donation and Transplantation Institute (DTI), Barcelona, Spain; ²Bryan Lamb School of Communication, Purdue University, USA; ³Hospital Clinic de Barcelona, Barcelona, Spain

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**Saturday, September 13**

07:00-18:00  On-Site Registration

08:00-09:00  Plenary Session 7
* Safir B Hall
* Chairpersons
  Nadey Hakim, Nilgün Güvener

**L67** Hans Sollinger (USA)
GENE-THERAPY FOR DIABETES HOW CLOSE ARE WE?

**L68** Josep Lloveras (Spain)
COMPARATIVE ANALYSIS OF LONG TERM OUTCOME OF ELDERLY TRANSPLANTED PATIENTS FROM DECEASED DONORS OLDER THAN 65Y VERSUS THEIR PAIRED WAIT LISTED

09:00-09:15  Coffee Break

09:15-10:45  Parallel Session K1
* Safir B Hall
* Immunology
* Chairpersons
  David Sachs, Bilkay Baştürk

**L69** Walter Land (Germany)
HOW EVOLUTION TELLS US TO INDUCE ALLOTOLERANCE

**L70** Megan Sykes (USA)
MECHANISMS OF ALLOGRAFT TOLERANCE ACHIEVED WITH HEMATOPOIETIC CELL TRANSPLANTATION

**L71** M. Adel Bakr (Egypt)
TRENDS IN IMMUNOSUPPRESSION

09:15-10:45  Parallel Session K2
* Safir C Hall
* Liver Transplantation Outcome
* Chairpersons
  Mohammed Al-Sebayel, Remzi Emiroğlu

**L72** Nancy Kwan Man (Hong Kong)
THE IMPACT OF ACUTE PHASE LIVER GRAFT INJURY ON LATE PHASE TUMOR RECURRENCE AFTER TRANSPLANTATION
**O129** IS INTENTION TO TREAT FOR HCC A RISK FACTOR OF LIVER-TRANSPLANT OUTCOME?
Takahito Yagi
Hepato-Biliary and Pancreatic Surgery, Okayama University Hospital, Okayama, Japan

**O130** WHICH SCORING SYSTEM CAN BE BETTER PREDICTOR OF OUTCOMES AFTER LIVING DONOR LIVER TRANSPLANTATION
Amany Abdelmaqsoud Sholkamy¹, Mostafa Abdelrahman Elshazli², Mohammed Elsayed Elshafie³, Fatma Gaber Ibrahim⁴
Departments of ¹Internal Medicine, ²General Surgery, and ³Critical Care, Cairo University Faculty of Medicine, Cairo, Egypt

**O131** COMPARISON OF DIFFERENT SCORING SYSTEMS IN PREDICTING SHORT-TERM MORTALITY AFTER LIVER TRANSPLANTATION
Amany Abdelmaqsoud Sholkamy¹, Mostafa Abdelrahman Elshazli², Mohammed Elsayed Elshafie³, Fatma Gaber Ibrahim⁴
Departments of ¹Internal Medicine, ²General Surgery, and ³Critical Care, Cairo University Faculty of Medicine, Cairo, Egypt

**O132** OPTIMAL CENTRAL VENOUS PRESSURE DURING NEOHEPATIC PHASE TO DECREASE PEAK PORTAL VEIN FLOW VELOCITY FOR PREVENTING PORTAL HYPERPERFUSION IN THE PATIENTS UNDERGOING LIVING DONOR LIVER TRANSPLANTATION
JongHae Kim¹, JinYong Jung¹, Taeha Ryu¹, DongLak Choi², YoungSeok Han³, JooDong Kim³
Departments of ¹Anesthesiology and Pain Medicine, and ²Surgery, School of Medicine, Catholic University of Daegu, Daegu, Korea

**O133** EVALUATION OF TRANSPLANTED KIDNEYS WITH DIFFUSION-WEIGHTED MR IMAGING: INITIAL EXPERIENCE
Ümit Öçelik¹, Halime Çevik², Hüseyin Yüce Bircan¹, Bora Koç¹, İclal Işıkla², Alp Demirci³, Gökhân Moray¹
Departments of ¹General Surgery and ²Radiology, Baskent University Faculty of Medicine, Turkey

**O134** OUTCOME OF LIVING RELATED RENAL GRAFTS WITH MULTIPLE ARTERIES: A SINGLE CENTER EXPERIENCE FROM A DEVELOPING COUNTRY
Bux Ali, Zaid Sophie, Mohsin Rehan, Asad Shahzad, Muhammad, Khan, Altaf Hashmi, Zafar Hussain, Adibul Rizvi
Sindhi Institute of Urology and Transplantation, Civil Hospital, Karachi Pakistan

**O135** COMPARISON OF GRAFT SURVIVAL BETWEEN FIRST AND SECOND KIDNEY TRANSPLANTATION
Jamshid Roozbeh¹, Ali Bahador², Saman Nikheghbalian², Seyed Ali Malekosseini²
¹Nephro-Urology Research Center, ²Transplant Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

**O136** OUTCOMES OF RENAL TRANSPLANTATION AFTER END-STAGE RENAL DISEASE DUE TO DIABETIC NEPHROPATHY: A SINGLE-CENTER EXPERIENCE³ SALMANIYA MEDICAL COMPLEX
Sumaya M. Al-Ghareeb, Amgad E. El-Agroudy, Sameer M. Alarrayed, Eman Farid, Hamad A. Alhellow, Sadiq Abdullah
Nephrology and Transplant Unit, Salmaniya Medical Complex, Bahrain

**09:15-10:45** **Parallel Session K3**
**09:15-10:45** **Parallel Session K4**
**Parallel Session K3**
Oniks Hall
Kidney Transplantation

**Chairpersons**
Aydın Dalgıc, Kenan Çalışkan

**L73** Nasser Simforoosh (Iran)
KIDNEY TRANSPLANTATION; BALANCE BETWEEN CADAVER AND LIVING TRANSPLANTATION; CHANGING TRENDS ARE DIFFERENT IN DIFFERENT CONTINENTS

**L74** Mirela Bušić (Croatia)
SOUTH EAST EUROPEAN HEALTH NETWORK INITIATIVE IN DECEASED ORGAN DONATION AND TRANSPLANTATION UNDER CROATIAN LEADERSHIP
THE ASSOCIATION BETWEEN POLYOMAVIRUS BK REPLICATION AND NEPHROPATHY USING REAL TIME PLASMA PCR METHOD IN KIDNEY TRANSPLANT PATIENTS
Jamshid Roozbeh1, Ali Bahador2, Heshmat Salahi2, Saman Nikeghbalian2, Seyed Ali Malekhosseini2
1Nephro-urology Research Center, 2Transplant Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

POLYOMAVIRUS NEPHROPATHY: PROGNOSTIC IMPORTANCE OF HISTOPATHOLOGICAL FINDINGS AND RECENT GRADING SCHEMA THAT WAS PROPOSED BY POLYOMAVIRUS WORKING GROUP IN 10TH BANFF CONFERENCE
B. Handan Özdemir1, F. Nurhan Özdemir2, Esra Baskın1, Ayşen Terzi1, Şebnem Ayva1, Mehmet Haberal1
Departments of 1Pathology, 2Nephrology, 3Pediatric Nephrology, and 4General Surgery, Baskent University Faculty of Medicine, Turkey

MANAGEMENT OF BK POLYOMAVIRUS IN KIDNEY TRANSPLANT RECIPIENTS AT THE ROYAL HOSPITAL – OMAN
Fatma Al-Raisi1, Mohsin Nabil2, Kamble Pramod1
1Department of Nephrology, Royal Hospital; 2Department of Nephrology, SQUH Muscat, Oman

PROGRESSION OF HEPATIC HISTOPATHOLOGY IN RENAL TRANSPLANT RECIPIENTS WITH CHRONIC HCV INFECTION AND EFFECT OF IMMUNOSUPPRESSION ON THE COURSE OF HCV INFECTION
Murat Korkmaz1, Sevgül Fakı2, Serkan Öcal1, Özgür Harmancı1, Haldun Selçuk1, Mehmet Haberal1
Departments of 1Gastroenterology, 2Internal Medicine, and 3General Surgery, Baskent University Faculty of Medicine, Ankara, Turkey

10:45-11:00   Coffee Break

11:00-12:30   Parallel Session L1
Safir B Hall
Liver Transplantation

Chairpersons
Münci Kalayoğlu, Ahmet Gurakar

Balamurugan Appakalai (USA)
UPDATES ON ISLET CELL TRANSPLANTATION FOR THE TREATMENT OF DIABETES

RISK FACTORS FOR INVASIVE FUNGAL INFECTION AFTER LIVING DONOR LIVER TRANSPLANT: THE MELD SCORE AND ACUTE RENAL INJURY
Masashi Utsumi, Yuzo Umeda, Kosei Takagi, Takashi Kuise, Ryuichi Yoshida, Susumu Shinoura, Hiroshi Sadamori, Toshiyoshi Fujiwara, Takahito Yagi
Department of Gastroenterological Surgery, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama City, Japan

IS THERE ANY RELATIONSHIP BETWEEN PRETRANSPLANT IRON LOAD AND EARLY POST OP INFECTIONS
Mozhgan Zahmatkeshan1, Aslan Amirian1, Saman Nikeghbalian2
1Department of Pediatrics, 2Organ Transplant Center, Namazi Hospital, Shiraz University of Medical Science, Shiraz, Iran

SIGNIFICANCE OF NUTRITIONAL ASSESSMENT AND NUTRITIONAL SCREENING TOOLS IN PREDICTING COMPLICATIONS OF LIVER CIRRHOSIS
Sherif Mogawer, Mona Mansour, Enas Mogawer, Heba Sherif, Shaimaa Elkholy
Department of Internal Medicine, Cairo University Faculty of Medicine, Cairo, Egypt

GRAFT VERSUS HOST DISEASE AFTER LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE
Hussien Elsiesy, Ibrahim Abeer, Mohammed Al Sebayel, Waleed Alhamoudi, Faisal Abaalkhail
Liver Transplantation, King Faisal Specialist Hospital-D, Riyadh, Saudi Arabia
11:00-12:30  Parallel Session L2
Safir C Hall
Kidney Transplantation, Rejection

Chairpersons
Gabriel Danovitch, Nurhan Özdemir

L76  Antoine Barbari (Lebanon)
NEPROTOXICITY OF MODERN IMMUNOSUPPRESSANTS: FACT OR FICTION

O145  REGIONAL ANESTHESIA AND RENAL ALLOGRAFT REJECTION AFTER RENAL TRANSPLANTATION
Şule T. Balç, Arash Pirat, Adnan Torgay, Gökhan Moray, Gülnaz Arslan, Mehmet Haberal
Department of Anesthesiology, Baskent University Faculty of Medicine, Ankara, Turkey

O146  EFFICACY OF TANDEM HEMODIALYSIS AND IMMUNOADSORPTION TO DESENSITIZE KIDNEY-TRANSPLANT CANDIDATES
Lionel Rostaing, Sébastien Maggioni, Corinne Hecht, Martine Hermelin, Eric Faubel, Nassim Kamar, Asma Allal
Department of Nephrology and Organ Transplantation, University Hospital Toulouse, France

O147  EARLY DIAGNOSIS AND SUCCESSFUL MANAGEMENT OF ACUTE HUMORAL REJECTION VIA REGIONAL TISSUE OXYGEN SATURATION PROBE
Şule T. Balç, Dilek Altun, Özlem Çınar, Ümit Özçelik, Halime Çevik, Ayda Türköz, Alp Demirâğ
Department of Anesthesiology, Baskent University, Istanbul, Turkey

O148  INFLUENCE OF SIMVASTATIN ON ANGIOGENESIS AND INTERSTITIAL FIBROSIS IN RENAL ALLOGRAFTS THAT WERE UNDER SIMVASTATIN THERAPY PRE AND POST TRANSPLANTATION FOR THE TREATMENT OF SENSITIZATION
B. Handan Özdemir2, Nurhan Özdemir2, Gökhan Moray1, Mehmet Haberal1
Departments of 1Pathology, 2Nephrology and 3Transplant Surgery, Baskent University, Faculty of Medicine, Turkey

11:00-12:30  Parallel Session L3
Oniks Hall
Immunology

Chairpersons
Henry A. F. Stephens, Ali İnal

L77  David Sachs (USA)
BRINGING TRANSPLANTATION TOLERANCE TO THE CLINIC

O149  T REGULATORY CELLS IN CHRONIC RENAL REJECTION VERSUS STABLE ALLOGRAFT
Fatima Al-Wedaie1,2, Eman Farid1,2, Khaled Tabbara1, Amgad E. El-Agroudy1, Sumaya M. Al-Ghareeb1
1Department of Microbiology & Immunology, College of Medicine, Arabian Gulf University, 2Department of Pathology, and 3Department of Nephrology, Salmaniya Medical Complex, Manama, Kingdom of Bahrain

O150  USING LNA-ARRAY FOR DETECTING THE REGULATORY MICRO RNAS IN LIVER TRANSPLANT PATIENTS
Padideh Ebadi1, Bita Geramizadeh1, Saman Nikeghbalian1, Mohammad Hossein Karimi1, Afsun Afshari1
1Islamic Azad University, Kazerun branch, Kazerun; and 2Transplant Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

O151  BORDERLINE CHANGES ON DYSFUNCTIONAL RENAL ALLOGRAFT BIOPSIES: CLINICAL RELEVANCE IN A LIVE RELATED RENAL TRANSPLANT SETTING
Muhammad Mubarak, Tahir Aziz, Mirza Naqi Zafar, S. Anwar Naqvi, S. Adibul H. Rizvi
Departments of Histopathology, Clinical Chemistry, Nephrology and Urology, Sindh Institute of Urology and Transplantation, Karachi, Pakistan

O152  MHCI+ REGULATORY CD8+ T CELLS INDUCED BY TROGOCYTOSIS, A CHIMERIC SUBSET AND A BRIDGE TO IMMUNE TOLERANCE
Xian Liang Li, Dong Dong Han, Ping Li, Fei Pan, Jian Tao Kou, Hua Fan, Qiang He
The HBP department, Bei Jing Chao Yang Hospital, the Capital Medical University
11:00-12:30  Parallel Session L4
Zirkon Hall
General Topics

Chairpersons
Lina Assad, Oleg N. Reznik

L78  Rania Derani (Syria)
WOMEN IN TRANSPLANTATION IN SYRIA

O153  SPECTRUM OF HISTOPATHOLOGIC DIAGNOSIS OF LYMPH NODE BIOPSIES AFTER LIVER AND KIDNEY TRANSPLANTATION
Eylem Akar Özkan, B. Handan Özdemir, Funda Gerçeker, Mehmet Haberal
Department of Pathology, Baskent University Faculty of Medicine, Ankara, Turkey

O154  BONE MARROW INVOLVEMENT BY LYMPHOPROLIFERATIVE DISORDERS AFTER SOLID ORGAN TRANSPLANTATION
Eylem Akar Özkan, B. Handan Özdemir, E. Ebru Deniz, Mehmet Haberal
Department of Pathology, Baskent University Faculty of Medicine, Ankara, Turkey

O155  BONE MINERAL DENSITOMETRY AND EFFECTING FACTORS IN PATIENTS WITH THE SUCCESSFUL RENAL TRANSPLANTATION OUTCOME
Müjdat Batur Canöz
Ankara, Turkey

O156  THE VISUAL AND REFRACTIVE OUTCOME OF COMBINED PENETRATING KERATOPLASTY, CATARACT EXTRACTION, AND INTRAOCULAR LENS INSERTION
Dilek D. Altınörs, Leyla Asena
Department of Ophthalmology, Baskent University, Ankara, Turkey

12:30-12:45  Coffee Break

12:45-14:15  Parallel Session M1
Safir B Hall
Hepatology

Chairpersons
Haldun Selçuk, İnci Süleymanlar

L79  Saleh Alqahtani (USA)
TREATMENT OF HEPATITIS C INFECTION WITH SOFOSBUVIR AND/OR SIMEPREVIR FOLLOWING LIVER TRANSPLANTATION: A PRELIMINARY REPORT

12:45-14:15  Parallel Session M2
Safir C Hall
Pediatric Kidney Transplantation

Chairpersons
Atsushi Aikawa, Alp Demirağ

L80  Sola Aoun Bahous (Lebanon)
ORGAN AND TISSUE PROCUREMENT AS PART OF THE CURRICULUM OF THE MEDICAL AND NURSING SCHOOLS
O161 PARENTS FUNCTION AND BEHAVIORAL DISORDERS IN CHILDREN WITH AND WITHOUT RENAL TRANSPLANT RECIPIENTS: A COMPARATIVE STUDY
Parsa Yousefichaijan1, Parvin Soltani2, Farshid Haghverdi2, Babak Saeedi2, Bahman Salehi3, Mojtaba Sharafkhah4, Hassan Taherahmadi1
Departments of 1Pediatrics, 2Internal Medicine, 3Psychiatry, and 4Students Research Committee, School of Medicine, Arak University of Medical Sciences, Arak, Iran

O162 INTRACELLULAR ADHESION MOLECULE-1 (ICAM1) GENE POLYMORPHISM ALLOGRAFT OUTCOME IN PEDIATRIC RENAL TRANSPLANT PATIENTS
Yunus Kasım Terzi1, Feride İffet Şahin1, Kaan Savaş Gülleroğlu1, Ashlı Kantar6, Esra Baskın2, Gökhan Moray3, Mehmet Haberal1
Departments of 1Medical Genetics, 2Pediatric Nephrology, and 3General Surgery, Baskent University, Ankara, Turkey

O163 RELATION BETWEEN TOLL-LIKE RECEPTOR-4 GENE T399I POLYMORPHISM AND INFECTIONS IN PEDIATRIC PATIENTS WITH RENAL TRANSPLANTATION
Kaan Savaş Gülleroğlu1, Yunus Kasım Terzi2, Ashlı Kantar1, Esra Baskın1, Feride İffet Şahin1, Gökhan Moray3, Mehmet Haberal1
Departments of 1Pediatric Nephrology, 2Medical Genetics, and 3General Surgery, Baskent University, Ankara, Turkey

O164 HEAT SHOCK PROTEIN-72 A(1267) GENE POLYMORPHISM AND ALLOGRAFT OUTCOMES
Kaan Gülleroğlu1, Esra Baskın1, Feride Şahin1, Ashlı Kantar1, Gökhan Moray3, Mehmet Haberal1
Departments of 1Pediatric Nephrology, 2Genetics, and 3General Surgery, Baskent University, Ankara, Turkey

12:45-14:15 Parallel Session M3
Oniks Hall
Kidney Transplantation

Chairpersons
Adel Bakr, Gültekin Süleymanlar

O165 SAFETY AND COST-EFFECTIVENESS OF TANDEM HEMODIALYSIS AND IMMUNOADSORPTION TO DESENSITIZE KIDNEY-TRANSPLANT CANDIDATES
Sébastien Maggioni, Asma Allal, Corinne Hecht, Eric Faubel, Martine Hermelin, Nassim Kamar, Lionel Rostaing
Department of Nephrology and Organ Transplantation, University Hospital Toulouse, France

O166 HIGH PREVALENCE OF POST TRANSPLANT DONOR SPECIFIC HLA-DQ ANTIBODY IN LIVE RELATED RENAL TRANSPLANTATION: IS IT TIME TO EXTEND TYPING TO HLA-DQ IN RENAL TRANSPLANTATION
Mirza Naqi Zafar, Khawar Abbas, Rabia Fawad, S. Adibil H. Rizvi
Sindh Institute of Urology and Transplantation, Civil Hospital, Karachi, Pakistan

O167 A STUDY OF POLYMORPHISM OF CYP3A5 GENE AND ITS EFFECT ON TACROLIMUS BLOOD LEVEL
Noble Gracious, Jacob George, Sreeja S. Nair
Government Medical College, Thiruvananthapuram, Kerala, India

O168 ONE AND TWO-YEAR RESULTS OF LCP-TACRO (ONCE-DAILY MELTDOWN TACROLIMUS TABLETS) VS PROGRAF (TWICE DAILY TACROLIMUS CAPSULES): PHASE 3, DOUBLE-BLIND, DOUBLE-DUMMY, MULTI-CENTER, PROSPECTIVE, RANDOMIZED STUDY: IN DE NOVO ADULT KIDNEY TRANSPLANT RECIPIENTS
Lionel Rostaing1, Kazimierz Ciechanowski2, Suphamai Bunnapradist3, H. Tedesco Silva Jr4, Josep M Grinyó5, Klemens Budde6
1Hôpital de Rangueil/Larrey, Toulouse, France; 2Department of Nephrology, Transplantology and Internal Medicine, Pomeranian Medical University, Szczecin, Poland; 3David Geffen School of Medicine at UCLA, Los Angeles, CA, USA; 4Hospital do Rim, São Paulo, Brazil; 5Hospital Universitari de Bellvitge, University of Barcelona, Spain; 6Department of Nephrology, Charité University, Berlin, Germany
12:45-14:15 Parallel Session M4
Zirkon Hall
Kidney Transplantation

Chairpersons
Esra Baskın, Aytül Noyan

L81 Bassam Saeed (Syria)
THE IMPACT OF SYRIAN CRISIS ON ORGAN TRANSPLANTATION IN SYRIA

O169 EFFICACY OF IMMUNOADSORPTION TO REDUCE DONOR-SPECIFIC ALLOANTIBODIES (DSA) IN KIDNEY-TRANSPLANT (KT) CANDIDATES
Lionel Rostaing¹, Nicolas Congy²,
Alice Aarnink², Sébastien Maggioni¹,
Asma Allal¹, Nassim Kamar¹
¹Department of Nephrology and Organ Transplantation, ²Laboratory of Histocompatibility, University Hospital Toulouse, France

O170 INDUCTION OF CHEMOKINES WITH EXOGENOUS OXIDATIVE STRESS IN HUMAN PROXIMAL TUBULAR
A. Kumar¹, F. Mc-Cardle², R. Rustom³,
S. E. Christmas³
¹Transplant Unit, Royal Liverpool University Hospital;
²Musculoskeletal Biology, Institute of Ageing and Chronic Disease; ³Department of Clinical Infection, Microbiology & Immunology, IGH, University of Liverpool, UK

O171 ACUTE ANTIBODY-MEDIATED REJECTION IN PAEDIATRIC RENAL TRANSPLANT RECIPIENTS: KUWAIT EXPERIENCE
O. Gheith, T. Al-Otaibi, M. R. N. Nampoory,
A. Mosaad, S. Al-Waheeb, M. Halim, T. Saied,
M. Balaha, W. Hosni, H. Abu-Ateya, P. Nair
Hamed Al-Essa Organ Transplant Center, Kuwait
Abstracts

14th Congress of the Middle East Society for Organ Transplantation

5th Middle East Transplant Games 2014

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Middle East Society for Organ Transplantation
Gene and stem cell therapy has been on the scientific agenda in many laboratories for more than 20 years. The literature is enormous but practical applications have been few. Recently advances in stem biology and gene therapy are clarifying some of the issues. I have made a few observations concerning our own studies on bone marrow mesenchymal stem cells cultured to produce a small percentage of insulin-producing cells and human insulin gene engineered into Lenti and AA viruses. The aim of clinical application would still seem to be several years away, if all goes well. The first step will be to produce enough insulin-secreting cells to be of potential value to patients. The next crucial question will be how to persuade the cells to respond to blood glucose levels swiftly and appropriately. With both stem cell and gene therapy another important factor will be to ensure that any positive results will continue long enough to be preferable to insulin injections.

Organ transplantation in Iran has been started with kidney transplantation in Shiraz (Namazi hospital) in 1967, but it was not very active till 1980 that kidney transplantation was started again in Tehran from living donor (related and unrelated). However, transplantation in Iran was not developed well till 1993 that deceased donor organ transplantation was initiated in Shiraz and simultaneously liver transplantation was started. Especially after approving the brain dead law in the parliament in 2000; transplantation has been developed rapidly in Shiraz and Iran. In Shiraz Center, most efforts were concentrated on deceased donor donation and after few years we have organized a network firstly in Shiraz and thereafter across the country to increase brain dead donation as much as possible. During these years we could cross many important barriers such as cultural, religious and social issues, so the rate of donation in Iran reached from 2 pmp in 2000 to 12 pmp in 2012. In recent years, our organ transplantation program has been expanded in numbers and the varieties of transplanted organs. This improvement is related to our multidisciplinary strategies to expand the donor pool and the experiences obtained during our transplant activities. The results of these activities in our center are, more than 2350 liver transplantations since 1993 (in the last year we have performed 500 liver transplantations), 3350 kidney, 155 pancreas and 30 multivisceral and small bowel transplantations.

Since the first successful liver transplant in 1964, significant improvements in patient survival have occurred - current one-year liver transplant patient survival rates approach 90%. The major advance in donor management came with the acceptance of the concept of "brain death", which equate complete cessation of cortical and brain stem function with the ultimate demise of organ function. Stringent clinical and diagnostic examinations assure potential donor safety and advocacy. Following declaration of death and consent for donation, careful management of donor physiologic parameters optimizes allograft function and thus recipient outcomes following transplantation. The goal is to achieve maintain adequate circulatory, oxygenation, and metabolism prior to organ procurement. This can be difficult in the face of cardiac instability, neurogenic shock, unstable intravascular fluid status, loss of the normal hormonal milieu, and depletion of high-energy stores for organ function. The improvement in quality of life and prolongation of life have led to increasing utilization of liver transplantation and an increasing disparity between the number of candidates awaiting liver transplantation and the number of available donors. In this light, utilization of donors, that in the past were not considered, has been reassessed. An "expanded criteria donor" (ECD) is one in whom certain characteristics impart either real or perceived short and/or long-term risk to the recipient. In particular, these have focused on trying to identify and define ECD. Recognizing that the practice of liver transplantation has already begun to utilize certain types of characteristics that would have previously been considered ECD, there are still classes of donors that are considered ECD. Using retrospective multivariate analysis of the large Scientific Registry of Transplant Recipients (SRTR), using a relatively limited set of parameters that are routinely collected by UNOS, the expanded criteria donor (ECD) is a deceased organ donor whose organs have an increased risk of failure when compared to the organs from an ideal or non-ECD donor. Although there has been presentation of data at the national level about the ECD livers, there is no universally accepted
definition of an ECD liver. In the literature, the following qualities of an ECD liver and the risk of graft failure have been associated with the following characteristics:

- Medical history of systemic illness such as malignancy;
- Social history of exposure to transmissible infectious disease;
- Pre-donation course of hemodynamic instability;
- Serological evaluation of viral infection;
- Evidence of less than optimal liver function prior to surgical recovery;
- Adverse intra-operative recovery events;
- Degree of post-recovery biopsy results;
- Age;
- Cause of death, especially donation after cardiac death.

As the use of ECD has increased, the appropriate selection of recipients for such livers has not been clarified and has been left to liver transplant program experience and philosophy. The ability to quantify the risk of a particular donor has evolved to the definition of a liver donor risk index, or LDRI, defined by the following formula:

\[
\text{Donor Risk Index} = \exp[(0.154 \text{ if 40> age <50}) + (0.274 \text{ if 50> age <60}) + (0.424 \text{ if 60> age <70}) + (0.501 \text{ if 70> age}) + (0.079 \text{ if COD = anoxia}) + (0.145 \text{ if COD = CVA}) + (0.184 \text{ if COD = other}) + (0.176 \text{ if race = African-American}) + (0.126 \text{ if race = other}) + (0.411 \text{ if DCD}) + (0.422 \text{ if partial/split}) + (0.066 \ast ((170 - \text{height})/10)) + (0.105 \text{ if regional share}) + (0.244 \text{ if national share}) + (0.010 \ast \text{cold time}).
\]

However, it should be noted that there are other characteristics that indicate a potential for a higher rate of graft failure, not identified by the SRTR analysis, simply to lack of available data or a small number of cases. These characteristics are:

- Degree of macrosteatosis;
- Donor hypernatremia patterns prior to procurement;
- Status of donor arterial atherosclerosis

A growing international experience using these donors has shown that the outcome of DCD livers has been poorer than for heart beating donors, but still acceptable – the primary risks are higher risk of hepatic artery thrombosis, primary non-function and ischemic biliary strictures. The experience with DCD has shown that almost three times as many DCD livers (up to 35-50% of livers) will suffer from ischemic-type biliary strictures (ITBS) as compared to DBD livers. This is due to the unique nature of blood supply for the bile duct, which depends solely on hepatic artery blood supply via a vascular plexus assuring bile duct viability. A protocol based on the effect of tissue plasminogen activator (TPA) administration into the donor hepatic artery in DCD livers at the time of transplantation support the concept that the administration of TPA in the donor hepatic artery has the potential to lower the risk of ITBS in DCD livers in a scenario of significant warm ischemia.

As the waiting list for organ transplant continues to increase (almost 20,000 liver candidates as of 2014), the need to increase the number of donor livers will become more apparent. As more experience in the utilization of ECD is gathered, one should be careful not to use this information merely as a means to cull “blue ribbon donors”, but serve as an impetus to further expand our knowledge of biologic or physiologic alterations in these donors, which can be minimized by newer technology, such as with machine preservation. In this manner, “expanded criteria donors” should be viewed as a means to help alleviate the organ shortage.

**L4**

**DECEASED DONOR PROGRAMS AND ORGAN SHARING IN MESOT COUNTRIES: WHERE TO GO?**

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Saudi Center for Organ Transplantation, Riyadh, Saudi Arabia

There are 29 countries that have the membership of the Middle East Society for Organ Transplantation (MESOT). These include the Arab Countries, Iran, Turkey, Pakistan, and countries of Central Asia. There are common features of organ transplantation in the MESOT countries that include inadequate preventive medicine, uneven health infrastructure, and poor awareness of the medical community and public at large of the importance of organ donation and transplantation. Patients seek commercial transplantation most of the time. Patients on waiting list increase with time, and there is a growing gap between demand and supply. Establishing a network for organ sharing in the countries of the MESOT countries requires the availability of several tools such as governmental support, religious and culture approval, and establishment of national centers in each MESOT country in order to implement local transplantation programs and supervise organ donation, especially the deceased source for organs. A few MESOT countries have these elements available such as Saudi Arabia, Kuwait, Tunisia, Lebanon, Turkey, and Iran. They can be used as models for both improvement of organ transplantation and organ sharing such as the Saudi Center for Organ Transplantation (SCOT) and the Gulf Cooperation Council (GCC) organ sharing network. There are many obstacles that need to be surmounted in the MESOT Countries such as funding of the transplant programs, establishment of national centers to supervise organ donation and transplantation, and settle the prolonged debates about the legitimacy of organ donation and transplantation. Increasing the awareness of the public and the medical community about the importance of organ donation and transplantation are indispensable to overcome the current obstacles and getting us closer to our dream of establishing a network for organ sharing.
INITIAL PROCEEDINGS: METABOLIC PHENOTYPING THE RENAL TRANSPLANT SURGICAL JOURNEY

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Successful renal transplantation not only improves patients' quality and duration of life, but also confers a substantial economic healthcare cost saving. With the growing burden of end-stage renal disease and the requirement for renal replacement therapy, strategies to augment transplant success and subsequent graft survival become more vital than ever. Growing in prominence, Systems Biology represents one such powerful strategy, and in particular the field of metabolomics. [67]

Originally defined as 'the quantitative measurement of the time-related multi-parametric metabolic response of living systems to pathophysiological stimuli or genetic modification' [1], metabolomics has recently been proven as a successful, pragmatic and exciting application for clinical and surgical environments [2]. The value of employing a metabolic profiling approach in transplantation, to characterise both kidney and liver transplants in terms of associating graft outcome to biological sample analysis by nuclear magnetic resolution (NMR) and/or mass spectrometry (MS), has shown promising potential (despite still being in its infancy). [86]

To complement, a unique study has been establish to metabolically phenotype prior to (24 h) and post (days 1–5) surgery living donor renal transplantsations performed at the Imperial College NHS Trust Renal & Transplant Centre (London, UK). Using a multi-platform analytical strategy (i.e., combined NMR, MS and chemometrics), donor and recipient (n = 100) urine and plasma metabolic profiles will be integrated and modelled, with the ultimate aim to devise an objective means of characterising renal function post-transplantation and to stratify patients on the basis of likelihood of complications (such as delayed graft function, rejection episodes or disease recurrence). [100]

The presentation will focus on the initial proceedings and preliminary findings of the study, with a refined aim to provide a complete overview of an untapped NMR metabonomic workflow. As a common starting strategy in exploratory metabotyping, global 1D 1H NMR analysis of both urine and plasma samples will be demonstrated, along with the subsequent multivariate approaches necessary to successfully interpret and correlate markers or patterns that define specific groupings. Both unsupervised, such as principal components analysis (PCA), and supervised, such as partial least squares/projections to latent structures (including potential orthogonal signal correction) regression and discriminant analysis ([O-]PLS-[DA]), chemometric techniques will be discussed as a means to identify sub-populations attributed to numerous causes, both endogenous and exogenous metabolites, for example, from underlying physiology, to clinical comorbidities and even therapeutic drug administration. [131]

Ultimately, it is hoped that the research will not only look to increase the understanding of biochemical changes/signatures post transplantation, but also develop a predictive algorithm for the early detection of renal dysfunction useful to inform decision making in the clinic on the individual, personalized level. [44]

References

PEDiATRICTRANSPLANTATION: AN UNEXPECTED JOURNEY

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The development of Pediatric transplantation has required continuous refinements in the management of end organ disease, surgical technique, and perioperative care. The development of better immunosuppressive management (cyclosporin in 1978 and tacrolimus in 1989) and enhancements in our understanding of the relationship between recipient and host immune systems have resulted in better long-term survival. Parallelising this, advancements in the organ procurement techniques and organ preservation solutions have made possible the procurement and transportation of organs over long distances, with the creation of a national system for sharing these pediatric donor organs with waiting recipients (the Organ Procurement and Transplantation Network [OPTN] and the United Network for Organ Sharing[ UNOS]).

With improved outcomes the indications for organ replacement in acute and chronic disease of abdominal and thoracic organs has expanded, yet the waitlist has remained relatively static when compared to the adult waitlist (and in the case of patients waiting for liver transplant has actually decreased). This has been due in large part to specific allocation algorithms which favor children, as well technical variants for liver transplantation, and living donor grafts for liver and kidney candidates. The first survivors of transplantation demonstrated the interaction (host-versus-graft and graft-versus-host) between recipient and donor immunocytes (brought with the allograft), which under the
cover of immunosuppression allows varying degrees of graft acceptance and eventual minimization of drug therapy. Yet complications of immunosuppression (including rejection, infection, toxicity, post-transplant lymphoproliferative disease) still present an important challenge to long term survival. Contributing to the success of transplantation survival outcomes has been the concomitant development of strategies to better manage end organ disease. This has been accomplished largely through the establishment of services which incorporates a multidisciplinary team approach to medical and surgical care.

Transplantation is the standard of care for many patients with organ failure who have significant complications of their disease. It is hoped that with the minimization of immunosuppression strategies currently used, the long-term survival of these organ transplants recipients will continue improving, together with their rehabilitation and quality-of-life.

L7
HIGH RISK RENAL TRANSPLANTATIONS: “MISSION IMPOSSIBLE”?

A. Kostakis, E. Theodoropoulou
Hellenic Transplant Organization, Athens, Greece

The first successful renal transplantation in Greece was performed in 1968 by the team led by Professor Tountas in Salonika. In Athens, the first renal transplantation was performed by Professor Skalkeas in 1971. Since then, the program of renal transplantation has evolved. About 4283 renal transplants have been done so far, 2467 transplants coming from a deceased and 1816 from a living origin. Along with renal transplantation, heart, liver and pancreas transplantation programs developed. The first heart transplantation was performed in 1989. The first attempt for liver transplantation was made in 1989 and the first successful liver transplantation was performed in 1990. The first combined pancreas-kidney transplantation was performed in 1989. The total number of solid organ transplantations is 5100, so far.

Renal transplantations that impose a higher risk of graft failure and/or patient death include, amongst others, transplantations from older patients, transplants to older recipients and transplantations that cross the traditionally accepted immunological barriers. Nevertheless, the increasing gap between demand and supply has resulted in the use of more expanded criteria donor organs or of higher immunological risk (i.e. positive crossmatch HLA-incompatible or ABO-incompatible). In this context, kidneys from deceased donors aged >60 years old have been regularly used in Greece, usually after a pre-transplant biopsy, with good results. From 2001 till the early 2014, 30.3% of deceased kidney donors were >60 years old whereas 22.3% of kidney recipients were also >60 years old. The analysis of 478 living donor transplants from 2000-2012 led us to the conclusion that only the age difference between donor and recipient exerts an adverse impact on graft outcome, whereas donor age, recipient age, donor/recipient gender, and ABO incompatibility do not significantly influence renal allograft survival. In one center in Greece, an ABO-incompatible renal transplant program has been adopted since 2005. The desensitization regime consists of rituximab and antigenspecific immunoabsorptions. The 30 renal transplants performed so far exert excellent graft and patient survival which comes in accordance with the international experience. Unfortunately, this is not the case with positive crossmatch HLA-incompatible transplants with a high rate of biopsy proven rejection and obviously this type of transplantation needs more consideration.

High risk renal transplantations are not a “mission impossible” under certain prerequisites and careful pre-transplant donor and recipient evaluation.

L8
GENERIC IMMUNOSUPPRESSION IN TRANSPLANTATION: ARE THESE MEDICATIONS SAFE AND EFFECTIVE?

Gregory Knoll
Full Professor of Medicine, Division of Nephrology, University of Ottawa, Japan
Medical Director of Renal Transplantation, Ottawa Hospital
Associate Scientist, Clinical Epidemiology Program, Ottawa Hospital Research Institute

In this presentation I will review the concept of generic immunosuppression including definitions and necessary requirements for regulation worldwide. I will review the data on usage in solid organ transplantation focusing on safety and efficacy.

L9
THE GLOBAL REGISTRY: HOPE FOR THE FUTURE

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There is unanimous agreement that renal transplantation is the most vital remedy for the majority of patients suffering from end-stage renal failure. Organ shortage is the main obstacle that delays transplantation and might even cause many patients suffering from ESRD to expire while on the waiting list for renal transplantation.
In order to address the shortage of organ for transplantation, I am going to propose a new policy for the future based on our experience in Iran for the past 55 years.

In the early sixties the art of renal replacement therapy was young all over the world including Iran. There were just a few numbers of patients being transplanted in Tehran and Shiraz until 1975 when several trained nephrologists, urologists and general surgeons familiar with kidney transplantation returned to Iran. The outcome was an increase to a few number of living related donor transplants per year in two existing university and MOH (Ministry of Health) hospitals in Tehran, Daruash Kabir and Beh Avar hospitals. From mid 1975, a committee called the national dialysis and transplantation committee was established. The HLA of all the patients undergoing maintenance dialysis was obtained by the Iranian national blood bank. Hence, a small national registry was created.

In order to expand, the national dialysis and transplant committee contacted colleagues in Euro Transplant in Leyden, Holland and provided them the HLA of patients waiting to be transplanted in Iran.

This co-operation had phenomenal results. From 1977 several kidneys were sent to Tehran, Iran via Euro Transplant. The most impressive one was a kidney flown from Hennepin county, Minneapolis via Chicago in USA to Frankfurt, Germany and from there to Tehran.

The impressive story was published in the Eugene Register-Guard, April 18, 1977.

"AMERICAN's Kidneys flown to Tehran for Transplantation" Minneapolis (UPI) – Kidneys removed from a suicide victim at the Hennepin county Medical Center were flown to Tehran, Iran and Transplanted into two persons, all within 48 hours, the center said today. 'Euro Transplant in Leyden, Holland, which coordinated the arrangements, called us and said the kidneys were transplanted and were working beautifully,' a spokesman at the medical center said.

'It is difficult to find recipients for a donor with his AB blood type" a spokesman for the center said. We have a computer system for finding recipients but none was waiting for this type in the United States. So we called Euro Transplant and made arrangements to ship them to Germany.

'The doctor there did not want to use them because we had shipped them on ice in a preservative solution. So Euro transplant called Tehran and arranged to send the kidneys there.

When we were informed that two kidneys with ABO group AB+ were flown from Frankfurt to Tehran, we found two patients in our registry with ABO group AB+. One of them was a 15 year old girl on maintenance dialysis in Kerman, Iran.

The kidney from Frankfurt and the girl arrived in Tehran's Mehrabad airport at the same time. Both kidney and recipient moved quickly to Beh Avar Hospital and the transplant was performed by a urologist and a vascular surgeon successfully with immediate recovery of renal function post op. The recipient was maintained on just prednisolone and Immuran.

Our patient was transplanted with a kidney following 70 hours of cold ischemia time. The kidney had been rejected by a German transplant team because the transportation was not ideal. While in Iran we had much less facilities and resources, the transplantation took place with a relatively good outcome.

I am reporting this case to cast hope for the future. The lesson to be learned from the journey of this kidney is that possibilities would be much more vast if we start a world wide co-operation and institute a global registry. Many more patients across the world would benefit from cross continent transplants and we would be able to at least put a dent in the organ shortage problem, even if just a small dent.

At present there are many countries in the world where cadaveric kidneys either from brain dead (DBD) or cardiac death (DCD) are being discarded because of the lack of existence of a transplantation program. If a global registry could be organized, the transplant teams would be able to use the DBD or DCD with a strict regulation of organ donation to be established in accordance with WHO guidelines, to prevent discarding viable organs and use them where needed.

L10

ANOMALOUS PORTAL VENOUS BRANCHING RECONSTRUCTION IN RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION

Sezai Yilmaz
İnönü University, Liver Transplant Institute, Malatya, Turkey

Adult–to–adult right lobe living donor liver transplantation (LDLT) has become popular, because it provides a larger size of liver graft that is necessary for adult recipients. However, anomalous portal venous branching (APVB) that results in two venous opening in a right lobe graft is one of the common anatomic variations encountered during liver donor evaluation. Several authors reported the incidence of uncommon anatomic variations of the portal vein as % 6 - % 22 (1-7). Reconstruction of these vessels during transplantation can be challenging, even donors with such APVB had often been disqualified as right lobe donors. Several reconstruction methods have been attempted for this anomaly and they enabled use of right lobe liver grafts from donors with APVB (8-17). However, all these surgical techniques have several pitfalls. Portal vein anatomy is classified according to Nakamura (2). In brief, type A, was the usual bifurcation type; type B was the trifurcation pattern without the trunk of a right branch of the portal vein; In type C and D, a right paramedian sector branch right lateral sector branch bifurcates separately with the left portal vein. The difference was that the right paramedian branch originated from the proximal or extraparenchymal site of the left portal vein in type C, whereas it originated from a distal, or intraparenchymal site in type D. In type E,
branches of segment V and VIII originated separately from the left portal vein.

Descriptions of the technical approaches, which are performed to APVB encountered are expressed below:

a) The donor portal vein branches were obtained with two separate openings that were joined. A joined common orifice is anastomosed to the recipients main portal vein. Donor portal veins are divided separately.

b) Two separate graft portal veins are anastomosed each to the right and left portal vein branches of the recipient.

c) Y graft interposition technique with autologous iliac vein can be performed for reconstruction in APVB.

d) Complicated venoplasties can be performed also.

e) In the technique we suggested, the parenchymal transection is finished, including right hepatic duct and right hepatic artery, the right portal branches were excised separately with 2 isolated openings 2-3 mm from the confluence. This left the donor's main portal vein and confluence intact. Donor right portal branches were joined with 7/0 prolene sutures, continuously. Unification should be performed from closest parts of both branches, consequently lumens of the branches did not become narrow. Then, autologous saphenous vein longitudinally is opened and wrapped to the joined portal vein branches like circumferential fence. This structure is anastomosed with main portal vein trunk of the recipient easily.

References


L11

PATHOLOGY OF ACUTE RENAL DYSFUNCTION

Lina Assad
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Causes of acute renal function can be pre renal, renal or post renal causes.

Correct diagnosis can lead to rapid return of renal function. To really make an impact on long-term outcomes in renal transplant, we should have excellent graft function by the end of first year of transplantation; therefore a shift in our attention toward the prevention of the most common causes of late graft loss have already took a place in our diagnostic modalities.

Poor prognostic factors for one year renal allograft survival include among others, the presence of Delayed Graft Function ( DGF) along with the number and severity of rejection episodes.

As for acute rejection, renal pathology is heading towards more specific diagnosis with the recent understanding of the critical elements that shaped the model of T cell mediated rejection (TCMR) and the ability to distinguish between (TCMR) and Antibody Mediated Rejection (ABMR). The observation on mouse kidney allograft and the merging knowledge from studies of gene expression profiling.

Although many challenges still in the horizon for more specific diagnosis and toward individualizing treatment, we do hope that renal transplant pathology will be the guiding tool for more achievement in this field.
ORGAN TRANSPLANT FROM INFECTIOUS RISK DONORS

Andrew Singer
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In 1994, the United States Center for Disease Control published “Guidelines for preventing transmission of HIV through transplantation of human organs” for the purposes of identifying donors that were felt to be at high risk of carrying HIV and, as such, inappropriate donors for transplantation. In brief, these criteria included men who have had sex with another man, injection drug users, persons with hemophilia, commercial sex workers, persons who have had sex with persons in the above categories, persons exposed to HIV, and inmates of correctional systems. They concluded that “regardless of their HIV test results, persons who meet any of the criteria should be excluded from donation of organs unless the risk to the recipient of not performing the transplant is deemed to be greater than the risk of HIV transmission and disease (e.g., emergent, life-threatening illness requiring transplantation when no other organs are available and no other lifesaving therapies exist).”

While the goal of preventing HIV transmission through solid organ transplantation is reasonable, universally discarding organs from so-called “CDC high risk donors”, or infectious risk donors (IRDs), is likely unwise given that nearly 10% of the donor pool in the United States falls into one of these categories, and loss of nearly 10% of the donor pool would be potentially devastating to thousands of patients on the waiting list. Understanding the right balance requires an understanding of the actual risk associated with undetected infection in these donors in the context of risks associated with other alternatives (such as waiting for a non-IRD organ). As the number of awaiting kidney transplantation has continued to grow, the disparity between organ demand and supply has increased. Given the vast organ shortage, the well-established survival advantage of kidney transplantation over dialysis, and the high mortality of those awaiting transplant, there has been pressure to expand the use of organs from non-ideal donors. Despite shorter average graft survival, the benefit of extended criteria donors (ECD) has been clearly demonstrated for certain recipient populations. Transplantation of kidneys from donors after cardiac death (DCD) has also increased organ availability and has been show to be beneficial in many recipient populations. The use of renal allografts from donors designated by the CDC as being at increased viral infectious risk, yet another possible donor cohort from which to increase transplant volume, has been limited and continues to be controversial as primary data regarding actual risk are lacking.

Interestingly, IRDs tend to be actually higher quality organs than non-IRDs, other than the risk of undetectable viral (mostly HIV and HCV) infection. They are younger, more than 50% less likely to be ECD, and more likely to die from non-cardiovascular problems (and hence with less cardiovascular disease). It is difficult to quantify the infectious risk associated with these donors, since transmission events are extremely rare, possibly undocumented, and vary by behavior category. According to recent meta-analysis, the risk of unintended transmission based on NAT window periods is on the order of 4 in 10,000 for HIV and 30 in 10,000 for HCV in the highest-risk category. In the context of risk associated with waiting for an organ, waitlist morbidity and mortality, these viral transmission risks seem miniscule. That said, even a single infectious transmission event can cause significant legal and media fallout as was seen in such a case in 2007.

In this lecture, we will discuss the risk associated with IRDs, patient and provider attitudes towards these organs, and strategies for informing decision making when faced with the clinical choice of accepting an IRD organ or waiting for the next available non-IRD alternative.

TRANSPLANTATION ETHICS AND EXTRATERRITORIAL JURISDICTION

Mona Alrukhaimi
Professor of Medicine, Dubai Medical College, United Arab Emirates

Successful eradication of transplant tourism and the global organ market depends upon multifaceted solutions. Achieving national or regional self-sufficiency in transplantation and thereby reducing demand for transplantation abroad requires efforts to prevent cases of end-stage-organ failure and to meet unavoidable needs for transplantation through ethical donation programs. The Declaration of Istanbul (DOI), which has been endorsed by more than 130 organisation, including medical associations and governmental bodies throughout the globe, emphasizes that jurisdictions, countries and regions should strive to achieve self-sufficiency in organ transplantation, and also forbid and prosecute practices that are inconsistent with the principles set forth in the DOI.

Transplant commercialism and organ trafficking are the result of a profound shortage of organs; but they are also widespread because legislative and enforcement mechanisms are inadequate to curtail the exploitation of the destitute. Hence, The Declaration of Istanbul Custodian Group (DICG) following its 5th anniversary celebration in Qatar on April 2013 came up with a list of action recommendations among them was to produce a summary review of extraterritorial legislation for physician and policy makers. This action plan is lead by Dr. Dominique Martin who is a lecturer in Health Ethics at the University of Melbourne Australia and the members of the working group include representatives from all the WHO regions, as well as expertise in health law and extraterritorial issues.

The deliberation of this action plan result in the following points which will be covered in this talk:
Why consider extraterritorial jurisdiction?
How feasible is implementation of extraterritorial jurisdiction?
The role of health professionals in transplant tourism
Extraterritorial jurisdiction and a framework for enabling ethical transplantation across borders

L14
DIFFICULTIES IN FAMILY APPROACH FOR ORGAN DONATION FROM DECEASED EXPATS IN KUWAIT

Mustafa Al-Mousawi
Head, Kuwait Organ Procurement, Kuwait

Kuwait, like other Gulf countries, is a multicultural, multilingual, multi-religion country with two third of the population being expats. Most of these are workers from South East Asia (India, Pakistan, Philippines, Indonesia etc.) or from the Middle East (Egypt, Iran, Syria etc.). Workers with low salaries often do not have their families with them in Kuwait. From 1996 till end of 2013, organs and tissues were recovered from 185 deceased donors from the expat community in Kuwait. Approaching families of potential deceased donors in such a mixed society can be a challenge for organ procurement coordinators.

Language barrier
Although this problem was partially overcome by employing coordinators from various countries, still sometimes within a single country, like India, multiple languages are spoken, making communication a problem. Most of the time an interpreter can be found but he might lack the skills of convincing family to accept donation. Sometimes a close friend of the family may be available who speaks English or Arabic. Convincing the friend could be the way to convince the family.

Misunderstanding brain death
Asking for organ donation from a heart beating deceased is not easy in a society which does not readily accept brain death but the problem is even more complicated when you are talking to the family over the phone rather than face to face. There is often an element of mistrust and suspicion when a stranger calls them to inform them that their beloved one has died and then asks for organ donation, when the message they often receive from friends and coworkers of the deceased is assuring them he is still alive in an ICU bed thus giving them false hopes. In order to avoid such conflict it is important not only to keep in touch with family but also with all friends visiting the deceased in order to explain brain death. We often inform family that the only reason for continuing medications and machines is to give them time to consider donation. Sometimes several days are needed for the family to get convinced and consider organ donation.

Reaching expat communities
Most expats in Kuwait have associations bringing various communities together socially. Over the years we learned the importance of forming links with foreign communities to promote the culture of organ donation and to dispel any misunderstanding regarding brain death and organ donation. We often contact leaders of communities to reassure the family and promote our good cause. The consent rate presently is 33%. This can be improved by more public media among expat communities and better training of coordinators.

L15
OPTIMIZING ORGAN DONATION FROM DECEASED DONORS: THE DONOR ACTION® EXPERIENCE

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Background: Optimizing the donation process at hospital level is one of the most effective measures to tackle the global problem of organ shortage. Key in this process is the identification of the potential for donation from deceased donors and learn how this potential can be converted into actual donors or not. This report illustrates the Donor Action® (DA) experience in measuring hospitals’ regions’ and countries’ conversion rates and how its DA Program and its quality assurance DA Diagnostic Review® methodology have impacted on individual countries’ donation performance in the last 20 years.

Materials: The DA Diagnostic Review® has 3 components: a Medical Record Review (MRR), to identify how many, why and when potential donors are missed along the donation pathway, taking into account the 5 steps of the critical donation pathway: donor identification, donor referral, family care and communication, donor maintenance and organ retrieval. A Hospital Attitude Survey (HAS) assesses Critical Care staff’s knowledge and confidence levels with donation related tasks and staff’s educational needs. An on-line multilingual relational DA System Database allows entering and analyzing MRR and HAS data.

Results: Since its pilot phase in the mid-nineties in Europe and Canada, the DA Program has been introduced in 22 countries in Europe, the Americas, Asia and Australia. MRR and HAS data have been collected from 343 hospitals and entered into the DA Database, totalling over 140,000 MRR and 75,000 HAS records by the end of 2013. This wealth of information has been the scientific basis for about 120 publications in peer-reviewed medical journals, so far. Initial publications on the impact of introducing the DA Program in 8 countries reported an average increase of 53% in effective donations, a figure that has been confirmed several times since. However, a recurrent constant in all published reports remains the fact that too many potential donors are still missed along the donation pathway due to non-identification, no referral to a procurement team, no
approach of the relatives, no consent when approached, and unsuccessful clinical donor management. Several publications based on HAS findings also identified Critical Care staff’s lack of knowledge, self-reported confidence levels with donation-related tasks and appropriate training to correlate significantly with countries’ donation performance.

Conclusions: Over the last 20 years, the DA Program, and its Diagnostic Review methodology in particular, have demonstrated in many countries to be the right quality assurance tool to identify strengths and weaknesses of the donation process and suggesting tailor-made improvement measures. Its DA System Database allows hospitals, regions and countries to calculate their conversion rates of potential into actual donors and demonstrated to be an accurate tool to allow countries comparing their donation performance. International HAS analyses have demonstrated the pivotal role of Critical Care staff in the donation process and the impact their level of education has on donation performances. Efforts to increase donation from deceased donors should focus on appreciating Critical Care staff’s role in the donation process and offer them appropriate training.

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ORGAN DONATION AND TRANSPLANTATION IN A MESOT COUNTRY (JORDAN) THE REALITY OF SITUATION

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Jordan issued a law for use of Cornea from cadaveric in 1956, and in 1977 issued the Law of the Usage of organs and tissues of Human body which adjusted in year 2000, and instructions for organ transplantation issued in 1999. Purport of the Senior Ulama Commission Decision No 99 Dated: 25/08/1982 for organ donation, and resolution of the council of Islamic Jurisprudence on Resuscitation Apparatus Decision No [5] D 03/07/86 Dated: 11-16/10/1986. First kidney transplant was done in 1972, as well as Cornea, then the program extended to include Heart transplantation in 1985, Lung in 1997 and finally Liver in 2004. Estimated number of cases with end stage renal disease patients who in need for kidney transplant and there was no donor about 1460 at the end of 2012, were it was 1570 cases at the end of 2013 with an increase of (110) cases (7.5%).

The total number of kidney transplants in 2012 was (217) cases, were it (187) in 2013 with decrease of (30) cases (13.8%) of them Jordanian (138/217) in 2012 (63.6%), non-Jordanian was (79/217) cases (36.4%), only (3/217) from deceased donors. In the year 2013, for Jordanian (82/187) cases (43.85%), and for the non-Jordanian is (105/187) cases (56.15%) and no cases from deceased donors.

For Jordanian in 2012 from actual need it was (138/1460= 9.5%) and for the year 2013 it is (82/1570=5%).

The Liver cases were decreased from 20 cases in 2012 to 10 cases in 2013; however the Heart and the Lung transplant was stopped.

The number of transplants from deceased persons since starting transplantation in 1972 till the end of 2013 not exceeded (30/3289) transplants less than 1%. It is obvious that in spite of presence of necessary legislations and religious fatwa since long time and good infrastructure with human resources however; the transplant activity is very law and depends only on living donors, which necessitated finding an institution supervising organ donation programmes all over medical institutions and to establish more organ transplantation centers in order to have organs donation and transplant to whom need it, and activate a programme from deceased donors through coordination and follow up of all brain-death cases diagnosed from different hospitals as well as harvesting and distribution of organs according to the guidelines established for organ transplantation in Jordan, as well as exchange information, visits and experiences with regional and international centers in the field of organ donation and transplantation.

CURRENT STATUS OF ORGAN TRANSPLANTATION IN 57 ISLAMIC COUNTRIES

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Islam the world’s second largest religion after Christianity has 1.62 billion adherents making up over 23% of the world population. The Organization of Islamic Cooperation the second largest organization after the United Nations consists of 57 Member States whose people are mainly followers of the Islamic religion. These 57 Islamic countries that represent a substantial portion of the world’s developing countries are located in the Middle East, North Africa, Sub-Saharan Africa, Central Asia, South and South East Asia. Many of these countries today are lagging far behind international averages in terms of socioeconomic developments such as in health, education and living standards. The aim of this study was to investigate the current status of organ donation and transplantation (Tx) in these 57 Islamic countries.
For data collection literature review was carried out. Information from national and international registries was used. For obtaining necessary data key persons of some countries were contacted.

In 5 Islamic countries of North Africa (Egypt, Libya, Tunisia, Algeria and Morocco) organ Tx is an established practice. Tunisia has the highest rate of organ Tx in this region (10.6pmp). Tunisia has also the highest rate of deceased-donor Tx (0.6pmp) in North Africa followed by Algeria and Morocco. In Egypt organ donation from deceased-donors was legalized in 2010. However because of ongoing religious debate over definition of brain death deceased-donor Tx is rare and Tx activity predominantly involves kidney and liver Tx from living donors.

In the 22 Islamic countries of Sub-Saharan Africa (Benin, Burkina Faso, Cameroon, Comoros, Chad, Djibouti, Gabon, Gambia, Guinea, Guinea Bissau, Ivory Coast, Mali, Mauritania, Mozambique, Niger, Nigeria, Senegal, Sierra Leone, Somalia, Sudan, Togo and Uganda) Tx activity is limited to kidney Tx from living-donors that only is performed in Sudan (165 in 2012) and Nigeria (14 in 2012). In Sub-Saharan Africa millions of people live in severe poverty. Death due to wars, crimes, infections and malnutrition is prevalent. Deceased-donor Tx is non-existent because of lack of minimum infrastructure and because Tx is costly and is not a health priority. In Sudan where the highest rate of living-donor Tx of this region is performed, deceased-donor Tx is considered illegal and is facing a great opposition from Islamic Scholars. Some patients from these countries travel abroad for Tx.

In all 14 Islamic countries of the Middle East (Turkey, Iran, Saudi Arabia, Lebanon, Qatar, Kuwait, Iraq, Syria, Jordan, Yemen, Bahrain, Oman, United Arab Emirates and Palestine) living-donor Txs are performed. Turkey has the highest rate of living-donor kidney (31.5pmp in 2012) and liver-donor Tx (9.7pmp in 2012) and Iran has the highest rate of deceased-donor kidney (12pmp in 2012) and deceased-donor liver Tx (5.7pmp in 2012) in the Middle East. Deceased-donor organ Txs were performed in 6 (Turkey, Iran, Saudi Arabia, Lebanon, Kuwait and Qatar), heart Tx in 4 (Turkey, Iran, Saudi Arabia and Lebanon), lung Tx in 3 (Turkey, Iran and Saudi Arabia), pancreas Tx in 2 (Turkey and Iran) of 14 Middle Eastern countries.

Of 7 Islamic countries of Central Asia, organ Tx is non-existent in Turkmenistan and Afghanistan. The other 5 countries (Uzbekistan, Kyrgyzstan, Kazakhstan, Tajikistan and Azerbaijan) have specific Tx legislation but very small scale living-donor Txs. Azerbaijan has the highest Tx activity in this region performing kidney Tx (5pmp in 2012) and liver Tx (1.8pmp in 2012) from living-donors. Many patients from these countries also travel abroad for Tx.

In all 6 Islamic countries of South and South East Asia (Pakistan, Maldives, Bangladesh, Indonesia, Malaysia and Brunei) kidney Tx from living-donors have been carried out. Only in Malaysia and Pakistan some deceased-donor Txs have been performed. In Malaysia the number of deceased-donor kidney and liver Tx recipients has recently decreased because of restriction of commercial organ donation in China. In Pakistan since signing Tx law in 2012 the number of commercial Txs has dropped significantly and 26 deceased-donor kidney Txs have been performed in SIUT. In Indonesia only living-donor kidney Tx and in Bangladesh living-donor kidney and some living-donor liver Txs have been performed.

In each 3 remaining Islamic countries (Albania in East Europe, Suriname and Guyana both in South America) only a few living-donor kidney Txs have been performed.

Conclusion: Most Islamic countries have lower Tx activity because of low development index and difficulties in religious acceptance of deceased organ donation.

L18
A TEN-YEAR ANALYSIS OF LIVER ALLOGRAFT UTILIZATION WITHIN THE UNITED STATES

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Objectives: 1) To evaluate liver allograft utilization, as determined by allograft availability, origin, and failure probability estimates utilizing the liver donor risk index (LDRI). 2) Correlate allograft utilization with waitlist mortality.

Methods: A Scientific Registry of Transplant Recipients (SRTR) search of adult (age>18years), initial transplant, liver allograft only US recipients from 01/01/03 through 12/31/12 identified 44686 transplant procedures. Origin was categorized as local (LCL), regional (RGN), or national (NTL) by Organ Procurement and Transplant Network (OPTN) classification and LDRI calculated. Allograft availability, donor classification as donation after brain death (DBD) or donation after cardiac death (DCD), and waitlist mortality were integrated through separate SRTR queries.

Results: Consented DBD and DCD donors significantly increased over the study period (p<0.01); however, the probabilities of a consented DBD or DCD donor yielding a transplanted liver allograft have declined from a peak of 89% and 44% in 2007 to a decade low 84% and 38%; respectively (p<0.05). LCL allograft utilization has increased while NTL utilization has significantly declined. Median LDRI decreased in 4 of 11 OPTN regions (mean: 5%) while increasing in 6 regions (mean: 8% | p=NS). LCL and RGN median LDRI were not significantly different over the study period while NTL median LDRI significantly decreased (p<0.05). Waitlist mortality, as defined by candidates removed for death or too ill for transplantation has not improved.

Conclusion: Significant increases in consented DBD and DCD liver allograft donors have not yielded equivalent increases in transplant activity or decreased waitlist mortality due to stagnant allograft acceptance practices and lower utilization of high-risk allografts.
OPTIMIZING AND EXPANDING THE CADAVERIC LIVER DONOR OPERATION

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Background: Despite increasing demand, there is a shortage of cadaveric donor livers. Approximately 15% of end-stage liver disease patients die while waiting for liver transplantation. Techniques that optimize the conventional liver procurement and utilize extended criteria and split liver grafts have the potential to increase the pool of donor livers.

Objective: To describe the variety of techniques used to optimize and expand the recovery of cadaveric donor livers.

Results: We describe the conventional liver procurement in well-defined steps of warm and cold dissection. These steps can be adapted to procurement of the liver in non-heartbeating and donation after cardiac death donors. We describe the various techniques for split liver procurement, including the conventional split (segments 2, 3 and 1, 4-8) as well as the left-right split. The left-right split can divide the graft into segments 2-4 and 1, 5-8 with the inferior vena cava on the right lobe or into segments 1-4 and 5-8 with the inferior vena cava on the left lobe. Splitting can be performed ex vivo or in situ, each with advantages and disadvantages. Ex vivo splitting involves shorter donor operating room time and results in acceptable patient and graft survival. However, it involves inadvertent graft re-warming, biliary complications, bleeding from the liver’s cut surface, and poorer outcomes in critically ill patients. In situ splitting allows identification of biliary and vascular structures, hemostasis during the parenchymal transection, and less warm and cold ischemia time. In situ splitting can facilitate graft sharing among transplant centers. Disadvantages include longer donor operating room time and the need for a stable donor and a skilled procurement team at the donor hospital. Finally, we describe the techniques for combined liver and small intestine and multivisceral organ procurements.

Conclusions: The central tenet of organ procurement is the expeditious assessment and recovery of donor organs without surgical injury. We describe simplified techniques that optimize and expand the conventional liver donor operation for application in extended criteria donors and for splitting liver grafts. These techniques offer immediate expansion of the donor pool.

LONG-TERM OUTCOME AFTER KIDNEY DONATION

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For a recipient with end stage renal disease (ESRD), a living donor transplant is the best option. However the donor undergoes an operation that has risks but no physical benefit. It is important that donor candidates fully understand the risks as they make their decision about whether or not to proceed with donation. Surgical mortality and morbidity have been studied in detail: mortality is about 3/10,000 (not changed for 3 decades) and is not different for open vs laparoscopic nephrectomy. Major morbidity is <1%. Long-term concerns have been the impact of donor nephrectomy on: survival, development of ESRD, quality of life, and for females, subsequent pregnancies. To date, with follow-up as long as 50 years, long-term studies comparing donor outcomes vs the general population have shown no impact on mortality and development of ESRD; donor quality of life better than the general population (with about 4% donors regretting donation – mostly related to either short graft survival or donor complications); no increase, or slightly increased, rate of pre-eclampsia in postdonation pregnancies; and no accelerated deterioration of renal function in those developing type 2 diabetes at some point subsequent to donation. Two studies, with follow-up as long as 18 years compared donor outcomes to well-matched population controls and found no difference in survival or ESRD. However, recently there have been 2 reports of increased ESRD in donors vs matched healthy controls (Mjoen et al, Kidney international 10: epub ahead of print, 2013; Muzzale et al,JAMA 311: 579-86, 2014); one of these studies also reported increased mortality in donors. Although the authors of both studies stated that the increase in risk was small and that they would continue to promote living kidney donation, these observations have implications for the donor informed consent process. Potential recipients also need to understand donor risks when they make a decision about whether or not to have a living (vs deceased) donor transplant. These studies and their implications will be discussed in detail.
POST-TRANSPLANT INFECTIONS: AN OUNCE OF PREVENTION

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Infections are the leading cause of hospitalization in transplant recipients. The increased risk of new onset diabetes after transplantation, cardiovascular disease, post-transplant lymphoproliferative disorders adversely affects allograft outcomes. Risk is determined by epidemiologic exposure, immunosuppressive therapy and prophylaxis. The predictable sequence of appearance of infections helps in making management decisions. High likelihood of infections with unusual and multiple organisms necessitates aggressive use of imaging techniques and invasive procedures. Serologic tests depend upon antibody response and are unreliable. Nucleic acid based assays are sensitive, rapid, and allow detection of subclinical infection and assessment of response to therapy. Preventive steps include screening of donors and recipients and vaccination. All indicated vaccines should be administered before transplantation. Inactivated vaccines can be administered after transplantation but produce weak and transient antibody response. Boosters may be required once antibody titers wane. Post-transplant chemoprophylaxis includes cotrimoxazole for preventing urinary tract infections, pneumocystis and Nocardia infections; ganciclovir, valganciclovir, or acyclovir for cytomegalovirus related complications in at-risk recipients; and lamivudine for prevention of progressive liver disease in HBsAg positive recipients. Viral load monitoring and preemptive treatment is used for BK virus infection. Infection with new organisms has recently been reported, mostly due to inadvertent transmission via the donor organ.

LIVING DONOR LIVER TRANSPLANT VS. CADAVERIC LIVER TRANSPLANT SURVIVAL IN RELATION TO MELD SCORE

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Introduction: MELD score (Model for End Stage Liver Disease) is universally used to priorities patients on the liver transplant waiting list. It is potentially used to predict survival as well. There has been conflicting evidence on using living donor liver transplantation (LDLT) in patients with high MELD score. We herein showing a retrospective analysis of survival data in these two categories of patients and comparing survival between LDLT and Deceased Donor liver Transplantation (DDLT) in a single center experience.

Patient & Method: We retrospectively reviewed our records from 2001 to April 2014 for LDLT and DDLT of KFSH. Date reviewed includes the number of patients for LDLT and DDLT, age, sex, MELD score and survival. Only Adults are included in this analysis. Patients were categorized into MELD score above and below 25. Kaplan Meier analysis was used for survival and log rank chi square test was used for comparison with p value of below .05 used for significance.

Results: Total number of transplanted patients at KFSH was 491. There were 222 patients for LDLT and 269 patients for DDLT. Age ranges between 15 and 80 with a median of 53. For DDLT, there were 290 males and 201 females. Below are the actual survival data.

The overall 1, 3 and 5 years Kaplan Meier survival of LDLT & DDLT is shown below:

When comparing the Kaplan Meier survival experience of the 2 groups (MELD above and below 25), there was no significance difference (Log-rank Chi-Square test, p-value= 0.177).

There were also no significance difference in survival of the 2 groups of LDLT (p-value = 0.097) and DDLT (p-value=0.923)

Conclusion: Our survival data indicates that there is not difference between the survivals of the two groups (DDLT vs LDLT), nor that high meld score has a negative impact on survival. Larger cohort of patients may be needed to confirm these findings.

LIVER TRANSPLANTATION IN ARAB WORLD: AN UPDATE

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The liver transplantation experience of 11 countries in the League of Arab States is presented in this regional report. Between 1990 and August 2013, 3804 liver transplants
[3052 (80%) LDLT and 752 (20%) DDLT] were performed at 27 transplant centers in the 11 Arab countries. The largest percentage of liver transplantation has been performed by 13 transplant centers in Egypt (56%) followed by 4 transplant centers in Saudi Arabia (35%), and 2 transplant centers in Jordan (5%). In the remaining 8 Arab countries, liver transplant activity has been limited to one program in each country. The most common indication for LT in this series was end-stage liver cirrhosis due to Hepatitis C virus or Hepatitis B virus, with or without Hepatocellular Carcinoma. More than 70% of the LDLT in this series were performed by the transplant centers in Egypt with 5 living donor deaths reported (0.2% rate of mortality). More than 90% of the DDLT in this series were performed in Saudi Arabia; 4 liver transplant centers in Saudi Arabia have collectively performed 1338 LT, (52% DDLT and 48% LDLT), including 13 split LT procedures. There were no reported living donor deaths in Saudi Arabia. A small number of transplants have been performed in Algeria, Tunisia and Lebanon. The initial transplant programs in Libya, Kuwait and United Arab Emirates performed a few liver transplants but they were subsequently suspended because of logistical and technical reasons. A program for LDLT has recently been developed in Iraq with a potential of performing 15 LDLT per year; and also a DDLT program has begun in Qatar with 5 transplants performed to date. As elsewhere, organ shortage remains the biggest hurdle facing the increasing need for LT in most of the Arab countries. Although deceased organ donation has been legalized, implementation remains limited because of cultural and logistical barriers. The increasing demand and scarce supply of organs in the Arab World has generated appropriate concern related to organ trafficking and transplant tourism. These shared challenges can only be faced through continued collaboration between the liver transplant programs in the Arab World and the international transplant community.

L24
NEW TREND OF ABO INCOMPATIBLE KIDNEY TRANSPLANTATION

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ABO incompatible kidney transplantation (ABOi) has been performed in Japan since 1989. Totally 2,218 ABOi have been registered in Japanese ABO incompatible transplantation committee until December 2011. In 2011, 280 ABOi (25%) among 1,271 living donor kidney transplantation underwent. Anti-donor blood group antibody (ADGBAG) was removed in terms of plasmapheresis (82.1%), immunoadsorption (4.1%), IVIG (7.5%), and splenectomy (5.3%) as preconditioning in Japanese registry. Japan ABO-incompatible Transplantation Committee suggested officially that it was not necessary for a recipient with the titer of ADBGAB ≤x64 to be removed ADBGAB pre-and post-transplantation. In fact, 10 recipients ≤x32 without removal of ADBGAB pre-and post-transplantation never had antibody mediated rejection in our center. The antigens of red blood cells were founded to be different from those of endothelium of renal tissues. Not natural ADBGAB but de novo ADBGAB could be related with antibody mediated rejection.

Overall patient and graft survival rates (n=2,218) were 97% and 93% at 1 year, 93% and 85% at 5 years, 89% and 71% at 10 years and 74 and 52% 20 years after transplantation, respectively. The graft survival rates in children < 16 years (n=89) vs. adult <16 years (n=2,129) were 94% and 93% at 1 year, 90% and 85% at 5 years, 85% and 70% at 10 years and 67% and 50%, respectively. The graft survival rates in pediatric ABOi were significantly better in any periods compared with adult.

Recent immunosuppression is consisted of rituximab as a desensitized agent and basiliximab as an induction agent, CNI (cyclosporine or tacrolimus), steroid, mycophenolate mofetile (MMF) and/or everolimus. Splenectomy and azathioprine have been replaced by using rituximab and MMF and/or everolimus since 2001. The patient survival rates in ABOi before 2000 (n=450) and after 2001 (n=1,768) were 89% and 97% at 3 years, 86% and 95% at 5 years and 83% and 92% at 10 years. The graft survival rates in ABOi before 2000 (n=450) and after 2001 (n=1,768) were 77% and 94% at 3 years, 71% and 90% at 5 years, and 56% and 84% at 10 years. Both patient and graft survival rates were significantly better in ABOi after 2001 than that before 2000. Desensitization and immunosuppression for ABOi using rituximab and MMF instead of splenectomy and azathioprine appeared to result in better outcomes.
Background: During the last decade Israel's organ donation rate has been among the lowest in Western countries, mainly due to increased transplant tourism and high incidence of "free riders" who object donation after death yet do not abstain from becoming candidates. A unique new Organ Transplantation Law, in which the principles of the Declaration of Istanbul in blocking transplant tourism were implemented and the old moral imperative of reciprocal altruism has been resurrected, has made a marked impact on the national organ donation rate.

Methods: Israel's Parliament passed into legislation a new Organ Transplantation Law which (1) bans reimbursing transplants performed abroad under the definitions of organ trade; (2) grants prioritization in organ allocation to candidates who are registered donors for at least 3 years prior of being listed or have a first degree relative whose organs were donated after death; (3) removes disincentives for living donation by providing modest insurance reimbursement and social supportive services. The initial impact of the implementation of this law has been witnessed since 2011 and continued in 2013.

Results: Compared to previous years, there was a significant increase in the number of deceased organ donors directly related to an increase in the consent rate (from 49% in 2010 to 55% in 2011 and to 56% in 2013, p=0.01), an increase in organ transplantations from deceased donors (from 157 in 2010 to 267 in 2011 and to 248 in 2013) and an increase in kidney transplantations from living donors (from 71 in 2010 to 117 in 2011 and to 134 in 2013, p=0.01). Transplant tourism to illegal venues like China has been totally abolished and the total number of patients who underwent kidney transplantation abroad has sharply dropped from 155 in 2006 to 32 in 2013 (p=0.005).

Conclusions: The implementation of the new law has resulted in a significant increase in organ transplantations both from deceased and living donors. In addition transplant tourism from Israel was sharply decreased by banning its reimbursement.

L26
ORGAN DONATION AND SOCIAL MEDIA: ETHICAL CONDUCT
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Over the last two years we have collaborated with leadership in the fields of social media and organ donation to utilize novel means of public education and communication to increase organ donation registration in the US and worldwide. These strategies have centered around utilizing social networks to spread information and positive attitudes regarding donation registration and have shown initial efficacy in increasing registration. More recently we have begun using patient's pre-existing social networks of family and friends to help those on organ transplant waiting list identify potential living donors. This has raised ethical questions as some have expressed concerns that the internet or social media may promote or facilitate coercion or financial transactions in relation to living donation. Here we present our research in examining the ways that the internet and social media are currently being used to facilitate living donation and we present our efforts to regulate that process via creation of a mobile app to help facilitate living donor identification in a safe, structured, and proctored environment. A pilot program at Johns Hopkins utilizing the liver donor app will be described.

L27
THE FUTURE CHALLENGES FOR TRANSPLANTATION
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It is accepted that transplantation is the treatment of choice for end organ failure and saves the lives of thousands of people each year. However, despite it being one of the major advances in medicine in the last 50 years it currently faces many challenges. At one end of the spectrum patients in many regions are being denied access to treatment because of a lack of organ donors. At the other end there has been a stagnation in research and clinical trials, such that outcomes are not improving and many patients have little hope of access to transplantation because they are highly sensitized. In developing countries the major problem is access to transplantation. Dialysis is outstripping transplantation placing large stresses on health budgets and families. In 2011 there were 76,000 kidney transplants performed and 2.1 million patients on dialysis. In these countries the cost of immunosuppression is falling and what is needed is the development and expansion of ethical organ donor policies.
At the same time, the transplant community needs to invest in research and development. There has been very little change in long-term transplant outcomes over the past two decades, and transplantation of highly sensitized patients remains a challenge. There is an urgent need to design new clinical trials that will lead to improved outcomes in these areas. This will require improved clinical trial design, better co-operation between transplant centres both nationally and internationally and co-ordination of registry data across continents so that accurate data regarding long-term graft survival can be obtained. Finally, more efficient incorporation of research findings into clinical practice needs to be done. Currently, there is an urgent need to develop large multinational clinical trial groups to make progress in all these areas.

L28

THE DECLARATION OF ISTANBUL: PAST, PRESENT, FUTURE

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By 2005, human organ trafficking, commercialization, and transplant tourism had become a prominent and pervasive influence on transplantation therapy. The most common source of organs was impoverished people in India, Pakistan, Egypt, and the Philippines, deceased organ donors in Colombia, and executed prisoners in China. In response, in May 2008, The Transplantation Society and the International Society of Nephrology developed the Declaration of Istanbul on Organ Trafficking and Transplant Tourism consisting of a preamble, a set of principles, and a series of proposals. Promulgation of the Declaration of Istanbul and the formation of the Declaration of Istanbul Custodian Group to promote and uphold its principles have demonstrated that concerted, strategic, collaborative, and persistent actions by professionals can deliver tangible changes. Over the past 5 years, the Declaration of Istanbul Custodian Group organized and encouraged cooperation among professional bodies and relevant international, regional, and national governmental organizations, which has produced significant progress in combating organ trafficking and transplant tourism around the world. At a fifth anniversary meeting in Qatar in April 2013, the DICG took note of this progress and set forth in a Communiqué a number of specific activities and resolved to further engage groups from many sectors in working toward the Declaration’s objectives.

L29

DOHA MODEL: A NATIONAL IMPLEMENTATION OF THE DECLARATION OF ISTANBUL, THREE YEARS OUTCOME SUCCESSES AND CHALLENGES

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This presentation will review the policy and practice of organ donation and transplantation in Qatar that has developed since January 2011. At the launch of the national plan, the Doha Donation Accord was developed for the purpose of promoting organ and tissue donation and combatting organ transplant commercialism through the implementation of the Qatari Law and the adoption of the Declaration of Istanbul recommendations. The DDA became the ethical and legal framework for all future practices that provided an equitable program where all legal residents have an equal right to access deceased donor organs with no prioritization of the natives and equitable access to transplantation services regardless of their citizenship status. According to the Qatari Law organ donors and deceased donor families should not be rewarded with financial incentives or fungible reward. The Doha Model developed a special multilingual and multicultural educational program about donation which advocates reciprocity and solidarity among resident populations seeking to meet all needs for transplantation equitably with full respect of dignity and autonomy of all donors. This review will show data illustrating the positive impact with respect to engagement of a highly diverse multinational population in a donation and transplantation program, and argue that the Model may inform policy and practice in other countries, particularly those with similar demography. Transparency and international consultancy represent a major strategy in the Doha Model, therefore difficulties and frustrations will be discussed with the aim of finding solutions to pave the pathway for self-sufficiency.
L30
THE IMPROVEMENT IN KIDNEY TRANSPLANTATION ON THE BALKANS AFTER ISTANBUL DECLARATION: WHERE DO WE STAND TODAY?

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This year we celebrate 60th anniversary of the first successful kidney transplantation (KTx) in humans. As one of the greatest achievements in modern medicine with its technical and immunosuppressive regimen improvement kidney transplantation has undoubtedly evolved as best treatment option for end stage kidney failure. However, a couple of organizational, political and ethical obstacles abrogate its availability in the majority of developing countries raising possibilities for organ commercialism. Expectedly, this is even more prominent issue in regions like the Balkans where cadaver transplantation has not yet been sufficiently developed and living donor transplantation stays as unique option although not always in a fairly regular manner. Because of such limited chance for kidney transplant a lot of desperate dialysis patients procure an unrelated, donor paid kidney transplant against all medical advice. In addition, such commercial renal transplantation formerly from India, Pakistan and recently from Egypt is usually associated with several medical and social problems increasing the morbidity and mortality in this group of transplant recipients.

The international transplant community responded on such organ commercialism with a Declaration from the Istanbul Summit in 2008 aiming to develop laws and guidelines bringing an end to wrongful practices. This platform was further spread out through WHO and Council of EU Commission on organ donation and transplantation resolutions imposing the concept of self-sufficiency in transplantation, i.e. nation's responsibility to cover the needs of their patients by using resources within their own population. But the implementation of these guiding principles, recommendations and directives on self-sufficiency was recognised as next even more difficult step to successfully manage the complex transplant issue.

In this regard the international transplant associations (TTS, ESOT, ISODP, ETCO) have taken the initiative to coordinate networking of regional professionals - medical experts and healthcare professionals.

In the following 2 years LD transplantation was either initiated or increased in majority of SEEHN countries as an immediate and prompt action followed by the composition of official waiting lists, registries of transplant recipients and living donors in parallel with the increase of the number of committed surgical teams and educated transplant nephrologists. With the governmental support an update in the legislation, establishing the national coordinative body and hospital coordinators, and raising public awareness on the number of potential deceased donors was also accomplished.

In these regard, the two countries with previously reported majority of paid kidney transplantation have already advanced their KTx program in the years 2012/13, i.e. Montenegro with 2 and 9 KTx per 0.62 million population and Macedonia with 12 and 17.5 pmp respectively. Thus, there are no more reports on organ commercialism and we do expect further improvement in DD transplant program in all SEEHN countries.

In conclusion, the Declaration of Istanbul and establishment of SEEHN were shown to be of great value for improvement in the organ donation and transplant activities and prevention of further commercial transplantation in the SEE countries.

L31
MINIMALLY INVASIVE LIVING DONOR HEPATECTOMY: TECHNIQUE AND RESULTS

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Background: Fully Laparoscopic living donor left lateral hepatectomy is standardized and anatomically well-defined and is routinely performed for cancer surgery and occasionally for living donor hepatectomy for transplantation. We are reporting on our initial experience at the Organ Transplant Center of King Faisal Specialist Hospital & Research Center, Riyadh, Saudi Arabia.

Patients/Methods: We performed 10 fully laparoscopic left lateral hepatectomy for 10 living donors for pediatric liver transplantation from May 2013 to December 2013 at the Organ Transplant Center. Demographic data, operative time, cold and warm ischemia times, conversion rate, blood loss, blood transfusion, overnight recovery stay, hospital stay, post operative complications, pain scale according to the Adult Communicative Pain Score assessment were all documents and analyzed.

Results: 2 adult females & 8 males voluntarily consented to donate part of their livers to their relatives. Donor mean age was 29.3 years, age range was 21 to 38 years. Mean BMI was
Chronic kidney disease (CKD) is a growing health problem that leads to end-stage kidney disease and cardiovascular complications in Turkey as well as worldwide. A population-based, national survey in Turkey on populations aged over 18 years so called CREDIT study (A population-based survey of Chronic REnal Disease In Turkey) (NDT 2011;26(6):1862-1871) was performed to determine the prevalence of CKD, and to evaluate relationships between CKD and cardiovascular risk factors. A cluster sampling technique was used to select the study participants. A sampling frame was defined as the 7 geographical regions of Turkey that included 81 cities. The study sample was comprised of 23 cities. A total of 10,872 participants were included in the study. A low estimated glomerular filtration rate (GFR; MDRD) (<60 mL/min/1.73 m2) was present in 5.2% of the subjects who were evaluated for GFR, while microalbuminuria and macroalbuminuria were observed in 10.2% and 2.0% of the subjects, respectively. The prevalence of CKD was estimated as 15.7% in the Turkish adult population. The prevalence rates for CKD Stages 1, 2, 3, 4, and 5 were 5.4%, 5.2%, 4.7%, 0.3% and 0.2%, respectively (Figure 1). The majority of subjects with CKD were in Stages 1-3. CKD was significantly more common among women than men (18.4% vs. 12.8%, p<0.001). The prevalence of CKD also increased with increasing age of the subjects. The odds ratios of CKD ranged from 1.45 to 2.18 for every 10 year increase in age for subjects over 30 years. CKD prevalence was slightly higher among subjects living in rural areas (16.8% vs. 15.2%). CKD prevalence was highest among subjects from the Marmara region (19.7%) followed by Southeastern Anatolia (18.6%), the Black Sea (16.1%), East Anatolia (14.2%), the Aegean (13.8%), Central Anatolia (12.6%), and the Mediterranean (11.7%) regions.

In the general population, the prevalence rates for hypertension, diabetes, dyslipidemia, obesity, and metabolic syndrome were 32.7%, 12.7%, 77.0%, 20.1% and 32.3%, respectively. The prevalence of hypertension was higher in subjects with CKD than in those without CKD (56.3% and 31.0%). Similarly, the prevalence rates of diabetes (26.6% vs. 10.1%), dyslipidemia (83.4% vs. 75.8%), obesity (29.2% vs. 20.0%), and metabolic syndrome (46.0% vs. 29.8%) were significantly higher in subjects with CKD compared to subjects without CKD. Furthermore, the prevalence of these cardiovascular risk factors gradually increased in subjects having advanced stages of the disease. Thus, CKD was found to be strongly associated with these cardiovascular risk factors.
In the last 15 years, the average annual rates of increase in incidence and prevalence of ESKD requiring RRT occurred as 11.7%, and 10% respectively. However, growth rates of both the incidence and prevalence significantly reduced in the last 5 years. The number of RTx centers increased to 62 from 24 over the last 10 years. A total of 17,500 kidney transplantations have been performed over the last decade. Total and cadaveric transplant numbers, annual growth rates during this period are presented in Figure 3. The structural legal and economic arrangements have significantly increased the number of kidney transplants since 2008. However, the increase appears to be more in living donor transplants. Mild decline in the relative rates of cadaveric renal transplants were observed.

There has been a dramatic increase in the number of KTx performed during the five years. Low number of decesead kidney Tx still remains to be a major problem. Patient and graft survival rates are comparable to those of Western countries. Main cause of death is related to infection. The most common reasons for graft loss are death, and chronic allograft nephropathy. Over the last 20 years, Turkish nephrology has substantiated quite important achievements.

L33
THE IMPACT OF LIVING UNRELATED TRANSPLANT ON ESTABLISHING DECEASED DONOR LIVER PROGRAM IN SYRIA

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Liver transplantation is the gold standard of care in patients with end-stage liver disease. The estimated need for liver transplant in Syria is 1000 cases every year. Yet there is no liver transplantation in Syria. Traveling to Iran or Europe for a liver transplant is a luxury few Syrian can afford.

There is currently an on-going debate on which type of donor for liver transplant shall we start with in Syria; living donor liver transplant (LDLT) versus deceased donor liver transplant (DDLT).

In 2003, a new national Syrian legislation was enacted and authorized the use of organs from both volunteer strangers and deceased donors. As a result, the kidney transplant rate jumped from 7 kidney transplants per million populations (pmp) in 2002 to 17 pmp in 2007. This increase was from unrelated donors. Regrettably, practices have developed that have gone beyond the limits of ethical and legal acceptability. This model is considered to be in violation of the Istanbul Declaration. Paid kidney donation has increased from none in 2002 to about 70% of total transplants in year 2010 as poverty makes this option attractive.

Starting an unrelated kidney donor program in Syria has decreased the urge or need to start a deceased donor program as most patients manage to buy kidneys rather than wait for a deceased donor and also economically is more attractive for the state.

The interest in deceased donation has been negatively affected by that systematic approach to use the poor people as the source of organ. As a result, ten years after the enactment of the 2003 law that permits retrieval of organs from deceased, there is no deceased donor program in Syria.

This lack of interest has affected starting the liver program which relies on deceased donation especially that the need for kidneys is more than livers.

To better document transplant & medical communities’ perceptions on organ donation, an electronic survey of a nationally representative sample of 101 respondents was conducted; the main results were as follows: 58% of them don’t support the start of LDLT as they fear a considerable
risk for both donor and recipient given the lacking experience for LDLT and expressed their concern that an unrelated living liver transplant program might lead to death of many donors who be coerced in donation by poverty; 71% of participants think that unrelated kidney donation has contributed to tarnishing the reputation of transplantation and to delaying the start of deceased program to this day; 77% of participants considered the prohibiting of kidney transplant in private centers was a right decision; and 56% of the participants see that deceased program can be initiated and runs in parallel with unrelated organ donation at least temporarily until it becomes regular and efficient. 

The transplantation society and the transplant community have to define how much risk we are willing to accept in LDLT for both donor and recipient. 

Conclusion: Paid kidney donation in actual effect becomes a hindrance to establishing deceased liver donation, as it decreases the urge to start a deceased program and tarnishes the reputation of transplantation.

L34
STARTING A DECEASED DONOR PROGRAM IN AN EMERGING ECONOMY
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The developing world with emerging economies is faced with several major challenges and hence transplantation becomes a low priority (<10pmp) and still lower deceased donation (DD) rates (<5pmp) as compared to countries from developed economies with (>40pmp) transplant rate and (>30pmp) DD rates respectively. 

The reason for this disparity is not entirely economic development. Inadequate transplant facilities in government sector hospital, high costs in private centres and inaccessibility due to rural dwelling renders majority of the population disfranchised from transplantation. Moreover DD rates are low due to lack of awareness about transplantation in general and brain death particularly, negative interpretation of religious rulings and cultural perspectives in respect to dead body. Living donors are the commonest source of kidneys but in some countries use of unrelated donors have resulted in selling of kidneys to the rich in their own country or for recipients coming from richer neighbours. Organ trade created mistrust of the professionals, reduced altruistic donation and in many countries delayed enactment of transplantation laws.

The strategy of increasing organ donation and transplantation would begin with prioritizing the ESOF in their respective healthcare system. The transplant centres should preferably be established in public sector hospitals so that the profit motive currently seen in private sectors is not operative. Comprehensive legislation for transplantation of living and deceased donors should also be considered a priority as the framework will be very useful in preventing unethical transplantation. Major transplant centre in the public sector could be strengthened to become the flagships in promoting the clean image of transplantation (e.g. SIUT) which the people can see as examples of transparency being fair and equitable for all stake holders.

Economic does play a significant role in promoting transplantation but the religious and cultural issues are often equally important which can be resolved by professionals through education and motivation of the society. However organizational aspects have recently been identified as the most important and several successful programmes in emerging economies have reinforced these factors more than the others.

L35
INCREASING TRANSPLANTATION ACTIVITY IN HUNGARY AFTER JOINING EUROTTRANSPLANT
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Hungary was a member of Intertransplant during the Cold War. The organ exchange was on a low level between the member countries and worked insufficient. For more than two decades the country had no organized organ exchange activity. During that time the extrarenal organ programs started and the donor numbers increased to about 15 pmp.
In a 10 million inhabitants country further development could not be expected if no organ exchange programs were introduced for the sake of our patients.

Five years ago after some key position changes the transplantation community of Hungary decided to join Eurotransplant. The then new government stood behind the will of us and Eurotransplant was open to start negotiations. From January 2012 Hungary became a preliminary member of Eurotransplant providing services for the highly immunized, the children and the high urgent cases. Hungary was obliged to report all donors inside the country. From July 1st we became full members of the organization and all Hungarian patients are now on the common waiting list of the 135 million community of 8 countries.

During the last three years a substantial development happened which is reflected in the number of donors and transplantations. After the living donor kidney transplantation went from a 5% figure to over 16%, heart transplantation followed by tripling the cases. It was followed by the cadaveric kidney, pancreas and liver transplant numbers up to over 50% in increase.
Joining Eurotransplant was a success story for Hungary: it gave new perspectives to the professionals and much better chance for the patients on the waiting lists.

L36

EIGHT-YEAR OUTCOMES OF “THE CKC SEQUENTIAL PROTOCOL”

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We had previously developed a sirolimus-based sequential immunosuppression protocol for kidney transplantation comprising two phases: de novo sirolimus (SIR) + cyclosporine A (CyA) + prednisolone (P) for three months, followed by switching to SIR + P + mycophenolate mofetil (MMF) with steroid minimization starting during the first year. The two-year outcomes of patients on this protocol (Group A) showed a numerically higher patient and graft survival with significantly better function compared to those on a conventional protocol comprising CyA + MMF + P (Group B).

In the present study we report the eight-year outcomes in the same cohort (76 patients in Group A and 37 in Group B). Throughout the study, 42% switched from group A to protocol B (for probable sirolimus adverse reactions) versus 43% the other way round (usually for CNI toxicity). The intent-to-treat patient survivals at 5- and 8-years were 88% and 85.5% respectively for Group A and 78% and 73% for Group B. Death-censored graft survivals were 93% for Group A and 95% for Group B. Graft function was significantly better at 8-years, with 91% of Group A patients compared to 50% in group B having eGFRs above 45 ml/min/1.73m2 (p= 0.014), and a significantly lower incidence of chronic allograft nephropathy (CAN) in the former. Secondary parameters, including blood-pressure control, new onset diabetes mellitus, proteinuria and other drug-related adverse events showed no significant differences in between the two groups.

Conclusion: The “CKC sequential protocol” was well tolerated in close to 58% of patients. By Intent-to-treat as well as Patients-on-therapy analysis, it was non-inferior to the widely used CyA+MMF+P protocol as regards patient and graft survival. It was associated with significantly better graft function and lower incidence of CAN up to eight years of follow-up, which promises longer graft survival and lower incidence of cardiovascular complications further on. The incidence of drug-related adverse reactions was not statistically different from those in the comparator.

Key words: Kidney transplantation, Sirolimus, Sequential immunosuppression, CNI toxicity.

L37

DONOR OUTCOME IN LIVING-DONOR LIVER TRANSPLANTATION AT KING HUSSEIN MEDICAL CENTER

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Objectives: To evaluate the outcome and to discuss the safety of donors undergoing partial hepatectomy for living-related liver transplantation at King Hussein Medical Centre (Amman- Jordan), concentrating on biliary complications. Methods: We retrospectively reviewed 90 living donors who underwent liver resections (83 right lobe, 5 left lobe, 2 left lateral lobe) for living donor liver transplantation at King Hussein Medical Center. The procedures were performed over a period of nine years from June 2004 till November 2013. Donor characteristics, operative times, blood loss, hospital stay, and complications were recorded. Donors were followed-up for a mean period of 8.5 ± 1.91 months (range 6-12).

Results: A total of 190 potential candidates for living-donor liver transplantations were evaluated. Of these, 90 underwent successful hepatectomy for donation. Male to female ratio was 64:26. The mean age was 28.89 ± 1.30 (range 19- 49) years. A total of 100 potential donors (52%) were excluded at different points of the work-up. The resection was done without Pringle’s manoeuvre in 62 cases and in 28 cases with intermittent occlusion. The mean operative times were 6.07 ± 1.12 (rang 4-8) hours. The mean intraoperative blood loss were 428.5 ±296.9 (range from 50 to 1500), (intraoperative blood transfusion was required for one donor). Mortality rate was zero. Morbidity rate were 19(18%) and classified according to clavien system, three of them were biliary complications, and will be discussed in detail.

Conclusion: Donor hepatectomy in living-donor liver transplantation is a safe procedure. Meticulous and comprehensive selection protocols are a prerequisite for a good outcome.
Kidney transplantation is recognized as the gold standard treatment for end-stage renal failure after the first living donor kidney transplantation in 1954. Currently, the major obstacle in the face of a kidney transplant is inadequate organ resource. Due to the number of cadaveric organs is far from the needs, living donor organ transplants is increasing rapidly. In Turkey living donor transplants has reached 80%. Since the first living donor kidney transplantation, there have been two major developments in terms of donor evaluation and surgery. First, with the introduction of new technologies in the field of radiology, conventional angiography replace to a non-invasive method, the CT angiography. Then after with the refinement of laparoscopic surgical techniques and surgical instruments, laparoscopic donor nephrectomy became gold standard for donor surgery. This less morbid laparoscopic approach emerge a significant increase in living kidney donation. On the other hand, the use of sensitive imaging methods led to the identification of many urologic asymptomatic problems that cannot be diagnosed by conventional methods. This result has brought the question of whether it would be a reduction in living donor pool. With the use of CT angiography, the diagnosis of common urological diseases, mainly urolithiasis, renal cysts and solid renal masses are increased sharply. Should all donors with these urologic disorders be rejected to donate? Cystic renal diseases are very common, especially in older age. After malignancy and autosomal dominant polycystic kidney disease have been ruled out, the use of grafts with renal cysts is universally considered acceptable because of the shortage of living donors.

The use of kidneys with small tumors could be considered an option for kidney transplantation in selected patients. Successful renal transplants have been performed with kidneys affected by small, low-grade renal carcinomas that were completely excised. The risk of renal cell carcinoma on the contralateral kidney and/or to other organs is even lower; consent to receive a renal transplant must include a discussion with the donor and the recipient that transmission of malignant disease cannot be completely excluded. These donors and recipients should be carefully monitored.

Nephrolithiasis is also very common urological problem and is increasing in prevalence. The routine evaluation of kidney donor should include screening for kidney stones. The risk of kidney donation in a stone former includes recurrence and development of obstructive uropathy, urinary tract infections that may lead to worsening kidney function. Patients with low risk for recurrence could be eligible to be donor such as an asymptomatic potential donor, age over 40, with history of a single stone and normal metabolic and a bench surgery for stone removal can be considered. Persistent microscopic hematuria usually is not innocent. Especially risks in people whose close relatives developed end-stage renal failure should not be underestimated.

After rule out malignancies and urinary tract stone disease, kidney biopsy should be considered to rule out glomerular pathology such as IgA nephropathy.

We recently retrospectively reviewed donor and recipient records of all living kidney transplants performed between 2004 and 2014. Among 251 living kidney transplantations, we noted 47 donors (19%) with urologic disorders (33 donors with renal cysts, 4 donors with tumors, 2 with persistent hematuria, and 8 donors with stones). Neither on donors, nor on recipients any complication related to aforementioned pathologies was occurred at a mean follow-up of 34 months.

In conclusion, all donor candidates with urological disorders shouldn't be excluded to donate. Transplantation with these kidneys could be performed successfully with careful donor and recipient selection, thus extending the pool of organs.

Surgical complications after renal transplantation are associated with significant morbidity, prolonged hospital stay and sometimes mortality. A second surgical act is sometimes required. Here, we report surgical complications that we met in our adult and pediatric recipients. Totally 187 kidney Transplantation (KTx) were performed over a period of 87 months from December 2006 to February 2014 and follow up at our center. Among this 187 KTx, there were 160 Adults and 27 Pediatrics KTx. For the adult recipients there were 65% male and 35% female, source of donors was exclusively from living related donors, the median age of recipients at the time of surgery was 28 years (range 17 to 61). The median age for donors was 48 years (Range 21 to 69). For pediatric recipients there were 70% male and 30% female, median age was 12 years old (range 5 to 16) for recipient and 39 years for donors (range 30 to 49).

We investigated on early and late surgical complications, there management et compared them to the literature. In the literature, Urologic complications represent 2.5 to 14% of post-operative complications, our study showed an incidence of 6.9% (n= 13). 2.6% of them were vesicoureteral reflux, 2.6% were ureteral stenosis and 1.6% urine leakage. A second surgical act was performed for two of the five cases of
ureteral stenosis, we lost a patient because of a late surgical act. Vascular complications represent 5 to 8% of post-operative complications, our study showed an incidence of 1.6% of renal artery stenosis; all of them required a surgical act and one of them failed and we lost the renal graft. There was also one case of renal vein thrombosis. Gastrointestinal complications represent 15% of post-operative complications in the literature. In our series, we found an incidence of 1.06% of intestinal perforations and a case of bladder injury by the cystocath.

Surgical complications still represent a challenge that increments morbidity and mortality among KTx recipients. An early detection and aggressive management by experienced surgeons are often necessary to avoid graft loss and sometimes patient's life.

L40
THE FUTURE OF COMMUNICATION IN TRANSPLANTATION: PATIENTS, CLINICIANS AND SCIENTISTS

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The advent of the internet and then social media has prised many people in the general community throughout the world, away from the traditional forms of communication: conversation, writing, reading and even passive watching. In the media crowded world we live in today we are told that there is no time for these things and everything must be packaged in 140 character sound bites. How do we engage and educate our patients to take responsibility for their care? Surely we should not accomplish this through informed consent documents that lay out an encyclopaedia of densely unreadable legalistic jargon.

Has the field of clinical and experimental Transplantation metamorphosed from communication through individual discussion, group meetings and written publications to a global village of news sound bites? If we examine the trends of our communication strategies we can see both strengths and weaknesses in the way that we currently communicate between ourselves and with our patients.

Do we live in a global world or do we each inhabit our own national, cultural, religious or tribal villages? In presenting where I believe we will derive the most benefit for ourselves as professionals and our patients, I examine the roles of small meetings, large congresses and the various forms of media that we read and view in the course of our working days.

I will conclude that cumulative opinion and clarity of evidence are the two core values that we need for every facet of our own education and the development of our clinical protocols. We must distinguish between the unreality of some perspectives of ‘continuous medical education’ and the unreality of unsupported ‘experience based opinion’. Conversation based on understanding and evaluation of evidence is the way that we learn most and significantly improve outcomes. Journals and Conferences must have the same elements: peer reviewed evaluation; concentrated presentation of data; sifting and comparison of conflicting data; effective search mechanisms to find what we are looking for; and finally engaging style. Competition in the world for our attention must not be an excuse for popularising and simplifying complex issues in the hope of attracting a crowd.

L41
IMMUNOREGULATION IN TRANSPLANTATION – FROM MECHANISMS TO MEDICINE

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Immune regulation is fundamental to any immune response to ensure that it is appropriate for the perceived threat to the host. Strategies for the induction of specific unresponsiveness to donor alloantigens currently under investigation in the clinic take advantage of two of the major mechanisms for the induction of tolerance to self antigens – deletion and immunoregulation/suppression.

We have demonstrated that human regulatory T cells expanded ex vivo can protect human allografts (skin and vessels) from rejection (1, 2). Together with other leukocyte populations, including regulatory T cells, B cells and macrophages as well as myeloid derived suppressor cells and dendritic cells, Treg contribute to the regulation of immune responses in vivo after cell or solid organ transplantation (3). The identification and characterisation of Treg that can control immune responsiveness to alloantigens has opened up exciting opportunities for new therapies in transplantation. Phase 1/2a clinical trials are in progress – www.onestudy.org.

References:
L42
THE COUNCIL OF EUROPE CONVENTION AGAINST ORGAN TRAFFICKING

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More than 100 Member States of the World Health Organization now have organ transplantation services that collectively perform 110,000 organ transplants each year. However, the progress of organ transplantation remains tarnished by condemnable practices that have been ongoing for over two decades. These practices are prompted by the profound global shortage of organs, but are also widespread because legislation and enforcement mechanisms are currently inadequate to curtail them. Because organ transplant crimes frequently have a transnational scope, international legally binding instruments become essential in harmonizing national regulations and facilitating international co-operation. The Council of Europe Convention against Trafficking in Human Organs finally closes the existing loopholes in these regulations and provides a comprehensive framework to prevent and combat these crimes.

L43
TARGETING ISCHEMIA-REPERFUSION INJURY TO EXPAND DONOR LIVER TRANSPLANT POOL

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Liver transplantation is the gold standard of care in patients with end-stage liver disease and those with tumors of hepatic origin (1). In 2011 there were 16,107 patients in the U.S. waiting for a liver transplant but only 6,341 liver transplants were performed, implying an acute shortage of about 10,000 donor livers per year to meet the needs. During the same time, 1,589 patients died while awaiting a liver transplant whereas additional 1,349 patients were removed from the waiting list because they became too sick. What are the implications of such a status quo? The organ shortage has prompted use of “marginal” or extended criteria donor (ECD) organs from older, steatotic, or non-heart beating donors, as well as those that have been subjected to prolonged periods of cold storage. The “marginal” organs, however, are particularly susceptible to ischemia-reperfusion injury (IRI), an inevitable event in organ procurement and preservation. Indeed, IRI not only contributes to the donor organ shortage but may also lead to poor graft function and primary non-function. Moreover, the cellular damage surrounding organ removal and storage impacts the outcomes because it represents a major risk factor for acute and chronic rejection. Despite its obvious significance, the mechanisms that account for organ IRI are only partially understood and remain one of the most understudied areas in clinical and experimental transplantation.

The IRI-insult in the liver is a dynamic and multifaceted process that combines elements of “warm” and “cold” injury (2). The process of warm organ damage, occurring in-situ in low flow states, is dominated by Kupffer cell-derived cytotoxic molecule-mediated hepatocellular injury. Cold IRI, experienced during ex-vivo preservation, is dominated by the damage to the liver sinusoidal endothelial cells and disruption of the microcirculation. These seemingly distinct processes share common mechanisms and overlapping effects upon non-parenchyma (Kupffer cells/lymphocytes) and parenchyma (hepatocytes) cell functions, both of which lead to the organ failure. IRI represents a continuum of local immune processes that include endothelial activation, increased expression of adhesion molecules, Kupffer cell and neutrophil activation, cytokine release, followed by ultimate endothelial cell and hepatocyte death. A plethora of TLR4-dependent innate immune mechanisms initiate liver IRI cascade. However, activated Kupffer cells, the native liver macrophages, release superoxide radicals, TNF-α and IL-1, which promote NF-κB activation, resulting in local immune processes that combine elements of “warm” and “cold” injury that lead to the organ failure. IRI not only contributes to the donor organ shortage but may also lead to poor graft function and primary non-function. Moreover, the cellular damage surrounding organ removal and storage impacts the outcomes because it represents a major risk factor for acute and chronic rejection. Despite its obvious significance, the mechanisms that account for organ IRI are only partially understood and remain one of the most understudied areas in clinical and experimental transplantation.

The UCLA group has pioneered the concept of targeting cell adhesion cascade to mitigate IRI in liver transplantation. Instead of using immunosuppressive agents, the selectin antagonist known as recombinant P-selectin glycoprotein ligand IgG (rPSGL-Ig), blocks the initial tethering of leukocytes to activated platelets and endothelium. Indeed, treatment with rPSGL-Ig was effective against liver IRI in experimental transplantation. The IR-insult in the liver is a dynamic and multifaceted process that combines elements of “warm” and “cold” injury (2). The process of warm organ damage, occurring in-situ in low flow states, is dominated by Kupffer cell-derived cytotoxic molecule-mediated hepatocellular injury. Cold IRI, experienced during ex-vivo preservation, is dominated by the damage to the liver sinusoidal endothelial cells and disruption of the microcirculation. These seemingly distinct processes share common mechanisms and overlapping effects upon non-parenchyma (Kupffer cells/lymphocytes) and parenchyma (hepatocytes) cell functions, both of which lead to the organ failure. IRI represents a continuum of local immune processes that include endothelial activation, increased expression of adhesion molecules, Kupffer cell and neutrophil activation, cytokine release, followed by ultimate endothelial cell and hepatocyte death. A plethora of TLR4-dependent innate immune mechanisms initiate liver IRI cascade. However, activated Kupffer cells, the native liver macrophages, release superoxide radicals, TNF-α and IL-1, which promote NF-κB activation, resulting in local immune processes that combine elements of “warm” and “cold” injury that lead to the organ failure. IRI not only contributes to the donor organ shortage but may also lead to poor graft function and primary non-function. Moreover, the cellular damage surrounding organ removal and storage impacts the outcomes because it represents a major risk factor for acute and chronic rejection. Despite its obvious significance, the mechanisms that account for organ IRI are only partially understood and remain one of the most understudied areas in clinical and experimental transplantation.

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association with modulation of CXCL10 and IL-10, the signature biomarkers in experimental liver IRI.

References

L44
TPM: THE SUCCESSFUL SPANISH MODEL

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Introduction: Transplantation is an accepted therapeutic option to save or improve quality of life when organ failure or tissue replacements are needed. However, the lack of organs represents its major limitation. With 35.12 pmp donors in 2013, Spain has impressed the international transplant community with the world’s highest rate of deceased donation (DBD+DCD) and transplantation with complementary transplant activity which maintain a stable waiting list of patients.

Aim: This presentation will explore the success factors of the Spanish system and look at whether these factors can be implemented in other countries

Methodology: The first Transplant Coordination Team (TC) in Spain was created in 1985 at the Hospital Clinic of Barcelona. TC subsequently became a specific institutional department required for development and growth of the institution’s organ, tissue and cell transplant programs. This model was introduced in other centers and regions.

Essential elements of the Spanish model are based on a) Social and Legal Framework, b) Organización Nacional de Trasplantes (ONT) Network, c) Qualified professionals, d) In-house TPM Coordinator, e) Audits on Brain Deaths, f) Hospital Expenses reimbursement, g) Mass media awareness, h) Training and continues education.

The figure of the TPM appointed at each procurement hospital has been considered a key element of the Spanish model.

Conclusions: Organ and tissue donation and transplantation represents a social challenge which must be protected and promoted from the administration to the health professionals. Society has to be deeply involved. Training programs are essentials before implementing any donation system to make sure that the process will be clear, transparent and fair to guarantee the quality of the activity.

L45
THE ROLE OF UNDERLYING LIVER DISEASE AS A PREDICTOR OF OCCULT CORONARY ARTERY DISEASE AMONG LIVER TRANSPLANT CANDIDATES

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Background: Cardiac work up is considered to be an important component of pre-liver transplantation work up. Early identification of Coronary Artery Disease among asymptomatic candidates has been the main challenge. Cardiac stress tests in conjunction with Transthoracic ECHO have been the standard part of the work up. Cardiac Catheterization is still considered to be the gold standard technique, in an effort to investigate for the presence and extent of Coronary Artery Disease (CAD).

Methods and Aims: We have previously investigated the role of Cardiac Calcium Score in predicting the presence of Coronary Artery Disease. 401 Agatston units was suggested as a cut-off for the early identification of advanced coronary artery disease, which was described as presenting with >49% obstruction upon cardiac catheterization. Following IRB approval, Electronic Medical Records of patients evaluated at Johns Hopkins Liver Transplant Program, between January 1st, 2011 to December 31st, 2013, were retrospectively reviewed. Aim was to investigate the role of a specific liver disease as a risk factor for advanced coronary artery disease, among liver transplant candidates.

Results: There were total of 410 patients. Calcium score were obtained on 156 patients, with history of DM, HTN and smoking. There were 91 males and 65 females. The mean age was 58.6 ± 6.8 years. Mean MELD at the time of the work up period was 15.3 ± 7.1. Mean Calcium Score was 304.9 ± 662.1. Following the discussion with an experienced cardiologist, Cardiac catheterization was performed by an interventional cardiologist on 34 patients. Four major diagnosis were ETOH liver cirrhosis (24=15%patients), NASH (30 =19% patients), HCV related liver disease (77=49%) and HBV related liver disease (5=3%). The remaining 20 patients had alternate causes of cirrhosis. Fourteen underwent cardiac catheterization in the HCV group and 12 had >49% stenosis (p=0.030). Nine patients in ETOH group underwent cardiac
catheterization and 3 of them demonstrated >49% CAD (p=0.057). Eight NASH patients underwent catheterization and 5 had >49% stenosis (p=1.00)

**Conclusion:** Coronary artery disease may affect cirrhotic patients regardless of the etiology of the underlying liver disease. Early identification of CAD is important to be able to achieve the best post-transplant outcomes and survival. Calcium score can be used as a screening tool to supplement Cardiac Stress tests. Screening for CAD is advocated prior to liver transplantation, above age 40, regardless of whether the patient has risk factors or not. Although Coronary Calcium Score above 400 can be considered to select patients who will benefit from further investigation with cardiac catheterization, the underlying liver diagnosis should also be taken into consideration, since in this small cohort of patient population, it has been observed that the diagnosis of HCV was associated with significant Coronary Artery disease of > 49% coronary obstruction (p=0.030). This observation needs to be further verified in a larger cohort of patients.

**L46**

**IMMUNOGENETIC SURVEILLANCE OF RENAL TRANSPLANT REJECTION IN LONDON**

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London is now considered to be the most cosmopolitan city in the world and has six renal transplant units serving a population of 8.3 million. The renal transplant waiting lists reflect the ethnic diversity of London and are comprised of European, Asian and African patients in end stage renal failure. In the UK national kidney sharing scheme all patients have an equal but ranked access to the potential UK deceased donor pool, which depends on their blood group, HLA type and sensitisation, age, waiting time and geographic location. In 2006, a rational default system was introduced to improve access to organs for non-European patients with HLA types that are rare and difficult to match in the UK national donor pool, which was based on the structural compatibility of different allelic variants of HLA class I and II molecules whose frequencies vary considerably between ethnic groups. There are five Tissue Typing or Histocompatibility and Immunogenetics (H&I) laboratories in London that are integral components of the clinical and surgical renal transplant teams. All H&I laboratories have to focus on identifying and characterising donor-specific HLA antibodies. The majority of RFH patients in end-stage renal failure are registered in the UK national organ sharing scheme. However, some patients do leave the UK and return back to the RFH after receiving renal transplants abroad, which poses particular problems with post-transplant care and the monitoring of antibody responses to the graft. We also have experience of renal transplant patients developing antibody mediated rejection in the absence of donor-specific HLA antibodies, but correlating with the presence of antibodies directed against Major Histocompatibility Complex or MHC class I chain-related antigens (MICA), endothelial cell antigens and the angiotensin receptor. MICA is a polymorphic stress-related protein encoded by genes close to the HLA-B locus in the MHC on chromosome 6. We now have evidence that donor-specific MICA antibodies correlate with both humoral and cellular rejection episodes and poorer long-term renal transplant function. Another area of non-invasive surveillance being tested is the use of Luminex-based techniques to monitor biomarkers of rejection in the urine of transplant recipients. Finally, with the increasing availability of robust next generation DNA sequencing methods progressive H&I laboratories will soon be able to perform high through-put, high resolution, unambiguous typing of HLA and other immune response genes on a very large and economic scale, which will make a major contribution to the fields of transplant immunology, population genetics and disease association studies.

**L47**

**HIV POSITIVE-TO-POSITIVE TRANSPLANTATION**

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Background: The outcomes of kidney transplantation in HIV positive people using HIV negative kidneys had been reported as compatible to HIV negative people. This talk now reports the outcomes of these people after receiving kidneys form HIV positive deceased donors.

Methods: We undertook a prospective, nonrandomized trial of kidney transplantation in HIV-infected candidates who had CD4+ T-cell counts of at least 200 per cubic millimeter and undetectable plasma HIV type 1 (HIV-1) RNA levels while being treated with a stable antiretroviral regimen. All patients reported were transplanted with kidneys from HIV-infected deceased donors who tested positive with fourth generation ELISA HIV RNA assay. All donors were naive to antiretroviral treatment (ART) or on first line ART. Patients were managed post transplantation according to a study protocol that defined post transplant immunosuppression,
prophylaxis against opportunistic infections, indications for biopsy, management of rejection and antiretroviral therapy. Results: Between September 2008 and February 2014 a total of 27 HIV positive patients underwent kidney transplantation with kidneys from HIV positive deceased donors. Survivors were followed for a median period of 2.38 years. Patient survival rates (±SD) at 1 year were 83.5±0.08%, 3 years were 83.5±0.08% and 5 years were 74.3±0.11% respectively. The corresponding mean graft survival rates were 93%, 84% and 84%. HIV infection remained well controlled, with undetectable viral loads after the transplant. CD4+ T-cell counts recovered well after initially dropping very dramatically.

Figure 1 Kaplan Meier graph for patient survival: Survival curve for the 27 transplant recipients of HIV+ kidneys are shown

The lowest serum creatinine after 3 months were 55 μmol/L and the highest was 300 μmol/L. The median value at 3 months was 101 μmol/L. At six month the lowest creatinine was 51 μmol/L, highest 275 μmol/L and median 280 μmol/L. One year after the transplant the highest serum creatinine measure was 300 μmol/L, the lowest was 52 μmol/L and the median value as 102 μmol/L. At eighteen months this pattern persisted with a median serum creatinine of 105 μmol/L and currently the median serum creatinine of patients who have been transplanted 4 years ago is 149 μmol/L. Graft survival has therefore been 90.91% at one year and 80.81% at three years (Figure 2).

Figure 2: Kaplan Meier graph for Graft survival

Conclusions: In this cohort of carefully selected HIV-positive recipients and donors, patient and graft survival rates were high at 1, 3 and 5 years. There was no clinical flare up in the HIV viral load and no clinical complications using HIV positive deceased donors.

L48
STEM CELL RESEARCH AND APPLICATIONS IN JORDAN

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Stem cells hold a promising role in regenerative medicine, tissue repair and organ replacement. The University of Jordan (UJ) has recognized this role and has therefore established a purpose built stem cell therapy center (CTC). The center is equipped with the latest and most modern tools, equipment and laboratories to serve the medical and scientific community in Jordan as well as to respond to patients medical needs which are not met by conventional medical practice. The center is currently conducting several clinical studies on patients to explore and clarify the role of stem cells in multiple sclerosis, knee osteo-arthritis, non-healing diabetic foot ulcers, erectile dysfunction, resistant corneal ulcers, and burn patients. The center is conducting several basic research projects on cornea epithelial regeneration, dermal substitute, dental stem cells and human bone generation. This presentation will highlight some of these topics in detail.

L49
CORD BLOOD BANK: THE FUTURE

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In the modern era of genomics, systemic and molecular biology, great advances have enhanced knowledge and understanding of disease pathophysiology. New biological markers help early diagnosis and play an important role in decision-making regarding the treatment. Additionally, new technologies allow better understanding the differences between individual cases, a fact that could ultimately lead into personalized medicine. This however, increases the scientific demand for access to high quality material and information, in order to advance research and therapeutic applications. Therefore, Biobanks have been created to assist medical research, clinical and translation medicine. Depending on their purpose and reason and specialty, of the Biobanks, they are classified into different types: disease oriented, population based, case control, are some examples of existing Biobanks. As a result due to the enormous amount of information and samples contained in Biobanks, they constitute an important reserve for the development and validation of new diagnostic markers and new therapeutic agents. In cancer research, Biobanks are a key resource for genomic, proteomic and metabolomics based research, for molecular epidemiology and translation
studies, for molecular epidemiology and translation studies, for molecular diagnostic and therapy, for the development of therapeutic targets and biomarkers as well as drug discovery. A special category of Biobanks are the "Tissue and Cell Banks" that focus on providing cells and tissues including Umbilical Cord Blood (CB), corneas, skin, bone fragments and other for clinical applications. The particularity of those Banks resides in the fact that they are patients oriented (bank for patients). They can be anything from a small collection of vials of frozen cells, to a large laboratory facility with dedicated storage, testing, and distribution systems, supplying high quality and controlled cells for international users. They have routinely been established, for more than three decades for the preparation of bone marrow, cord blood, cornea, skin and other tissues for transplantation and are designed to make cells available through registries, to specific patients with "matched" tissue typed donors. In parallel to their clinical contribution, "Tissue and Cell Banks" provided limited cell and tissue preparations for research activities. However, recent advances in stem cell biology have led to enormous interest in the use of stem cells in translational and clinical approaches. In the "90s it was demonstrated that embryonic, but also several categories of adult stem cells have a capacity to give rise to any cell type. More recently, iPSCs derived from adult human somatic cells are being used in several medical research areas (drug development, drug screening, disease models, etc. In addition, iPSCs, opened a new field of stem cell based therapeutic strategies for a large number of human diseases such as neurological diseases, heart disorders, liver diseases, diabetes, etc.

In this context CBBS could greatly enhance their activities, providing biologic material for new applications. Their main advantages over other Biobanks, is the easy access to a rich source of different kind of cells, namely the Umbilical Cord Blood (CB) and the existing infrastructures, designed under stringent standards, to deliver high quality products. Indeed, the quality of stored biomaterial is a key factor that would determine the success of their usage. Therefore, working protocols should include clear and detailed instructions for collecting, processing, and storing of biological material. Regarding the various types of cells encountered in the CB, several research teams have reported studies, mainly in animal models, suggesting that some categories could repair tissues other than blood in diseases ranging from heart attacks to strokes. The cell populations implicated include non hematopoietic stem and progenitor cells like mesenchymal stem/stromal cells (MSCs), endothelial progenitor cells (EPCs) or cells that could derive from them, namely iPSC. The generative ability, if verified, might be due either to a trophic effect exerted by the cells that helps, the body repair damaged tissues or to direct differentiation of stem cells into the damaged tissue cell type. Either way, their contribution in tissue repair and regeneration would be significant. With the focus shifting on these "other" cell populations of CB, the stakes of CBB are also increasing. New methods and cryopreservation process must be established under good manufacture practices (cGMP) in order to improve, not only survival, but also the therapeutic potency of the cells. Nevertheless, while stem cells and the growing field of regenerative medicine elicit excitement and anticipation across the scientific world it seems appropriate to reconsider the potential future of CB biology, transplantation and banking.

References

L50
STEM CELL THERAPY: A BRIDGE TO TRANSPLANT

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Stem cell based therapies are now widely used for diversified indications which are not limited to the treatment of the haemopoietic system. Stem transplantation has now replaced bone marrow transplant, peripheral blood stem cells are easily obtained with good quality and quantities with the least invasive technique. Stem cells are can now be obtained from umbilical cord, peripheral blood, adipose tissues, bone marrow and Wharton's jelly. The isolated stem cells are being experimentally used for the treatments for neurodegenerative diseases and conditions, diabetes, heart disease, and other conditions. Another potential application of stem cells is making cells and tissues for medical therapies. Stem cells are the body's raw materials — cells from which all other cells with specialized functions are generated. Under the right conditions in the body or a laboratory, stem cells divide to form more cells called daughter cells. Pluripotent stem cells offer the possibility of a renewable source of replacement cells and tissues to treat a myriad of diseases, conditions, and disabilities including Parkinson's disease, amyotrophic lateral sclerosis, spinal cord injury, burns, heart disease, diabetes, and arthritis. Stem cells can be guided into becoming specific cells that can be used to regenerate and repair diseased or damaged tissues in people. For end stage diseases donated organs and tissues are often used to replace those that are diseased or destroyed. However, the demand of organs exceeds, by far, the number of organs available for transplantation. Stem cells may have the potential to be grown to become new tissue for use in transplant and
regenerative medicine. In transplantation the use of stem cell can be through a direct route, by simple administration of stem cells to the diseased or injured organ and relies on their inherent capabilities for differentiation, organization, and integration into existing tissues to restore function or indirectly through the use of bio- and tissue-engineering approaches, which are based on in vitro differentiation of stem cells and the organization of their derivatives within matrices or in association with biomaterials to augment or replace function following implantation. For renal transplants stem cells can be used as adjunct for immunosuppressive therapy which is achieved by Inject donor derived stem cells prior to transplant to induce a chimera state and withdraw immunosuppressive therapy. Results with such approach indicate a decrease in the use of immunosuppressive therapy without an increase in rejection rate. The success rate (as an increase in ejection fraction) for the heart is encouraging but it also depends on the route of administration of the cells as well as the type of stem cell used. As for the liver the results in experimental models are still limited. Alternatively many groups are trying to build organs using biodegradable scaffolding and stem cells. Till now only trachea and bladders have been built and transplanted. Major issues still such as, kinds of adult stem cells exist, and in which tissues do they exist and how do adult stem cells evolve during development and how are they maintained in the adult. And most importantly do adult stem cells have the capacity to transdifferentiate, and is it possible to control this process to improve its reliability and efficiency and is donor cell-recipient cell contact required, secretion of factors by the donor cell, or both? What are the factors that control adult stem cell proliferation and differentiation.

**L51**

**LIVER TRANSPLANTATION FOR HCC: 12 YEARS EXPERIENCE**

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Hepatocellular carcinoma (HCC) represents 4-5% of all cancers, with 1 million new cases diagnosed per year worldwide. It occurs in any liver disease with regeneration, and > 50% related to Hepatitis B & C. 80-90% of patients with HCC are cirrhotic.  
Liver transplantation for hepatocellular carcinoma has the potential to eliminate both the tumor as well as the underlying cirrhosis and is the ideal treatment for HCC in cirrhotic liver.  
Limitations in organ availability necessitate stringent selection of patients who would likely to derive most benefit. Selection criteria have considered tumor size, number, volume as well as biological features. The Milan criteria set the benchmark for tumors that would benefit from liver transplantation but were found to be excessively restrictive. More HCC patients could be candidates for transplant if individual tumor characteristics and "up-to-7" criteria are considered.  
Microvascular invasion is the single most important adverse prognostic factor for survival. Living donor liver transplantation (LDLT) has expanded donor options and has the advantage of lower waiting period and not impacting the non-HCC waiting list. Acceptable outcomes have been obtained with living donor liver transplantation for larger and more numerous tumors in the absence of microvascular invasion. Down staging of tumors to prevent progression while waiting for an organ or for reduction in size to allow enrolment for transplantation has met with variable success.  
In Egypt, there are 12 centers undergoing liver transplantation. Since 2001 till 2013, 437 cases of LDLT have been performed in Wadi El Nile Hospital. Of the adult cases, 27% were due to HCC while 73% were due to ESLD. Recurrence of HCC post liver transplantation occurred in 10% of cases. Significant high recurrence rate was observed among patients with high serum AFP before LDLT as well as patients with high histopathological grade HCC with or without microvascular invasion. Bridge or downstaging was done for third of HCC patients due to long waiting list, donors unavilability or suspicious of advanced HCC disease. Immunosuppression probably play a role in recurrence of HCC.

**L52**

**ORGAN TRANSPLANTATION IN TUNISIA**

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Organ transplantation began in Tunisia in 1986, as in other countries of the region regarding kidney transplant. It had the peculiarity to be quickly decentralized and extended to other organs: heart, liver, and pancreas  
Live related donor (LRD) and deceased donor (DD) kidney transplants were both initiated in summer 1986. Organ procurement and transplantation law was promulgated on March 1991 and the National Centre for Advancement of Organ Transplantation was created in 1995. The number of transplant units has increased regularly to reach seven scattered in the country and the yearly transplant number increased progressively to reach 139 including 20% of DD, in 2010. But the needs are definitely more important and growing unrelentingly. Heart transplant began in January 1993 and Tunisia has the credit along with Jordan to be the only Arab countries where it is practiced. But this activity remained modest, as in 2005, only 16 patients benefited from it. The causes of this drop were numerous but the obstacles are not insuperable.
Liver transplant which is not very practiced in other Arab counties began in January 1998. During 10 years, 27 patients benefited from this procedure. But after few years of stagnation it is starting again.

No doubt, all transplants are needed but kidney transplant constitutes a priority in Tunisia. The target would be to implement 400 new transplantations per year which would imply a long term strategy in the framework of the total financial coverage of all replacement therapies by the National Health Insurance Funds in public as well as in private sectors.

**L53**

**INTESTINAL AND MULTIVISCERAL TRANSPLANTATION: CURRENT STATUS AND LONG TERM RESULTS**

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Intestinal and multivisceral transplantation are the only transplant options in certain groups of patients with devastating medical problems. After many years of evolution, intestinal transplantation is now offered to patients who succumb to the inevitable complications of TPN in the form of infection, catheter-associated thrombosis, hepatic disease, renal disease, persistent gastrointestinal dysfunction and metabolic derangement. In recent years there is an introduction of unconventional indications for multivisceral transplantation such as diffuse porto-mesenteric thrombosis and neuroendocrine tumors. Since the beginning there have been significant challenges in surgical techniques, immunosuppression protocols, post-transplant complications and long term outcomes. The unique nature of problems and rarity of the transplants have prevented fast and significant improvement in long term outcomes. Traditionally one and five year survivals were 50-70 percent and 40-60 percent respectively. Recent improvements in immunosuppression, prophylaxis for infections, surgical technique, monitoring and diagnosis of rejection have helped improve the quality of life, graft and patient survival. In certain centers one and five year survivals reached to 80-90 percent and 60-75 percent respectively. Because of the cost, availability and complications of parenteral nutrition and the improvement in quality of life and long term outcomes in recent years justified the importance and necessity of intestinal and multivisceral transplantation in certain patients with catastrophic medical problems.

**L54**

**TWELVE YEARS EGYPTIAN EXPERIENCE IN LIVING DONOR LIVER TRANSPLANTATION**

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Egypt suffers from a disease burden of HCV of about 8-11% of the population. This has resulted in a preponderance of terminal liver disease and an increase of hepatocellular carcinoma cases to epidemic proportions. In one study, it is projected that Egypt will need a hundred thousand transplants by 2020. Realistically, this goal cannot be achieved without the introduction of cadaveric organ donation.

The absence of a cadaveric liver transplantation program has led us to start the first living donor liver transplantation (LDLT) program in Egypt in August 2001. Since then, we have performed more than 500 cases of LDLT in three transplant programs.

In Egypt now, there are about twelve centers performing LDLT with different frequencies. In this study, we present the overall country statistics with over 2000 LDLTs performed and concentrate on our experience.

HCV was the main indication in 96% of the cases. Clinical recurrence of HCV was 26% with an average of 10 ± 8.4 months post transplantation.

Ninety days survival was 86% and one year survival 72% in the second five years of the program compared to 75% and 64% respectively in the first five years of our experience demonstrating the importance of growing centre experience. Older recipient age and length of cold ischemia were significant predictors of graft failure.

Hepatocellular carcinoma has been a growing indication with an incidence of 23.6% in our population with 96% of the cases within Milan criteria. Our drop out rate in hepatocellular carcinoma has been about 27% in spite of using bridging and downstaging procedures whenever feasible.

**L55**

**LIVE KIDNEY DONATION – NEW CHALLENGES IN THE ERA OF GLOBALIZATION**

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In 2004 the Ethics Committee of The Transplantation Society arranged the Amsterdam Forum resulting in a consensus statement on the care of the live kidney donor. The cornerstone is to protect the well-being of the live donor and that live donation always should be voluntary and based
on a true informed consent. The guidelines also underline the responsibility of the transplant center, not only for the recipient, but also for the live donor. Centers involved in live kidney donation are urged to facilitate long-term follow-up for live donors and to develop and report to registers to enable evaluation of the long-term outcome of live kidney donors. In parallel with these efforts to improve the performance of well-established programs for live kidney transplantation, unethical transplantations involving commercialism, transplant tourism and trafficking remain a serious problem as outlined in the Declaration of Istanbul. Today, a significant number of the inhabitants in many countries are first and second generation immigrants. When members of these groups develop terminal renal failure, a suitable related live donor is often living in another country than the planned recipient. The transplant center then faces a special challenge in evaluating and in securing the long-term follow-up and well-being of a live donor living outside the own health care system. This is further emphasized when the transplant program accepts non-related live donors and the suggested donor comes from an area where commercialism and organ trade are common. This presentation will discuss the problems described above and suggest some strategies to uphold ethical live donation in spite of these challenges.

L56
DUCT TO DUCT BILIARY RECONSTRUCTION IN RIGHT LOBE LIVE DONOR LIVER TRANSPLANTATION

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Currently, reported incidence of biliary complications after right lobe LDLT ranges around 16-30%. Sir Roy Calne described the biliary anastomosis as the Achilles’ heel of liver transplantation years ago. Although the incidence is less for deceased donor liver transplants it is the most common problem following live donor liver transplantation. Duct-to-Duct (DD) anastomosis has the advantages of:
- Easier and shorter
- Early enteral feeding
- Physiological bilioenteric continuity
- Preserving the sphincter of Oddi
- Less contamination from the bowel
- No bleeding from the entero-enterostomy
- Postoperative ERCP

Donor operation is essential to have healthy ducts to anastomose as well as to avoid complications for the donor. The principles are:
- Intraoperative cholangiogram
- Cutting point is around approximately 10 mm right of the confluence of the hepatic ducts
- Flush from cystic duct for bile leaks
- Flush the graft in the back-table with HTK

D-D anastomosis is feasible in almost all right lobe LDLT
- Multiple bile ducts in the right lobe is common but does not compromise the outcome
- D-D anastomosis is safe and efficient for right lobe LDLT

The results of live donor liver transplantations are comparable to the results of transplants from deceased donors. The result could even be better than of cadaver donor liver transplantation in the near future. This can only be achieved by meticulous surgical technique and more importantly, by sharp observation and thoughtful clinical studies.

References:

L57
BILIARY COMPLICATIONS ARE THEY DESTINY?

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Between March 2012 and April 2014 we have performed 105 liver transplantation. Since September 2013 we started to use external drainage catheter for duct to duct anastomosis. After excluding cadaveric cases and cases with hepaticojejunostomy we had 24 cases with external drainage and 38 cases with internal drainage. Even small amount of bile in drainage catheters accepted as bile leak. Early biliary leak rate was 20% and 44% respectively. In the first group we did ERCP in one case and all other leaks stopped spontaneously during hospitalization. In two other cases we had leaks after discharge. They were due to displacement of the catheter and they all treated easily with ERCP. In the second group we did 4 percutaneous drainage, 8 PTK, 5 ERCP. We need time for long term results but external drainage decreased early biliary leak rates significantly.
**L58**

**EARLY AND LATE BILIARY COMPLICATIONS AFTER LIVING AND DECEASED DONOR LIVER TRANSPLANTATION: A SERIES OF 500 LIVER TRANSPLANTS**

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**Introduction:** Biliary complications (BC) are the most common reason for morbidity and mortality after liver transplantation (LT). Although previous studies reported 50% mortality and 23-30% morbidity rates, advancements in surgical technique, immunosuppression and organ preservation enabled to decrease these rates to 5-32% for morbidity and 19% for mortality. In this bulletin we present BC after LT in our institution.

**Patients and Methods:** Between February 1997 and February 2014, 500 LT in 494 patients (213 (42.6%) deceased donor LT (DDLT), 281 (56.2%) living donor LT (LDLT) and 6 (1.2%) (5 DDLT, 1 LDLT) retransplantation were performed in our institution. Mean age was 43.5. 344 (74.1%) patients were male and 150 (30.3%) were female. The most common etiology of end-stage liver disease was hepatitis B and D. Bilio-biliary, biliary-enteric and combined bilo-biliary/bilio-enteric anastomosis were performed in 317 (63.4%), 180 (36.0%) and 3 (0.6%) LT. Any stents were used neither bilo-biliary nor biliary-enteric anastomosis.

**Results:** Thirty two (6.4%) patients had BC, 28 (87.5%) were male and 4 (12.5%) were female. LDLT was performed in 19 (59.3%) patients and DDLT was performed in 13 (40.6%) patients. Biliary reconstruction types were bilo-biliary anastomosis in 26 (81.2%) patients, biliary-enteric anastomosis in 5 (16.1%) patients and combined anastomosis in 1 (3.1%) patient. Biliary complications were anastomotic strictures (AS) in 15 (46.9%) (8 DDLT, 7 LDLT) patients, non-anastomotic stricture (NAS) in 7 (21.9%) (3 DDLT, 4 LDLT) patients, bile leaks in 8 (25.0%) (1 DDLT, 7 LDLT) (3 anastomotic, 5 from cut surface) patients and biliary stones in 5 (16.1%) (1 DDLT, 1 LDLT) patients. In 7 patients AS developed between 6th-12th months, in 2 patients AS developed between 12th-24th months and in 6 patients AS developed after 24 months after operation. NASs were occurred within 6 months in 4 patients, 12th month in 1 patient, 24th month in one patient and 72th month in one patient after LT. Hepatic artery thrombosis (HAT) was detected in 2 patients in the NAS group. HAT's and at the same time NASs were seen in these patients in 25th and in 73th month after LT. Immunosuppression was achieved with calcineurin inhibitors based medication in all patients. Eleven (34.3%) patients had cholangitis at the time of diagnosis. MRCP, PTC(11(34.3%), ERCP(16(50%) and both ERCP and PTC(5(15.6%)) were used for diagnosis and treatment. 3 patients required laparotomy due to biliary peritonitis. Mortality was seen in 7 (21.8%) patients (6 biliary sepsis, 1 chronic rejection).

**Conclusion:** Biliary complications can be minimized with appropriate surgical technique and close postoperative follow-up. Most of the patients can be treated with interventional methods.

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**L59**

**CAN REGENERATIVE MEDICINE SIGNIFICANTLY CONTRIBUTE TO ADDRESSING ORGAN SHORTAGE IN THE FUTURE?**

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We haven’t yet found ways to make a huge impact on the abiding, complex issue of the shortage of organs for transplantation. Our patients still die in unacceptable numbers on waiting lists. One can imagine number of approaches for the future but a promising one is regenerative medicine, which we have defined as: “Regenerative medicine is an emerging interdisciplinary field of research and clinical applications focused on the repair, replacement or regeneration of cells, tissues, or organs to restore impaired function resulting from any cause, including congenital defects, disease, trauma, and aging. It uses a combination of several technological approaches that moves it beyond traditional transplantation and replacement therapies. These approaches may include, but are not limited to, the use of soluble molecules, gene therapy, stem cell transplantation, tissue engineering, and the reprogramming of cell and tissue types.”

(Daar & Greenwood, 2007)
SUCCESSFUL INDUCTION OF HEART AND LUNG TOLERANCE IN LARGE ANIMALS

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In comparison to liver and kidneys, hearts and lungs are considered to be tolerance-resistant organs. However, our studies in swine and non-human primates have revealed that heart allograft tolerance can be induced by co-transplantation of a donor-specific renal allograft. Preliminary results suggest that tolerance-prone kidney allografts are able to confer unresponsiveness upon tolerance-resistant heart allografts by expanding Tregs or enhancing their function. Understanding how kidney-specific elements amplify regulatory pathways could result in novel strategies to induce tolerance of isolated heart allograft in humans. Our laboratory has also successfully induced tolerance of MHC mismatched lung allografts using a mixed chimerism protocol that incorporates anti-IL-6R mAb. This suggests that inhibition of anti-inflammatory responses may be critical in achieving lung allograft tolerance. In summary, these results are the first to demonstrate the tolerance of MHC mismatched lung allografts using a mixed chimerism protocol that incorporates anti-IL-6R mAb. This suggests that inhibition of anti-inflammatory responses may be critical in achieving lung allograft tolerance. In summary, these results are the first to demonstrate the tolerance of MHC mismatched lung allografts using a mixed chimerism protocol that incorporates anti-IL-6R mAb. This suggests that inhibition of anti-inflammatory responses may be critical in achieving lung allograft tolerance.

UNCONTROLLED DONORS AFTER CARDIAC DEATH AND THEIR CONTROLLED REPERFUSION IN SITU AND EX VIVO: PROMISING APPROACH FOR EXPANDING DONORS’ POOL

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Background: Transplantation is one of effective method treating patients with renal failure. The global critical organ shortage leads to use of kidney from the donors after sudden cardiac death, or uncontrolled donors. Inevitable ischemic injury of organs due to cessation of blood circulation remains the crucial problem and doesn’t lead to the wide acceptance of the practice of uncontrolled organ donation. The purpose of our clinical investigation was to define the clinical applicability of kidney obtained from uncontrolled donors and resuscitated by normothermic extracorporeal perfusion technology in situ and ex vivo.

Methods: Between 2009 and 2011, organ procurement service of St. Petersburg, Russia, obtained kidney grafts from 22 uncontrolled donors (UDCD) with the critically expanded warm ischemic time (WIT). In order to reveal the potential of these donors we developed a special perfusion procurement program (Fig.1). No patients were considered as potential organ donors initially. All donors died as ICU patients after sudden irreversible cardiac arrest and failed cardiopulmonary resuscitation. The mean warm ischemic time (WIT), or asystole, was 61.4±4.5 minutes. For kidney resuscitation, the subnormothermic (27-32°C) extracorporeal isolated abdominal perfusion with thrombolitics (Streptokinase) and leukocyte depletion by a leukofilter technique was employed. In two cases after that two grafts were set in device for isolated normothermic extracorporeal perfusion ex vivo with leukocyte depletion (INECP and LD) (Fig. 2). Clinical parameters related to perfusion procedure: Perfusion flow, initial – 25 ml/ min, Perfusion flow, final – 200 ml/min, Po2 in perfusate - 246 mmHg, pH of perfusate - 7.32±0.03, Hemoglobin – 28±3.03g/L, Duration of INECP and LD – 200 min and 220 min, respectively. These kidney grafts were successfully transplanted into 44 recipients on renal replacement therapy hemodialysis. The outcomes of transplantation of kidneys resuscitated with extracorporeal perfusion were compared to outcomes of 87 kidney transplantation from 74 brain death donors (BDDs).

Results: Immediate functioning of kidney grafts was observed in 21 of the 44 recipients. There were no cases of primary non function. By the end of the first year of observation there was an acute rejection rate of 9.1 % (4 episodes of rejection) in the UDCD group versus 14.2 % (13 episodes of rejection) in the BDD group. The actual 1-year graft survival rate was 95.5% (n = 42) in UDCD group, and 94.6% (n=87) in BDD group. The 1-year graft survival rate after INECP and LD was 100% in UDCD group. The average creatinine level at the end of the first year of observation were 0.073 and 0.082 mmol/l, accordingly. Mean creatinine levels at the end of the first year of observation were 0.116±0.008 mmol/l and 0.115±0.004 mmol/l in UDCD and BDD groups, respectively. Immunosuppression scheme included three components - calcineurin inhibitors (Sundimun Neoral), MMF and methylprednesolone in standard doses.

Conclusions: Kidneys from uncontrolled donors with critically, up to one hour, expanded warm ischemic time could be successfully used for transplantation if in situ organ “resuscitation” perfusion is included into organ procurement protocol. Devices for isolated normothermic extracorporeal perfusion ex vivo with leukocyte depletion could be used for examination of kidney grafts and improve there condition. The satisfactory results of 1-year follow-up of our “resuscitated” kidneys meet the generally accepted criteria for graft survival and function. Controlled in situ and ex vivo reperfusion may exert a therapeutic effect on
donor organs even before the procurement. In our opinion, these approaches could substantially expand the organ donors' pool.

Figure 1: The logistics of the donor's procedures.

1: Death of patient after sudden irreversible cardiac arrest and the failure of resuscitation; 2: Hospital transplant coordinator fills out legal documents; 3: Activation of the program of donation by the call to regional transplant coordinator; 4: Arrival of the medical vehicle with perfusion and surgical team from the local OPO; 5: Cannulation of femoral vessels and catheterization of donor by procurement team; 6: Procedure of warm extracorporeal perfusion; 7: Possible addition to the described protocol – the verification of organ quality in OPO after the completion of in-hospital organ procurement procedure.

Figure 2: Device for isolated normothermic extracorporeal perfusion ex vivo with leukocyte depletion (INECP and LD).

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LIVER TRANSPLANT FOR PATIENTS WITH ALCOHOLIC LIVER DISEASE: AN ETHICAL ANALYSIS

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Liver transplantation has progressed rapidly from an experimental procedure to standard therapy for patients with end-stage liver disease. However, the demand for liver transplantation far exceeds the supply. As a result, in all countries, there are many deaths every year on the liver transplant waiting list.

The relative organ shortage provides the basis for considering the ethical issues associated with liver transplantation. For example, allocation of organ to patient with alcoholic liver disease, which is one of the most common indications for liver transplantation, is still surrounded by unresolved controversies and ethical dilemma. One critical issue is whether patient's life style should be taken into account in deciding who gets the organ. In 1993, supported by several studies, the National Institutes of Health Consensus Conference on Liver Transplantation stated that alcoholic liver disease is an appropriate indication for liver transplantation. This led to an increase in the number of transplants performed for these patients.

By presenting an ethical argument about liver transplantation to patients with alcoholic liver disease, reasons provided by proponent and opponents will be discussed. In doing so, controversy about a second liver transplantation to a patient with alcoholic liver disease will be discussed.

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ROBOT ASSISTED LIVING DONOR NEPHRECTOMY

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Establishment of minimally invasive techniques in transplantation surgery, laparoscopic nephrectomy has become the preferable method for living kidney donors in most of the centers with lower recovery time, better cosmetic results and similar graft and patient survival compared to conservative open surgery.

In recent years, Robot-assisted surgery (da Vinci Robotic
System, Intuitive Surgical Inc., Sunnyvale, CA) has been using more frequently in surgical field. Because of highly moveable multi wristed instruments with better motion, easy suturing capability and clear 3D visualization with active movement into the abdominal cavity. In this descriptive analyses we examined 18 consecutive patients who underwent robot assisted living donor nephrectomy in between November 2013 and June 1014 at Gazi University Transplantation Center, Ankara Turkey. Out of 18, eight patients were male and ten patients were female. Mean age was 46 (range: 23-65). All living donors were relative to their recipients, there is no unrelated living donation in our center. No patient needed perioperative blood transfusion because of surgical bleeding. There was no surgical complication and no case conversion to an open surgery in this series. The median warm ischemia time was: 3.3 min (range: 2.4 – 5.1 min). One patient had double ureter, two patients had double renal artery. One patient needed reoperation because of acute abdomen 36 hours after surgery. In laparoscopic examination acute appendicitis was diagnosed and laparoscopic appendectomy was performed. This patient also had uneventful postoperative period. Median total charges for robot-assisted living donor nephrectomies were 5,457,333 TL versus 3,653,500 TL for laparoscopic cases in our institute. Robot assisted living donor nephrectomy is a safe and effective procedure giving similar results, with the conventional laparoscopic and open surgical technique. Few studies published in 2014 about robot assisted living donor nephrectomy also showing similar results. Robotic surgery is an evolving technique giving some advantages to the surgeon with high instrument technology and clear 3D visualization and surgeon’s comfort during procedure. Higher cost seems to be the disadvantage of the procedure. In near future prospect of more flexible and easy docking systems, robotic staplers, multi wristed instruments with energy devices and single port systems further decrease disadvantages.

**L64**

**ALLOPURINOL IN ORGAN TRANSPLANTATION: FOUR DECADES LATER**

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Since 1950, allopurinol (1, 4 dihydropyrazol –o[4,3-d] pyrimidin)(C3H4N4O)(136g/mol) has been studied at Wellcome Research Laboratories in New York by Hitchings and his associates when more than one hundred purines and pyrimidines were analyzed to determine the most effective xanthine oxidase inhibitor. Allopurinol, one of these contenders, demonstrated significant decrease in serum uric acid under experimental and clinical conditions, prompting its approval in 1966 by the Federal Drug Administration for gout and hyperuricemia. A few years later, in 1969, 1971 and 1972, Crowell, De Wall and Vasko investigated the potential use of this drug in hypovolemic states, ischemic myocardium and renal ischemia in dogs. In 1973, at Najarian’s Laboratories at the University of Minnesota we utilized allopurinol for the first time in transplantation in canine ischemic and preserved kidneys. The positive results observed at the time encouraged others to test this drug initially in kidneys and subsequently in livers, small bowel, pancreas, hearts and lungs to overcome ischemia for transplantation throughout the next four decades. The aim of this work is to analyze the evolution of the use of allopurinol in organ transplantation.

A complete PubMed evaluation of the use of this compound in transplantation when utilizing the terms “allopurinol in organ transplantation”, for the last 40 years (1973 to 2013) demonstrated 1,437 citations. When the terms used were limited to “allopurinol in ischemia organ transplantation” we encountered 419 citations for the same period of time. There were no systematic reviews or meta-analysis studies surrounding the above mentioned areas. However, there were 39 general reviews using the same citation variables with a total of 47 publications in humans. When Scopus was utilized as the bibliographic search engine, there were 483 citations of which 333 were articles and 35 were general reviews from 1985 to the present. From this extensive literature analysis of allopurinol, it is evident today that after 40 years of allopurinol use in transplantation, this drug has become a more frequently accepted addition to the management of ischemia and reperfusion in transplantation. In spite of the considerable advances reached with allopurinol, exact details regarding the ideal dose and time of administration have not been completely solved when seeking its optimal effect in ischemic and preserved organs for transplantation.

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**HLA IDENTICAL RENAL TRANSPLANTS: IMMUNOLOGICALLY PRIVILEGED WHY DO THEY FAIL?**

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**Objectives:** HLA identical transplant are immunologically privileged and thus have the best graft survival in both deceased and living donor transplants. Superior survival yet the graft fail. This paper describes the causes of graft failure in HLA identical transplants in the getting of a develop country.

**Patient and Methods:** Between 1992 and 2012, 3749 live related transplant were performed at our center. Of these 3749, 756 (20%) were HLA identical transplants.
Immunosuppression was by triple drug regimen CyA/ AZA or Tacrolimus/MMF with steroid. All dysfunction were confirmed by biopsy. Each recipient is followed life long where all treatment is provided free including immunosuppression drugs.

Result: In the follow-up period of 1 to 20 years, 160 (21%) of the 756 identical graft were lost with 5, 10, 15 years survival rates of 85%, 68% and 60% respectively. A comparison of those who lost grafts (Group A) (n=160) vs those who maintained function (Group B) (n=596) showed that in Group A donors were older 35±9 vs 32±9 (p=0.001), more female 46% vs 33% (p=0.031), more recipients were female 25% vs 18% (p=0.03) and hypertensive 60% vs 49% (<p=0.04), acute rejection rates were higher 13% vs 4.8% (p=0.001), increased cyclosporine toxicity in biopsy 14% vs 11% (p=0.20) and high recurrence of original disease 9% vs 4% (p=0.03) as compare to Group B. Of the 160 graft lost 24% were functioning but lost due to death of recipient, 7% lost due to recurrence, 7% lost due to infection in the graft, 6% lost due to acute rejection and 50% were lost due to chronic rejection.

Conclusion: HLA identical grafts have superior survival due to immunological privilege. Unfortunately 30% grafts are lost due to infection and 8% due to recurrence of disease. Old age of donors, female gender and hypertension and cyclosporine toxicity are the other causes leading to chronic graft loss.

ODEQUS – ORGAN DONATION EUROPEAN QUALITY SYSTEM

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Objectives: Differences in the number of organ donors among hospitals cannot be explained only by the number of ICU beds or neurologic patients treated. The figures obtained are influenced by the organizational structure of donation process and how efficient it is. ODEQUS was a three years project (October 2010-December 2013) co-financed by the European Agency for Health and Consumers (EAHC20091108) which aimed to define a methodology to evaluate the organ procurement performance at hospital level.

ODEQUS specific objectives were to identify Quality Criteria (QC) and to develop Quality Indicators (QI) in 3 types of organ donation: after Brain Death, after Cardiac Death and Living Donation. Those tools will be useful for hospitals self-assessment, external evaluation as well as for developing an European auditing model.

Materials and Methods: In order to do so, a consortium has been established involving 14 associated partners from Austria, Croatia, France, Germany, Italy, Poland, Portugal, Romania, Spain, Sweden and United Kingdom, and 5 collaborating partners from Greece, Hungary, Malta, Slovenia and Turkey.

The project has been established in three steps:
1. Design of a survey about the use of quality tools in a wide sample of European hospitals.
2. Development of QC and QI by the project experts. The main fields considered have been organizational structures, clinical procedures and outcomes.
3. Elaboration of an evaluation system to test the QI in European hospitals. It was developed through a pilot study and a concordance trial performed by pairs of evaluators in each participant hospital.

Previously, healthcare professionals were trained on how to use the quality indicators, checklists, and auditing procedures and the indicators developed were tested individually by each participant hospital to assess their feasibility and usefulness.

Results: The project has achieved so far to identify a Quality Criteria list of 123 in compliance with the experts’ opinions, literature review, and evidential research. In a related way, the same group of experts has developed and agreed on a list of 31 key Quality Indicators (structure, process and outcomes) based on the most important QC previously identified. The achievement of similar results in different evaluations performed by means of internal and external evaluations in 12 European hospitals demonstrates that the Quality Indicators created are effective to measure the hospitals quality performance in organ donation.

Conclusions: ODEQUS has developed a quality system management to assess organ donation activity through 31 quality indicators that measure the process, structure and results. The use of this methodology permits the identification of problems and potential improvement actions. (e.g. Shewhart PDCA cycle).

GENE-THERAPY FOR DIABETES: HOW CLOSE ARE WE?

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Our laboratory, in a 20 year effort, has developed a 2.5 kb construct which contains a patented Glucose-Inducible-Regulatory-Element (GIRE), the Insulin Gene, an Albumin Promoter and several other enhancing elements. When injected into the tail vein of diabetic rats the animals become
Kidney transplantation from deceased donors aged 65 or older is associated with reduced graft function, graft survival and patient survival compared to transplantation from younger donors. Currently donor and recipient older age are increasingly common. Whether recipients of these older grafts survive longer than their hemodialysis (HD) counterparts remained inconclusive according to the published reports. We underwent a study addressed to elucidate this controversial issue.

We retrospectively assessed the outcomes of the 5,886 kidney transplant recipients (KT) of first grafts from deceased donors transplanted between 1990 and 2012 in six hospitals of Catalonia. We first studied the long term results of the 1,158 recipients of grafts from deceased donors older than 65y and compared to the 4,728 recipients of donors younger than 65y. The 1.158 KT represent the 19.7% of the total cohort of 5,886 KT and they did not show statistically significant differences with the 4,728 KT with regard to time on dialysis prior to transplantation, % of sensitized recipients, number of HLA Ag compatibilities, cold ischemia time and immediate post transplant immunosuppression; in contrast they showed significantly increased delayed graft function and decreased GFR post transplantation. 79.3% of the 1.158 recipients were older than 60y. Patient survival of the 1.158 KT was 91.9%, 75.1%, 51.9%, 30.2% and 18.1% at 1, 5, 10, 15 and 19 years respectively, significantly lower than that of the cohort of 4,728 KT (96.5%, 89.5%, 76.7%, 64.6% and 53.3% respectively). Graft survival of the 1.158 KT was also significantly lower: 84.4%; 62.7%, 39.8%, 23% and 0.1% for the same periods vs 90.3%, 78%, 59.8%, 44.5% and 33.1% respectively for the cohort of 4,728 KT.

We then designed a study addressed to compare the patient survival of the recipients of grafts of deceased donors older than 65y with that of comparable waitlisted patients remaining on HD by means of a match-pair analysis. Due to the fact that from 1997 to 2012 we have complete information on a wider range of parameters, we restricted the analysis to the 1,032KT transplanted from donors >65y during this period. They represent the 23.4% of the 4,407 first transplants from deceased donors transplanted between 1997 and 2012. We were able to pair 993 patients (346 KT and 647 HD patients). Each pair had the same characteristics patient by patient: year period of dialysis onset, normal degree of functional autonomy, age group, presence or not of diabetes, type of first vascular access, time on dialysis prior to transplantation, primary renal disease and morbidity (cardiovascular diseases, chronic liver and chronic respiratory diseases). For statistical analysis we used the Kaplan Meier curve for patient survival and the Cox model clustering for paired patients and robust estimation of variance for the proportional risk of death. Patient survival at 1, 5, 10 and 13 years was 93%, 80.2%, 56.7% and 37.5% for transplanted patients and 90.1%, 54.3%, 19.2% and 11.1% for patients remaining on dialysis.

We conclude that elderly patients remaining on dialysis have a proportional risk of death 2.6 times greater than elderly transplanted patients of similar characteristics that receive a kidney from a deceased donor older than 65y. We should mention that the survival of the unpaired 658KT excluded for this comparative study was also significantly higher compared with the 647 HD patients that remained on HD (HR 1.765; CI 1.33-2.33) (P < .000).

Modern immunology, in many ways, is based on three major paradigms: the clonal selection theory (Medawar, Burnet; 1953/1959), the pattern recognition theory (Janeway; 1989), and the danger/injury theory (Matzinger, Land; 1994). The last theory holds that any cell stress and tissue injury including allograft injury, via induction of damage-associated molecular patterns, induces immunity including alloanimunity leading to allograft rejection. On the other hand, the concept precludes that “non-self” per se induces immunity as proposed by the two former theories.

Today, the danger/injury model has been largely accepted by immunologists, as documented by a steadily increasing number of publications. In particular, overwhelming evidence in support of the correctness of the model has come from recent studies on the gut microbiota representing a huge assemblage of “non-self”.
Commensal microbes are protected by innate immunity-based immune tolerance whereas intestinal injury-causing pathogenic microbes are immunology attacked. The ability of the immune system to discriminate between harmless beneficial “non-self” to induce tolerance and harmful life-threatening “non-self” to induce immunity has apparently emerged during evolution: Protection of innate immunity-controlled beneficial “non-self” (e.g., as reflected by microbiotas but also by the fetus of placental mammals) as well as immune defense responses to injuring/injured “non-self” (e.g., as reflected by plant resistance to biotic and abiotic stress and allograft rejection in mammals) evolved under pressure across the tree of life, that is, in plants, lower and higher invertebrates as well as lower and higher vertebrates.

And evolution tells us why the overall existence of protected microbiotas really makes sense: It is the formation of the “holobiont”, - a metaorganism - that is, the host plus all of its associated microorganisms that, - in terms of a strong unit of selection in evolution -, provides that kind of fitness to all species on earth to successfully live, survive and reproduce. In other words: “We all evolve, develop, grow, and reproduce as multi-genomic ecosystems!”

In regard to reproduction, another impressive example of active immunological protection of “non-self” refers to pregnancy in placental mammals that emerged about 400 millions of years ago. Similar to “non-self” microbiotas, pregnancy in placental mammals reflects an evolution-driven phenomenon on the basis of innate immunity-controlled tolerance induction to semi-allogeneic non-injuring/ non-injured “non-self” aiming to ensure reproduction!

Altogether, the lesson learnt from evolution of how to avoid allograft rejection is very clear: prevent allograft injury to induce allotolerance, in other words: create a “transplant holobiont” (Figure).
TRENDS IN IMMUNOSUPPRESSION

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Different trends of immunosuppression were utilized after living donor renal transplantation. I will highlight these trends starting by steroid and azathioprine protocol, passing to steroid cyclosporine then triple therapy reaching to tacrolimus, MPA and mTORera focusing on the graft outcome. The rationale for induction therapy will be discussed. Moreover the impact of tacrolimus and MPA as a rescue therapy instead of cyclosporine and azathioprine will be presented. Our objectives are to optimize immunosuppressive regimens adopted for living donor renal transplantation and to evaluate the cost effectiveness beside achieving acceptable adverse reaction profiles.

THE IMPACT OF ACUTE PHASE LIVER GRAFT INJURY ON LATE PHASE TUMOR RECURRENT AFTER TRANSPLANTATION

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Orthotopic liver transplantation (OLT) has been regarded as the best curative treatment for patients with end stage liver diseases including advanced liver cirrhosis and acute liver failure. It is also the alternative therapy for patients with early stage hepatocellular carcinoma (HCC). Because of the severe shortage of grafts from brain-death donors (deceased donor liver grafts), especially in Asia, and the importance of timely operation on recipients, living donor liver transplantation (LDLT) offers the unique opportunity of early transplantation with theoretically unlimited source of liver grafts. Since the first successful adult to adult LDLT in Hong Kong in 1994, this surgical innovation has been well established locally and has relieved the organ donor shortage. However, a liver graft from a living donor is frequently small-for-size for the recipient. To further expand the potential liver donor pool, "marginal" liver grafts are often utilized. Grafts are considered marginal if there is an increased risk of initial poor function or primary non-function. Steatosis is the most common reason for classifying a donor liver as marginal. Acute phase fatty graft injury after transplantation will exacerbate further when the graft is small-for-size, such as in a partial liver graft from a live donor. Such acute phase liver grafts injury will not only trigger a series of inflammatory cascades, which will activate cell signaling pathways leading to cell adhesion, migration and invasion, but will also represent a major cause of microvascular barrier dysfunction and disturbance of liver microenvironments. Together with a higher potential ability of liver angiogenesis resultant from the liver regeneration, the small liver graft may provide a favorable environment for liver tumor growth and metastasis after LDLT for HCC patients. We and others have already demonstrated that more liver tumor recurrence and metastasis occurred after LDLT. Understanding the impact of acute phase marginal liver graft injury on the liver microenvironment will be vital for the future development of novel therapies targeting both acute phase liver graft injury and later phase tumor recurrence. Exploration of the fundamental aspects of injury, inflammation and cancer development/progression will be essential for the further development of LDLT program for liver cancer patients. In a series of multidisciplinary studies integrated with clinical, translational and basic research, we have investigated the molecular mechanisms by which acute phase marginal liver graft injury contributes to late phase tumor recurrence and metastasis. The potential therapeutic strategies have been also explored.

KIDNEY TRANSPLANTATION; BALANCE BETWEEN CADAVER AND LIVING TRANSPLANTATION: CHANGING TRENDS ARE DIFFERENT IN DIFFERENT CONTINENTS.

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The number of patients on the waiting list for kidney transplantation in the world is increasing rapidly due to imbalance between organ supply and demand. There are over 100,000 patients waiting for a kidney transplant on UNOS records. There were 42,000 people on a kidney waiting list in the European Union at the end of 2011. The shortage of kidney supply has forced many countries with advanced cadaver program to do more living kidney transplantations from related or even unrelated sources (spouse, paired, altruistic, friends). Hippen has pointed out that since 1999, more than 30,000 US patients with kidney failure have died waiting for an organ that never arrived. Transplant registry records of the years 1970 and 1980 reveals few living unrelated transplantations, but from the last half of 1990 there has been impressive revival of LURD transplantation. United States Renal Data System lists a
greater than 100% increase of such transplants from 1994 until 1996. 7800 kidney transplants, about 4800 from cadaver (61%) and 3000 from living donors (38%) were recorded in UNOS registry during 1994. While, during 2013 the total number of kidney transplantations was 13000, of them 7500 were from deceased (55%) and 5700 from living donors (45%). So, in the last 20 years not only living donation is not decreased but it is increased about 7% in USA.

In Europe the situation is similar to USA. In 2009 Living kidney transplantations were 18.7% of all transplantations, while it was increased to 20.6% 2011. In Asian countries living donors remain the main source of kidney accounting 60% of all transplants. In Middle East countries, the trends are changing fast. About 17% of transplantations in Middle East countries is done from cadaver donor. At present, Iran is the leading country in cadaver transplantation in Middle East region. About 35% of the kidney transplantations are from cadaver donations and PMP is around 12/million and in some cities is above 25/million (Tehran, Shiraz). Turkey has the highest number of kidney transplantations in Middle East, and PMP for cadaver transplantation is about 8/million. Kuwait is the third country in rank with PMP about 10 for cadaver transplantation followed by Saudi Arabia with PMP of 4/million for cadaver transplantation. Egypt has no cadaver program yet.

As a representative center we will present the changing trend in Shahid Labbafinejad Medical Center with over 4000 kidney transplantations in record. 1500 living donation was performed by laparoscopic donor nephrectomy to improve cosmetic outcome and decrease pain and hospitalization. Briefly, in 2003 only 4.6% of kidney transplantations were through cadaver donation while it is increased to 42% in 2013 (A 10 fold increase).

Overall except Iran, the present trend in Middle East countries like most Western countries is toward increasing living donation.

In conclusion, large gap between demand and kidney supply, has changed the trend of kidney transplantation toward doing more living kidney transplantations in most countries with advanced cadaver program, while in some countries in Middle East countries (Iran) the trend is reverse and is to increase transplantation from cadaver donation.

The total number of transplantations in the world is only less than 10% of global need and at present, the global balance is about 57.7% cadaver transplantation and 42.3% living kidney transplantation (WHO Report). Looking to the past, It seems logical that a similar balance between cadaver and living kidney transplantation will exist for many years to come. All available potentials to enhance cadaver transplantation should be the first goal. Living transplantation should be used only when all possibilities for using cadaver transplantation are exhausted.

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SOUTH EAST EUROPEAN HEALTH NETWORK INITIATIVE IN DECEASED ORGAN DONATION AND TRANSPLANTATION UNDER CROATIAN LEADERSHIP

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The shortage of deceased donors associated with ever-increasing demand and number of patients who can benefit from transplantation remain to be a global problem to health care systems all over the world. As generally agreed, the organ shortage in all health care systems is primary caused by failure to identify and convert potential donors into actual donors. Key factors that can greatly influence development of deceased organ donation have been globally recognized together with a set of measures in support of such development. The full implementation of those measures in countries such as Spain, Portugal and recently Croatia resulted in a tremendous increase and sustained high donation rate (over the 20 donors pmp). In the South East European countries only Croatia succeeded to ensure such development of deceased organ donation and transplantation programs in the last decade. The other South East European countries are still facing great challenges to enable transplantation as life-saving or best therapy, available to their patients within the country.

Therefore a regional SEEHN Initiative been launched in 2011 under the Croatian leadership to promote and support implementation of the self-sufficient systems for organ donation and transplantation in Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, Macedonia, the Moldova, Romania, Serbia. Since its begging the SEEHN Initiative on Deceased Organ donation and Transplantation has been guided in partnership with the, Transplantation Society (TTS), World Health Organization (WHO), the European Society for Organ Transplantation (ESOT), the European Transplant Coordinators Organization/European Donation Committee (EDTCO), the International Society for Organ Transplantation (ISOT)
for Organ Donation and Procurement (ISODP), the European Council and the European Commission. In May 2011 a landmark meeting was held in Skopje to support regional professionals and their national health authorities to analyze country-specific needs. As a result Action Plans have been designed by each country, identifying specific objectives and activities necessary to establish transplant programmes or increased deceased organ donation and transplant activities. National focal points have played a key role in facilitating inter-country communication and defining country specific objectives as stated in the Action Plan. Set of recommended actions has been issued to health authorities in support of implementation of action plan priorities. Set of country specific designed trainings and education conducted so far through SEEHN has been crucial to address the current lack of knowledge and educational needs of regional professionals. Exchange of good international practices and successful organisational models through the SEEHN has greatly contributed in advancing the organizational infrastructures and facilitating development of organ donation and transplant programs in most of the South East European countries (Romania, Montenegro and Macedonia…).

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UPDATES ON ISLET CELL TRANSPLANTATION FOR THE TREATMENT OF DIABETES

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Islet cell transplantation provides an alternative to the current treatment of exogenous insulin injection therapy. Transplanted allogeneic human islets restore sustained near-normoglycemia and provide protection from severe hypoglycemia in patients with long-standing type 1 diabetes (type1D) and iatrogenic hypoglycemia. Current protocols are able to achieve insulin independence rates of 60% beyond 4 years. Safer and more effective islet transplantation, along with refinements in immunosuppressive therapy, make islet transplantation a more attractive option for a subset of persons with type1D who suffer from frequent, severe hypoglycemia, lability and/or hypoglycemia unawareness, and resulting in excellent glycemic control and freedom from hypoglycemia. Patients with chronic pancreatitis (CP) may also benefit from a modified form of islet auto-transplantation. For patients suffering from intractable CP, surgical removal of the pancreas may be recommended. While pancreatectomy has the potential to alleviate suffering and prolongs life, the induction of iatrogenic diabetes, through the loss of insulin-producing islet cells, becomes an immediate threat to the post-operative patient. Autografts have been successful in preventing diabetes when adequate islets were transplanted. The single most critical factor for optimal survival and function of transplanted islets is the size of the islet mass acquired from the islet isolation procedure. The shortage of islets from cadaveric donors is a significant obstacle to widespread use of pancreatic islet allo-transplantation. Xenotransplantation of the pig islets is considered as the future treatment for patients suffering from type1D. Islet xenotransplantation is one prospective treatment to bridge the gap between available human cells and needs of patients with diabetes. Pig represents an ideal candidate for obtaining such available cells. However, potential clinical application of pig islet still faces obstacles including inadequate yield of high-quality functional islets and xenorejection of the transplants. Adequate amounts of available islets can be obtained by selection of a suitable pathogen-free source herd and the development of isolation and purification method. Several studies demonstrated the feasibility of successful preclinical pig-islet xenotransplantation and provided insights and possible mechanisms of xenogeneic immune recognition and rejection. Particularly promising is the achievement of long-term insulin independence in diabetic models by means of distinct islet products and novel immunotherapeutic strategies. Nonetheless, further efforts are needed to obtain much more safety and efficacy data to translate these findings into clinic. Overall, islet transplantation approaches are improving towards permanent treatment for type1D.

L76

NEPHROTOXICITY OF MODERN IMMUNOSUPPRESSION: FACT OR FICTION?

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The introduction of new immunosuppressant agents and regimens has significantly improved short but not long-term renal allograft survival. Chronic graft dysfunction (CGD) remains a leading cause of delayed graft failure. Calcineurin inhibitors (CNIs) and mammalian target of rapamycin inhibitors (mTOR-I) used as mono or combined therapy are associated with a spectrum of nephrotoxic adverse effects, a major cause of CGD. Both Cyclosporine A (CsA) and Tacrolimus (Tac) are recognized with an acute and chronic form of CNI induced-nephrotoxicity that differ in their clinical, histological, pathophysiological and prognostic features. The histological features are related to the damage observed in the different vascular and tubulointerstitial compartments of the kidney. The prevalence as well as the physiological and molecular mechanisms remains a matter of debate. New evidence is emerging on the importance of local rather then systemic exposure. Predisposing conditions involve a complex interaction between several environmental
and genetic factors such as old donor age, salt depletion, drug-drug, drug-food interactions and genetic variability in the donor-recipient pair affecting the expression and/or the function of P-glycoprotein (P-gp) and CYP 3A4/5. Recently, mToR-Is have been introduced as a substitute for CNI due to their non-nephrotoxic profile. Despite this acclaimed renal safety profile, several lines of evidence are emerging on their potential nephrotoxic effect reflected by 2 distinct glomerular and tubulointerstitial lesions. The glomerular form is related to an mToR inhibition-associated podocyte injury and focal segmental glomerulosclerosis. It manifests as a wide range of proteinuria in kidney transplant recipients treated de novo with an mToR-CNI free regimen or as an aggravation of an already existing proteinuria mainly in patients with CGD and significant renal damage following CNI elimination. It seems to depend on the type and extent of de novo or pre-existing renal injury, the time of introduction of the mToR-I, the level of systemic and local exposure to the drug and the probably genetically-associated variability in mToR expression that explain the occurrence of these adverse manifestations in some but not all cases. The pathogenic pathways underlying these lesions remain unknown. Recent observations describe a tubulointerstitial form expressed as a de novo interstitial fibrosis and tubular atrophy (IFTA) or as a progression of a pre-existing IFTA induced by an mToR-I alone or in combination with a CNI. This may be mediated, at least in part, by an epithelial mesenchymal transition, a key mediator of IFTA, through massive mToR-C1 inhibition. This exaggerated inhibition may occur with an increase in mToR-I intra-cellular concentration caused by a high dose of the drug or alternatively by a therapeutic dose in case of low mToR and/or P-gp expression and/or function caused by either a genetic mutation in the donor kidney and/or the long-term ingestion by the recipient of P-gp inhibitors such as drugs and/or food products, respectively. Physicians should be aware of these nephrotoxic effects and the surrounding susceptibility conditions in order to optimize graft outcome by increasing efficacy and improving safety.

L77
BRINGING TRANSPLANTATION TOLERANCE TO THE CLINIC

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Two of the major obstacles limiting the field of transplantation today are drug-related complications and chronic rejection. Induction of transplantation tolerance could provide a means of overcoming both of these obstacles. For this reason, over the past two decades, our laboratory has investigated clinically applicable approaches for inducing tolerance. The most successful of these approaches has involved induction of mixed hematopoietic chimerism through transplantation of bone marrow or another source of hematopoietic stem cells (HSC). Studies were carried out first in mice and then in large animals, including both swine and nonhuman primates, and recently the studies have been taken to the clinic. Changes in methodology were required as we progressed through each of these models, but in every case tolerance was achieved. In mice, permanent mixed chimerism was relatively easy to achieve and animals remained tolerant of skin grafts from the donor strain for the remainder of their lives. On the other hand, in the large animal models and in man, mixed chimerism has generally been transient, lasting only for weeks to months. Our data suggest that the mechanism of tolerance in mixed chimeric mice is predominantly deletional while in the large animals and humans, regulatory mechanisms are also involved. Thus, while chimerism was required for induction of tolerance, if kidneys from the same donors were transplanted either at the same time as the HSCs or during the period for which mixed chimerism was maintained, then tolerance of the kidneys remained even after the chimerism had disappeared. This persistent tolerance was dependent on regulatory cells and on the presence of the kidney. Clinical studies were carried out first in a series of patients with renal failure due to multiple myeloma, who had HLA-identical siblings willing to donate both bone marrow and a kidney. All of these patients became tolerant of their kidney transplants although only about half were cured of their myeloma. We now consider this treatment regimen “standard of care” for patients with this indication and with available HLA identical donors.

The next two trials involved one-haplotype mismatched transplants for patients with end-stage renal disease but without an HLA-identical sibling and with no evidence of malignancy. Of the 10 patients enrolled in these two trials, eight were successfully weaned from all immunosuppression. Of these eight recipients, four have remained free of all immunosuppression for five to eleven years; one developed acute cellular rejection, requiring re-institution of immunosuppression; one required treatment for recurrence of his original renal disease; and two remained free of immunosuppression with stable renal function for 5 to 8 years, at which times low-dose immunosuppression was initiated due to evidence of possible chronic rejection.

The most serious complication of the treatment regimen for this mixed chimerism protocol has been the occurrence of “engraftment syndrome”, a clinical phenomenon involving acute fluid retention that occurs approximately 10 to 15 days post-transplant. The most troublesome aspect of the syndrome is renal dysfunction, which although transient, appears to synergize with the toxicity of calcineurin inhibitors, leading to severe symptomatology. We are hopeful that a recent modification of the treatment regimen may allow us to avoid this complication. We are also studying means for administering HSC post-transplant,
which, if successful, could extend this tolerance induction regimen to treatment of patients requiring transplants of other organs.

L78
WOMEN IN TRANSPLANTATION IN SYRIA

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The Transplantation Society have developed an initiative called “Women in Transplantation” which aims to find ways in which to encourage and support women working as professionals in the field of Transplantation. With the aim of documenting the perceptions of Syrian women involved in transplantation; a questionnaire consisting of 11 questions was sent to a representative sample comprising of 12 women from 6 medical centers predominantly from Damascus where most transplant activities in the country takes place. The main objective of the questionnaire was to highlight the issues that hindered the progress of women in the field of transplantation. Their feedbacks were analyzed and shown that 92% of them have been treated equally with male colleagues thus only one woman felt male dominated environment. Moreover, as being a woman, none of them has expressed her feelings of inadequacy, non-assertiveness, or lack of respect or recognition of skills.

Two thirds of the questioned women have expressed their concerns In terms of professional development and opportunities in the transplantation field which; however these concerns were not related to their gender for the vast majority of them. Although 92% of the women were married and 75% have children, 50% of them felt family obligations hindered their progress. One third of the women never took career break and most of the others took less than 6 month break. Of interest, only one woman out of twelve has expressed her plan to have more children although the average number of children of the studied sample was 2 which is lower than the national one.

Although two thirds of the Syrian women being involved in transplantation and enrolled in this survey have expressed their concerns about professional development; the vast majority of them stated being treated equally as compared to male colleagues. However, 50% of them felt family obligations hindered to some extent their progress.

L79
TREATMENT OF HEPATITIS C INFECTION WITH SOFOSBUVIR AND/OR SIMEPREVIR FOLLOWING LIVER TRANSPLANTATION: A PRELIMINARY REPORT

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Background: Hepatitis C recurrence after liver transplantation is a major cause of graft failure among liver transplant recipients. Previous therapy with interferon-based regimens was limited with poor response and development of substantial side effects associated with high discontinuation rate. Sofosbuvir (SOF) and Simeprevir (SIM) have been approved by FDA in late 2013 for treatment of Hepatitis C. There is limited data about safety and tolerability of SOF/SIM among liver transplant recipients.

Aim: To study the efficacy and safety of Sofosbuvir and or Simeprevir in treatment of Hepatitis C recurrence following liver transplantation.

Method: We performed a single-center retrospective review of all liver transplant recipients who were treated with Sofosbuvir and/or Simeprevir at the Johns Hopkins Liver Transplant Program between 1/1/2014 and 4/30/2014.

Results: A total of 16 patients were studied; thirteen (81%) 13 males, 3 females), 15 patients received cadaveric transplant and one patient received living-donor related transplant. Patients Demographics: mean age 68 years (range 50-68), majority were genotype 1a (9) followed by genotype 1b (3), Genotype 2 (3) and genotype 3 (1). Pre-treatment laboratory values: Mean ALT 156 U/L (range 43-417), mean total bilirubin 4.8 mg/dl, (range was 0.6-22.5), mean creatinine 1.25mg/dl, (range 0.9-3.4). Liver biopsies performed in 15 patients, all were consistent with mild to moderate inflammation and mild fibrosis. The main immunosuppressive agents were Tacrolimus (12), Rapamune (4); all subjects were receiving Myophenolate Mofetil and Prednisone with in the first 6 months period of transplantation. No changes in immunosuppression level due to SOF or SIM were observed. Fourteen patients were non responders to previous Interferon regimens. One patient had been previously treated with a protease inhibitor based regimen (Boceprevir) with no response. One patient has not been treated at all.

Nine patients treated with SOF+RBV, and 7 patients received SOF+SIM. The mean time from liver transplant to the initiation of SOF/SIM was 17 months (range 1-62). The mean pre-treatment HCV viral load was 72.000.000 IU/ml
(range 1490 - 430,000.000). Four weeks on treatment HCV viral load was < 43 IU/mL (negative) in 9 (56%), > 2 log drop in 5 (31%) patients and was pending in 2 patients. No patients received growth factors during the treatment. Conclusion: In this small single center retrospective study, Sofosbuvir and Simeprevir were safe and well-tolerated. Consistent with results observed in the non-transplant population, early virologic data from our experience suggests these directly acting antivirals are effective treatment for hepatitis C recurrence in post liver transplant patients; follow-up data is needed to demonstrate sustained virologic response. Because of the excellent safety profile and absence of drug-drug interactions between SOF/SIM and immunosuppression drugs, intense monitoring is not required. Among patients with genotype 2 and 3 who were receiving ribavirin, dose adjustments were required but use of growth factors was not.

L80
ORGAN AND TISSUE PROCUREMENT AS PART OF THE CURRICULUM OF THE MEDICAL AND NURSING SCHOOLS

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Organ procurement and transplantation clearly improves health outcome in patients with organ failure. The availability of organs for transplantation represents a major challenge and many strategies were developed to overcome this shortage in various countries according to identified obstacles. One of the barriers to organ procurement in the Middle East in general, and Lebanon in particular, is the lack of commitment to this healthcare mission, in addition to the limited expertise that is restricted to specific clinical sites. The National Organization for Organ and Tissue Donation and Transplantation (NOD-Lb) has developed a plan that identifies and addresses all potential obstacles to organ procurement, including a major item on building nation-wide expertise. This project comprises the incorporation of organ procurement teaching in medical curricula, in addition to the involvement of other health profession schools. In Lebanon, Medical Schools teach in foreign languages and follow different curricular designs, basically American and French models. Furthermore, within the same curricular model, various designs are available depending on the School. Some medical programs adopt a discipline-based model; others use an organ-based approach, a problem-based design, or a competency-based model. In order to accommodate the various available curricular models and secure homogeneous and equitable teaching irrespective of the adopted design, organ procurement program objectives and outcomes should be set as a first step. Later, program outcomes should be mapped to the academic level and tailored according to the duration of each medical program. Individual Institutional committees can then develop a teaching strategy aligned with the curricular design that is adopted at the Medical School. The organ procurement program can be taught for example as an integrated course, embedded within other courses or clerkships over years (such as ethics course, surgery clerkship, etc.), or as a separate entity moving longitudinally over years, in parallel to other deliveries. Irrespective of the adopted teaching model, hands-on experience secures a better understanding of the topic, especially with the advent of simulation. Therefore, inter-professional education and practice should be central to the organ procurement teaching, with simulated or live situations workshops developed for training and testing. At the end, attainment of program objectives and outcomes should be tested in all curricula using proper assessment tools. In conclusion, irrespective of the medical curriculum design, organ procurement teaching should maintain uniform objectives and outcomes, some common teaching tools such as workshops and hands-on experience, and similar performance assessment. However, other program components can be integrated in many various ways that respect the specifications of each School.

L81
THE IMPACT OF SYRIAN CRISIS ON ORGAN TRANSPLANTATION IN SYRIA

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The war in Syria that started in March 2011 and is still going on has destroyed many of the country’s infrastructures including many clinics and transplant centers that had been established by the government were either completely demolished or become non-operational. Kidney Transplant is the main transplant activity in Syria and relies on living related and unrelated donors. The total number of kidney transplants performed in Syria in 2010, the year that just preceded the crisis, was 385 transplants (17 per million population (pmp)). Unfortunately, as everyone would expect with this war that lasted more than 3 years so far, this figure gradually declined over the following years to as low as 154 transplants in 2013 (6 transplants pmp). In the same manner, the number of operational kidney transplant centers has decreased from 8 centers from 3 cities (Damascus, Aleppo, and Homs) before the crisis to only 4 centers all in Damascus. Of importance, the unrelated donor (paid) kidney transplantation decreased substantially from around 70% during the years that preceded the crisis to 61% by the end of 2011 and to 47% in 2013 (72 out of 154 transplants).

The impact of the war on kidney transplant activity in Syria had several other aspects such as the substantial decrease in
the number of physicians and surgeon involved in kidney transplantation as more than 50% of them are currently not practicing in their centers either because they left the country (29%) or their centers are non-operational (22%). The availability of immunosuppressive drugs is another major issue that the health authorities and transplant patients themselves are facing all over the country during this 3 years period which was marked by frequent interruption in supplying these drugs in time and free of charge for all patients in different part of the country. This has led to adverse medical consequences on patients who could not arrange an alternative source, not to mention the effect of newly imported drugs with unknown safety and efficacy profiles.

By the beginning of 2011, the government of Syria were taking steps to initiate liver transplantation in the country. For that purpose, efforts were done in several directions including cooperation with well-known Brazilian and Iranian liver transplant centers where specialized teams were sent for training. Unfortunately, the trainers from those countries couldn’t visit Syria for understandable reasons and the project came to a halt.

The autologous bone marrow transplant program which was a newly born program before the crisis continued to function however in a smaller and irregular rate and remained restricted to Damascus area.

The commitment and dedication of staff that are still doing their jobs in such a very difficult and challenging situation are extraordinary and deserve to receive support from the international community.

Conclusion: war has severely affected patients and health services in Syria. All aspects of organ transplantation has been influenced, paralyzing new projects and negatively affecting existing programs, thus depriving nation from what has been already been achieved.
O1 EVALUATION OF UNDERLYING LIVER DISEASE AND ITS SEVERITY IN CHILDREN WHO REFERRED FOR LIVER TRANSPLANTATION

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Introduction: Historically, children have an important role in the progression of liver transplantation. This group of patients form a significant percentage of patients included in the Liver Transplant Waiting List, but because of the lack of organs with the proper size, the mortality of this group of patients is very high and is about 25-40 percent. Since Organ Transplant Center in Shiraz University of Medical Sciences is the only pediatric liver transplant center over the country, so any plan for the patient needs to know the types and severity of the underlying disease and has a great importance.

Materials and Methods: The medical records of all patients under the age of 18 years which has been in the case of organ transplant coordination office were studied. The hospital records of all patients contains demographic information including age, sex, abnormal growth, the type of liver disease and the laboratory data such as albumin, total bilirubin, and INR was recorded on a special form. PELD score of patients based on five criteria and MELD score of patients based on three criteria was calculated and the severity of the condition was determined.

Results: According to the data cryptogenic cirrhosis (19.2%) had greater rate and biliary atresia (15.8%), and autoimmune hepatitis (11.7%) were in the next levels. Among the clinical symptoms jaundice (85.8%) was the most common as well as ascites (51.3%) and esophageal variceal bleeding (38.3%) which were in second and third importance and prevalence. Analysis of results shows that the numerical ratings of PELD and MELD score of patients based on three criteria was calculated and the severity of the condition was determined.

Conclusions: The most common underlying disease which leads to liver transplant includes cryptogenic cirrhosis, biliary atresia and autoimmune hepatitis shown significant differences considering age groups, sex and prognosis.

O2 PREDICTORS OF IMMEDIATE TRACHEAL EXTUBATION IN THE OPERATING ROOM AFTER PEDIATRIC LIVER TRANSPLANTATION

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Introduction: Pediatric orthotopic liver transplant (OLT) recipients frequently need mechanical ventilation during the immediate post-transplant period. However, intensive care unit beds are costly and scarce, and therefore it is important to anticipate the patients who will require postoperative mechanical ventilation support. In addition immediate postoperative extubation may reduce the incidence of postoperative respiratory complications and improve patient outcome after OLT. In this study we aimed to determine the predictors of mechanical ventilation need after OLT in pediatric patients.

Materials and Methods: The records of 57 pediatric patients who underwent OLT, performed by the same team in the Baskent University Hospital from April 1990 to August 2009, were retrospectively analyzed. The patients were divided into two groups according to whether they required postoperative mechanical ventilation or not. Collected data included demographic features, co-morbidities, etiology of the liver failure, perioperative laboratory values, intraoperative hemodynamic parameters, use and volume of crystalloids, colloids, blood products and albumin, portal vein clamping time, requirement of inotropes, vasopressors, and duration of anesthesia.

Results: The mean age and body weight of the patients were 25.0±23.1 months and 10.8±5.3 kg, respectively. Out of 57 patients, 26 (46%) needed postoperative mechanical ventilation. Compared with those who did not require postoperative mechanical ventilation those who did had growth failure (P=.03), higher mean intraoperative lactate level (P=.03), higher mean intraoperative fresh frozen plasma and erythrocyte suspension requirement per kg (P=.049), and intraoperative vasopressor requirement (P=.022). Multivariate logistic regression analysis revealed that growth failure (odds ratio, 37; P=.03) and a higher intraoperative lactate level (odds ratio, 1.5; P=.03) were predictors of mechanical ventilation need in these patients.

Conclusions: In conclusion, 46% of our pediatric OLT recipients required mechanical ventilation postoperatively. Growth failure and higher intraoperative lactate levels were associated with postoperative mechanical ventilation need in our patients.
RESULTS OF PEDIATRIC LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE

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Introduction: Liver transplant is an established curative therapy for children with chronic end-stage liver disease or acute liver failure. In this study, we aimed to evaluate pediatric liver transplantation in terms of outcome, complications and long term follow up results.

Materials and Methods: We retrospectively evaluated the patients who had liver transplantation (LT) in our institution. Demographic features (including body weight, PELD scores and etiology of liver disease), graft source, perioperative outcomes, perioperative complications, postoperative complications and long term results were analyzed.

Results: Between September 2001, and February 2013; 188 pediatric liver transplants were performed in our institution. Twenty seven (14%) patients had LT due to fulminant hepatic failure. Fifty eight of the patients were less than 10 kg. Majority of grafts (90.9%) were obtained from living-related donors. Thirteen patients (6.9%) underwent intervention for children with chronic end-stage liver disease or acute liver failure.

Conclusions: The overall outcome of pediatric LT at our center is very promising. With improved medical care of pediatric patients and the combined efforts of the parents and medical team, the number of children receiving transplants will increase in the future.

OUR EXPERIENCE OF ABO-INCOMPATIBLE LIVER TRANSPLANTATION IN CHILDREN

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Introduction: The no. of children waiting for liver transplantation without having a suitable living donor is increasing. Spilt liver transplantation from deceased donors is very limited due to shortage of such high quality donor organs. A second option would be to perform ABO-Incompatible (ABO-I) transplantation in children where only an ABO-I liver donor is available.

Materials and Methods: Blood type and cross-match with an irregular antibody screen were performed prior to transplantation. Isohemagglutinins titers were drawn pretransplantation. Isohemagglutinins titers against ABO antigen were monitored post transplantation according to our protocol. We defined indications for plasmapheresis as increased isohemagglutinin titers associated with allograft dysfunction, picture of hemolysis and histological evidence of rejection. Posttransplantation immunosuppression protocol consisted of two doses of basiliximab day 1 and day 4. I.V. Methylprednisolone was given during anhepatic phase at the time of biliary anastomosis, followed by prednisolone tapered slowly. Mycophenolate mofetil was started at 10-20 mg/kg/day on postoperative day 1 and increased to reach 600 mg/m². Oral Tacrolimus began on postoperative day 7 aiming for a trough level 7-9 ng/ml at the first 3 months. In the absence of rejection, steroids were planned to discontinue within 12 months after transplantation. As a protocol blood bank supply our patients if needed packed red blood cells from O positive donors and blood products from AB donors to avoid any increment in the ABO Isotitre.

Conclusions: Historically, ABO-I grafts have been limited to emergency situations and have resulted in inferior patient and graft survival. We are reporting here the same experience as in Japan and Atlanta (USA) plus that no one of our patients require plasmapheresis, IV immunoglobulin or Rituximab. As the first series to be done in the Middle East even though with the small no. but our conclusion that pediatric recipients patients with ABO-I grafts have the same outcomes comparable or superior with ABO-compatible graft without any difference in rejection or in vascular or biliary complications. Crossing blood groups will play significant role in avoiding pediatric waiting mortality in emergent patients. We do believe in role of HLA matching in our cases.

Demographic data of the ABO-I Cases

<table>
<thead>
<tr>
<th>Patient</th>
<th>Diagnosis</th>
<th>Age at Transplant (Months)</th>
<th>Blood Group</th>
<th>Follow up Period (Days)</th>
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<tr>
<td>1</td>
<td>Biliary Atresia</td>
<td>27</td>
<td>O Positive</td>
<td>310</td>
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<td>Biliary Atresia</td>
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<td>B Positive</td>
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<td>6</td>
<td>Crigler Najjar Syndrome</td>
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LONG TERM STUDY OF STEROID AVOIDANCE IN RENAL TRANSPLANT PATIENTS: A SINGLE CENTER EXPERIENCE

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Introduction: Steroids have played a major role in renal transplantation for more than four decades. However, chronic use of steroids is associated with a lot of comorbidities. This study aimed to assess the cost–benefit of steroid-free immunosuppression regimen in a prospective randomized controlled study of live donor renal transplantation, which was lacking in the literature.

Materials and Methods: Four-hundred sixty four patients were randomized to receive tacrolimus (Tac), mycophenolate mofetil (MMF), basiliximab (Simulect) induction and steroids only for 3 days (284 patients, study group) Tac, MMF maintenance, or Simulect induction and steroid maintenance (162 patients, control group). Median follow-up was 82 ± 33 months.

Results: Both groups showed comparable graft and patient survival, rejection episodes and graft function. Post-transplant hypertension was detected in 144/284 (50.7%) of the steroid-free group and 122/162 (75.3%) of the steroid maintenance group (p = 0.001), while post-transplant diabetes mellitus was detected in 15/284 (5.3%) and 25/162 (15.4%) of these two groups, respectively (p = 0.001).

Conclusions: Among low immunological risk recipients of live donor renal transplants, steroid avoidance was feasible, safe and with less morbidity, using Simulect induction, and tacrolimus and MMF as maintenance immunosuppression. Steroid avoidance was associated with a lower total cost despite comparable immunosuppression cost, which was attributed to the lower cost of associated morbidities.

A COMPARATIVE ANALYSIS OF HISTOLOGICAL SCORING IN LIVING DONOR RENAL TRANSPLANTS FROM DONORS ABOVE AND BELOW 60 YEARS OF AGE

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Introduction: World Health Organization estimates that the absolute number of people aged 60yrs and over will increase from 605-million to 2-billion over the next 30yrs. This aging population will have significant impact on selection and acceptance of living donor organs for transplantation. Studies have suggested that the number of glomeruli-per kidney and the mean glomerular volume negatively correlate with age beyond 60yrs. These kidneys have a lower functional nephron mass at the time of transplant as compared to younger donors. According to UNOS data the risk of DGF is doubled in living donor renal transplant (LDRTx) from donors above 65yrs. Some reports suggest that for every 10yrs increase in age the risk of DGF increases by 15%. There are many published studies comparing short and long term graft outcome from LDRTx from donor above and below 60yrs of age but so far there is no comparative study published to compare histological evidence among these groups. In this present study we have compared day zero and 3 months renal transplant biopsies among these groups.

Materials and Methods: We retrospectively analyzed data of 222 LDRTx performed in our unit between Jan 2008 and Dec 2012. Transplants lost because of acute thrombosis or hyperacute rejections were excluded. We had 51 LDRTx donors above 60yrs and above. We used Remuzzi and BANFF criteria to compare their day zero and 3 months post transplant renal biopsies. We also recorded donors and recipient’s demographics and transplant outcomes. SPSS software system was used for analysis. P value of <0.05 was considered statistically significant.

Results: Histological results are summarized in table 1 & 2. There was 100% one-year graft survival in both groups. Three-year graft survival was 98% in above 60yrs as compared to 96% in below 60yrs.

Conclusions: We conclude that the histological data supports clinical outcomes in LDRTx from donors above 60yrs and hence they are good recourse to LDRTx.

<table>
<thead>
<tr>
<th>Timing of Biopsy</th>
<th>Remuzzi Scoring</th>
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<th>18-59 Years</th>
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<td></td>
<td>7-12 (Severe)</td>
<td>0</td>
<td>0</td>
<td>P = NS</td>
</tr>
<tr>
<td>Remuzzi 1 months</td>
<td>0-3 (Mild)</td>
<td>50</td>
<td>170</td>
<td>P = NS</td>
</tr>
<tr>
<td></td>
<td>4-6 (Moderate)</td>
<td>1</td>
<td>1</td>
<td>P = NS</td>
</tr>
<tr>
<td></td>
<td>7-12 (Severe)</td>
<td>0</td>
<td>0</td>
<td>P = NS</td>
</tr>
</tbody>
</table>
O7

EFFECT OF DONOR AGE ON THE GRAFT OUTCOME AND SURVIVAL IN LIVING RELATED KIDNEY TRANSPLANTATION

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Introduction: Donor age was identified as major factor that influence the short- and long-term outcome after kidney transplantation (Tx). The study compared the results of kidney transplantation from living related donors older and younger than 65 years.

Materials and Methods: The 78 living related kidney transplant recipients were divided in two groups according to the donor age: G1 (<65 yr, n=46), and G2 (>65 yr, n=32). The database included donor, recipient and transplant variables. Biopsies were performed at 1 and 6 months after Tx, and if clinically indicated.

Results: The two groups were similar regarding the donor and recipient gender and body weight, previous time on dialysis, HLA matching, mean cold ischemic time-CIT and cyclosporine target C2 levels. However, the groups differed significantly in the recipient age, glomerular filtration rate of donated kidney and [27.8±7.3 vs. 42.9±4.6 yr (p<0.001); 59.7±16.3 vs. 46.4±12.3 ml/min (p<0.001)] for G1 vs. G2, respectively. Moreover, G2 was characterized by slightly higher percentage of delayed graft function (DGF), subclinical acute rejection (SAR) at 1 and 6 months biopsies (31% vs. 23% and 38% vs. 24%) and AR (16% vs. 12.5%), when compared to G1. The frequency of histological evidence of chronic allograft nephropathy (CAN) at 6 months biopsy was significantly higher in the G2 (0.42% vs. 0.85% (p<0.01), thereby resulting with a significantly lower mean creatinine clearance at 1-year after Tx [62.7±10.9 vs. 51.4±12.2 (p<0.05)]. Nevertheless, no significant difference in the 5-years graft survival between the groups was found.

Conclusions: Although kidneys from older donors have an increased risk for the development of CAN associated with a decline in graft function at one year after transplantation, in our study 5-years graft survival has been found to be similar to those of kidneys of donors younger than 65 years. Therefore, kidney transplantation from elderly living related donors can be accepted as a valuable option when waiting time is prolonged, but most preferably among older recipients.

O8

EVALUATION OF RENAL FUNCTION BY CYSTATIN C IN RENAL TRANSPLANT RECIPIENTS

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Introduction: Our purpose was to evaluate Cystatin C (CysC) level as a marker of Glomerular filtration rate (GFR) in renal transplant recipients and its correlation with Creatinine (Cr) based GFR by urinary Creatinine clearance (CCL), Cockcroft Gault (CCG) and Modification of diet in Renal Disease (MDRD) formulae.

Materials and Methods: In Cross sectional study, 102 renal transplant recipients were enrolled to measure Serum Cystatin C (S.CysC) levels and its correlation with Serum Creatinine (S.Cr), CCL and GFR by CCG and MDRD formulae. Statistical analysis was done by SPSS 17.

Results: The mean age of the recipient was 31.87±8.37 with a M: F ratio of 4.3:1. The mean S.Cr was 1.60±0.49 mg/dl and S.CysC 1.63±0.52mg/dl. S.CysC showed significant correlation with S.Cr (r = 0.90, p<0.001), CCL (r = 0.77, p<0.001), CCG (r = 0.73, p<0.001) and MDRD (r = 0.82, p<0.001). Correlation of S.CysC with S.Cr, CCL, CCG and MDRD was also assessed at 1 year, 2-3 year, 4-5 year and > 5 years post transplantation. Correlation of S.CysC with S.Cr was in the range 0.8 – 1.0, S.CysC vs CCL in the range 0.8 – 0.85, S.CysC vs CCG 0.7 – 0.8 and S.CysC vs MDRD 0.8 – 0.84.

Conclusions: These results show that S.CysC is a reliable endogenous marker for estimation of GFR among renal transplant recipients. GFR value can be achieved by a simple blood test thus avoiding the cumbersome and incorrect collection of 24 hour urine specimens. S.CysC has potential to be a routine test for GFR estimation in transplant clinics.
THE OUTCOMES OF PROTOCOL-SPECIFIED MODIFICATION OF IMMUNOSUPPRESSIVE REGIMEN DIRECTED TO HISTOLOGICAL DIAGNOSIS BY EARLY SURVEILLANCE PROTOCOL BIOPSY: A RETROSPECTIVE LONGITUDINAL PROPENSITY SCORE-MATCHED STUDY

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Introduction: The risk-benefit of surveillance-protocol biopsy (SPBx) in kidney transplantation remains unclear. Our study aims to compare outcomes of recipients with SPBx approach to recipients with standard approach which allograft biopsy was performed only when indicated.

Materials and Methods: 331 consecutive renal biopsies from 213 recipients were enrolled and analyzed using current Banff criteria. The study group is the recipients transplanted in 2010-2013 which SPBx approach was used for all of recipients. The control group is the recipients transplanted in 2007-2010 which received standard approach. The outcome parameters are adjusted by using propensity score matching method with 1:1 nearest neighbor algorithms, meaning that a recipient with SPBx (n=190) was matched to standard approached recipients.

Results: The mean number biopsies per recipient were 3.2±1.9. Mean recipient age was 52.2±11.1 years. 58.2% of recipients were male. Age and gender were similar between the SPBx and FCBx groups. Time to biopsy after transplantation was significantly shorter in SPBx recipients (110.5±35.1 days vs 655.8±122.4 days, p=0.001). Most of the action following biopsy is the modification of immunosuppressive regimens (72% in SPBx vs 48% in standard approach), which almost all of the modifications were CNI dose reduction. The pathological results at 2-year post-transplant showed significantly different in both acute and chronic features. The incidence of borderline T-cell change was 11.5% in SPBx and 69.5% in FCBx (p=0.0001). There were no significant difference in features of acute cellular mediated rejection, acute antibody mediated rejection, and combined rejections between groups. Grading of interstitial fibrosis/tubular atrophy (IF/TA) had more severity (ci3, ct3) in FCBx (0.8% vs 3.1%, p=0.005).

Conclusions: The present study demonstrates the better pathological outcomes of SPBx approach. This can be explained by the appropriate immunosuppressive adjustment guided by the result of SPBx.

COMPARISON OF SIROLIMUS AND EVEROLIMUS BASED IMMUNOSUPPRESSIVE THERAPY IN RENAL TRANSPLANT PATIENTS; WHICH IS MORE EFFECTIVE?

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Akdeniz University, School of Medicine, Organ Transplantation Center, Antalya, Turkey

Introduction: The aim of this study was compare to effectiveness of sirolimus (Group I: Sirolimus+Mycophenolic acid (group I) and everolimus (Group II: Everolimus+Mycophenolic acid) based immunosuppressive therapy in renal transplant patients.

Materials and Methods: We included that 189 renal transplant patients (group I: N=95 r and group II N= 94 ). Male/Female (M/F) numbers were similar in two groups. All patients received basiliximab as an induction therapy, cyclosporine, mycophenolate(MPA) acid at the first 2 month. At the 3 month; cyclosporine was withdrawn, sirolimus (SRL) or everolimus were initiated randomly. We compared clinical and biochemical data of patients maintained on sirolimus+MPA + steroid (Group I) and patients maintained on everolimus+MPA+steroids 79.8±9.7 months.

Results: Demografic features and the immunologic risk factors of the groups were similar (Table1). We found that graft and patients survival (Figure I). Additionally, acute rejection, the chronic allograft disfunction (CAD), cytomegalovirus (CMV) infection, the new onset diabetes after transplantation (NODAT) rate were also similar between groups (Table 1)

Conclusions: There is no difference between sirolimus and everolimus based therapy without cyclosporine in terms of 1 year graft and patients survival.

Table I. Comparison of Clinical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Group I (n=95)</th>
<th>Group II (n=94)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (M/F)</td>
<td>69/26</td>
<td>66/28</td>
<td>NS</td>
</tr>
<tr>
<td>Age</td>
<td>34±13</td>
<td>30±10</td>
<td>NS</td>
</tr>
<tr>
<td>Graft survival</td>
<td>89%</td>
<td>94%</td>
<td>NS</td>
</tr>
<tr>
<td>Patients survival</td>
<td>100%</td>
<td>100%</td>
<td>NS</td>
</tr>
<tr>
<td>Akut rejection</td>
<td>34.7% (n=33)</td>
<td>27.7% (n=26)</td>
<td>NS</td>
</tr>
<tr>
<td>CAD</td>
<td>4.2% (n=4)</td>
<td>4.3% (n=4)</td>
<td>NS</td>
</tr>
<tr>
<td>CMV infection</td>
<td>1.1% (n=1)</td>
<td>1.1% (n=1)</td>
<td>NS</td>
</tr>
<tr>
<td>NODAT</td>
<td>8.6% (n=8)</td>
<td>5.3% (n=5)</td>
<td>NS</td>
</tr>
<tr>
<td>Lymphocde</td>
<td>4.2% (n=4)</td>
<td>2.1% (n=2)</td>
<td>NS</td>
</tr>
</tbody>
</table>
O11
SUCCESSFUL SALVAGE OF A RESISTANT ACUTE ANTIBODY MEDIATED RENAL GRAFT REJECTION WITH ECUлизUMAB

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Introduction: Antibody mediated rejection (ABMR) remains a therapeutic challenge. It may jeopardize the short and long term graft survival. Several agents are used with variable results. These agents include plasmapheresis, intravenous immunoglobulin (IVIG) and rituximab (ritux).

Case Report: We report a case of very early occurrence of antibody mediated rejection in a live unrelated commercial transplant. The patient arrived on the eighth post-transplant day from abroad where she had the transplant with a serum creatinine of 400 umol/L. Serum creatinine continued to rise to and she required dialysis. A biopsy was performed and showed ABMR. The rejection failed to respond to IVIG, anti-thymocyte globulines and plasmapheresis. The patient remained on dialysis for about a month. A second biopsy was performed while the patient was on dialysis showed persistence of the ABMR. Based on previous case report series and after an informed consent of the patient, the anti-complement eculizumab was administered. One week after the first dose, the patient showed significant improvement of her renal function and became dialysis independent. Following the fifth dose her renal functions improved with a serum creatinine of 119umol/L.

Conclusions: We conclude eculizumab is a precious tool for treatment of resistant antibody mediated rejection. Further studies are required to define the place of eculizumab in ABMR. This was the first experience of this agent in ABMR in Oman.

O12
EFFECT OF CONVERSION FROM MYCOPHENOLATE MOFETIL TO AZATHIOPRINE IN LIVING DONOR KIDNEY TRANSPLANTATION WITH CYCLOSPORINE BASED IMMUNOSUPPRESSANT

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Introduction: Mycophenolate mofetil(MMF) and azathioprine(AZA) are two immunosuppressive agents that are widely used in kidney transplantation. However, the cost of MMF is substantially greater than AZA.

Materials and Methods: All first renal allograft recipients of both sexes ages ranging from 18 to 60 years and already completed > 6 months after renal transplantation with stable graft function were the study population. A total of 50 patients were consecutively included in the study.

Results: The mean ages of the recipients in MMF and AZA groups were 32.6±10.2 and 34.5±9.1 years respectively. More than 80% of the patients in either group had 50% HLA typing matched. Nearly half of recipients received kidney from their parents (46.2 vs. 45.8% in MMF and AZA groups respectively). At the end-point of study (6 months), no significant difference was observed between MMF and AZA groups in terms of episodes of renal allograft rejection (15.5% vs. 12.5%, p = 0.632). During the 6-months period after the withdrawal of MMF, renal function remain stable as is evident by negligible changes in albuminuria in mg/dl (24.0±4.5 vs. 26.2±11.9, p=.860 at month 1 and 21.9±11.3 vs.23.1±5.3,p=0.936 at month 6); level of serum creatinine in mmol/L (151.6±34.9 vs. 148.6±34.8,p=.848 at month 1 and 157.9±41.5 vs.161.7±50.9,p=0.779 at month 6) and eGFR in either group.

Conclusions: This study suggests that switching the recipients of renal allograft from MMF to AZA 6 months after transplantation may be safe and effective.
O13
IRODAT, THE INTERNATIONAL REGISTRY IN ORGAN DONATION AND TRANSPLANTATION, A MIDDLE EAST OVERVIEW

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Donation and Transplantation Institute, Barcelona, Spain

Introduction: IRODaT is the first worldwide registry in the organ donation and transplantation field, which contains statistics of deceased/living donors and transplants since 1998. This information is compiled following the nomenclature established in the document “The Critical Pathway of Deceased Donation (1)“, ensuring uniformity throughout the registry and aiding correct interpretation of the data by the scientific community. Out of the 114 countries with organ donation or transplantation activity, 93 national reporters submit data to the registry, and these are available on IRODaT’ s website (2).

Materials and Methods: IRODaT is a friendly and easy to use database. Each region is represented by an Official Reporter who registers the figures for donation and transplant activity in the previous year directly to the webpage. IRODaT counts with experts in donation and transplant who revise thoroughly the data. Specialized reports required for specific investigations, studies or for general consultation to meet users’ needs and requirements may be request by contacting the IRODaT team. Information on deceased and living organ donation and also on kidney and liver transplant from deceased donors was registered.

Results: Data about donation and transplantation activity in the MESOT area is shown in table 1. Heart transplant activity (in pmp) was also reported from Iran (11) Israel (1.8), Saudi Arabia (0.8), Lebanon (0.7) and Turkey (0.8). Lung transplant activity was reported from Saudi Arabia (0.5), Israel (4.9), Turkey (0.3) and Iran (0.05) Finally, IRODaT received information concerning Pancreas transplant from Iran (0.4), Israel (0.9), Kuwait (1) and Turkey (0.08).

Conclusions: IRODaT is able to provide statistics within a short timeframe, based on a worldwide network of experts involved in organ donation and transplantation. The data have proved to be of an extreme value to scientific programs, social and governmental bodies.

Table 1: Donation and Transplantation Activity in MESOT Area in 2012

<table>
<thead>
<tr>
<th>Country</th>
<th>Actual deceased organ donors</th>
<th>Living donors</th>
<th>Organ recipient from deceased donors</th>
<th>Kidney transplant from deceased donors</th>
<th>Liver transplant from deceased donors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran</td>
<td>6.9</td>
<td>20.1</td>
<td>12</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td>Israel</td>
<td>7.3</td>
<td>14.6</td>
<td>9.1</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>Kuwait</td>
<td>6</td>
<td>13.3</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lebanon</td>
<td>2.5</td>
<td>22</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Libya</td>
<td>2.8</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qatar</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>3.1</td>
<td>22.1</td>
<td>4.4</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Syria</td>
<td>13.7</td>
<td>22.3</td>
<td>4.7</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>4.5</td>
<td>43.3</td>
<td>6.9</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>Tunisia</td>
<td>0.1</td>
<td>11.3</td>
<td>6.2</td>
<td>0.1</td>
<td></td>
</tr>
</tbody>
</table>

Data expressed as donors per million population (Pmp).

References
2. IRODaT. Available at: www.irodat.org.

O14
LIVING DONOR OBSERVATORY (LIDOBS)

Marti Manyalich1, Xavier Torres1, Ignacio Revuelta1, Fritz Diekmann1, Josep M. Peri1, Constantino Fondevila1, David Paredes1, Entela Kondo1, ELIPSY Project Consortium1, EULID Project Consortium1, Ana Menjivar2
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Introduction: LIDOBS is a scientific community composed by a multidisciplinary group of international researchers and experts on Living Donation, working to reach consensus and exchanging experiences in order to promote a common Living Donor Assessment model. The establishment of international consensus in terms of registries and follow-ups of the donation impact on donors’ life will protect Living donors’ (LD) health and safety. Our objective was to promote a High Quality of Living Donation programs offering a scientific platform and an evidence-based framework on Living Organ Donation. Transparency, High Quality standardised programmes and the safety of LDs will be assured.

Materials and Methods: LIDOBS scientific community is open to all healthcare professionals, interested in Living Donation activities. Their experience, knowledge and scientific results will be offered. The activity of LIDOBS is focused on:

- LDs’ protection: by ensuring that LDs selection follows the principals of the international guidelines and by offering them appropriate information on Living Donation process.
- LDs’ ethical and legal aspects: by highlighting new ethical dilemmas raised on the way. Organ trafficking, commercialism, transplant tourism are being considered in order to assure the accomplishments of the International standards and legislation.
- LDs’ Registry: Registration is mandatory for the purpose of traceability, safety and transparency of activities and outcomes of Living Donation procedures. LIDOBS community has implemented a database model for LDs registration and data analysis based on three levels data:
  - 1st Transparency: Include the mandatory data (i.e.: filiations, nationality, relationship, etc.)
  - 2nd Security: Include the recommended data of clinical pre and post donation parameters.
  - 3rd Quality of donation programmes: Include excellence data collected by the application of the questionnaires used to evaluate LD satisfaction and psychosocial follow-up.
- LDs Follow-up: Detect the key points for the outcome,
LDs’ satisfaction and mid to long-term impact of donation process on donor’s quality of life and their psychological well-being.

Research on LDs: Continuous scientific researches identifying the best practices, developing quality indicators and to establish recommendations for LDs health and safety. On November 2014 in Barcelona will be organized a Conference on Living Donation directed to High Quality Practices; co-funded by the European Commission.

Results: LIDOBS enables the capability of the application of LDs assessment/follow-up surveys (tools surged by EULID and ELIPSY projects – Cofounded by the European Union in the framework of the EU Health Programme, available in several languages).

LIDOBS is collaborating with other research groups to approach the LDs in all their complexity.

On-line database registry: Currently, are more than 1700 registered LDs with mandatory data from 19 centres in 13 European countries. The database proves to be useful to simplify the registration and analysis processes, increasing the quality of the disposable information on LDs as well improving the quality of the programs.

Conclusions: Promoting LD follow-up and international registration practices through research and data analysis, and establishing a consensus among professionals for homogenous and evidence-based clinical recommendations and best practices will benefit transplant professionals and the quality of Living Donation programmes. Centres accomplishing LIDOBS recommendations should be considered as excellence centres.

O15 EUROPEAN LIVING DONOR PSYCHOSOCIAL FOLLOW-UP (ELIPSY PROJECT)

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1Hospitalet Clinic of Barcelona, Spain, 2Charité University Hospital, Berlin, Germany, 3 Sahlgrenska University Hospital, Göteborg, Sweden, 4Hôpital Foch, Paris, France, 5Centro Hospitalar do Porto, Portugal, 6Medical Park Antalya Hospital Complex, Antalya, Turkey, 7Fundació Clínic per la Recerca Biomèdica, Barcelona, Spain

Introduction: ELIPSY project, a European initiative co-funded by EAHHC and coordinated by Hospital Clinic of Barcelona was developed to elaborate a common methodology for European countries to assess/follow-up the psychosocial sphere of Living Donor (LD). Our objective was to contribute on guaranteeing high quality living organ donation programs by creating a follow-up model for LDs psychological well-being. Quality Of Life (QOL) and the impact of recipients’ outcome on the donor and donors’ perception of donation process; identifying risk and protective factors.

Materials and Methods: Firstly, the current situation of psychosocial follow-up practices was evaluated. A survey was conducted in 65 centers with Living Donation programs allocated in ten European countries. Secondly a donor follow-up methodology to evaluate the psychosocial well-being, QOL of the donor before and after donation and the impact of donation process was created. As well, a recipient follow-up methodology to correlate recipients’ outcome with the LDs psychosocial sphere was developed. The project progressed by applying such methodologies in the partners’ centres; accordingly adapted to their characteristics and resources. Two studies were simultaneously carried on: Short term follow-up: in where was assessed thoroughly in a prospective study the psychosocial profile of LD prior to donation and their respective psychosocial outcome one year after donation with the aim to detect the percentage of change of their psychosocial status and to characterize any worsening. The donors completed two questionnaires (pre and post-operative); containing psychometric tests (HADS, PHQ, SOC, SF-36, ACSA, EPOSQ-A, life events and ELSA), specific questions regarding satisfaction, decision to donate and donor-recipient relationship.

Conclusions: ELIPSY project contributes for the harmonization of LDs psychosocial follow-up practices promoting high quality LD programs. LDs assessed by ELIPSY methodology go well both at short and long term follow-up. These results are discussed in terms of differences
in the evaluation of follow-up practices of and the legitimacy for LDs. Knowing the complexity of individuals’ attitudes and beliefs toward donation, the donor itself is the most appropriate person to give an answer about their psychosocial benefits.

O16
ORGAN DONATION IN SHAHID BEHESHTI UNIVERSITY ORGAN PROCUREMENT UNIT OF IRAN, AN EXCELLENT 9 YEAR EXPERIENCE

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Katayoun Najafizadeh
Lung Transplantation Research Center, Masih Daneshvari Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Introduction: Organ procurement unit of Masih Daneshvari hospital affiliated to Shahid Beheshti University of Medical sciences started its activity from 2004. With a great effort and creativity of its personnel it has been the most active OPU of Iran from the beginning. Although the organ donation per million populations (PMP) of Iran as a whole is now 6.9, the rate of organ donation PMP in this OPU has reached to 32.4.

Materials and Methods: This study was a retrospective review of all cases who had been transferred as brain death to the organ procurement unit of SBMU between April 2004 and September 2013.

Results: 726 potential brain dead donors had been transferred to our OPU that finally 93.4% (678) of them donated their organs (causes of not donating were: death before harvest in 2.9%, unsuitable organs diagnosed in operating room in 1.9%, unsuitable organs according to lab tests in OPU, and not brain death confirmation in 0.3%). age of donors was 33± 15 years (age range was 11 month old to 67 year-old). The male/female ratio was almost 1.6. The most common causes of brain death were trauma (49%) and CVA (29%). Totally 2107 organs (1219 kidneys, 208 hearts, 585 livers, 56 lungs, 39 pancreases,) were transplanted. Mean donor per month was 6.5, mean organ per month was 20.1 and mean organ per donor was 3.1. Obviously there was a significant improvement by dividing our activity into 2 time periods; which the first period started from 2004 to 2011 and the second continue from 2011 to 2013. Mean donor per month index increased slightly from 1.7 in 2004 to 5.2 in the 2010 and jumped to 25, near 5 times more, during recent 3 years. Moreover organ per month increased from 3 to 61.3 during 9 years of activity and family consent rate increased from 32% to 96.3% from 2004 to 2011 and has remained up to 90% during last 2.5 years.

Conclusions: The main causes of these improvements are: 1) PPDDP (Persian Possible Donor Detection Project) with 3 subgroup including IP (Inspector Project), TDDP (Telephone donor detection program) and HR (Hospital reporting) which is a new method of brain dead detection, 2) PIEP (Persian Interviewer Education Project) which is a mixture of scientific method of family interview with the specific aspects of our culture and 3) Active potential donor management right after detection. As a conclusion improving the brain dead detection , management and family interview methods can increase the rate of organ donation significantly.

O17
MAJOR VASCULAR COMPLICATIONS AFTER LDLT: SINGLE CENTER TEAM EXPERIENCE

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Karim Hosny4, Ayman Abd El Wahab4
1Ein Shams University, 2 Fayoum University, 3Liver Institute Menoufia, and 4Cairo University, Egypt

Introduction: Vascular problems such as thrombosis and stenosis of the hepatic artery, portal vein, and hepatic vein are among the most serious complications reported after liver transplantation and are more frequently seen among recipients of living donor transplantations (LDLT). These complications can lead to increased morbidity, graft loss, and patient death. The aim of this study was to assess the incidence, treatment, and outcome of vascular complications after LDLT in a single Egyptian center.

Materials and Methods: Between 2006 and 2014, we performed 225 LDLT.

Results: Twenty recipients out of 226 patients had vascular complications 2 of them were females and the remaining were males and the preoperative diagnosis was post HCV liver decompensation in 17 cases and HCC in 3 cases their age ranged between (26 – 68 years) (mean ± SD = 49.6 ± 9.4). Hepatic artery thrombosis (HAT) occurred in 7 (35%), portal vein thrombosis (PVT) in 6 (30%), and hepatic vein occlusion (HVO) in 3 (15%), hepatic arterial stenosis (HAS) in 1 (5%), both PVT and HAT in 2 (10%) and both PVT and HVO in 1 (5%) patient each out of the patients who had vascular complications. Complications were identified by Doppler and confirmed by hepatic CT angiography ± angiography. One adult with HAT was retransplanted but HAT reformed and the patient died due to biliary problems, 4 cases with HAT managed with interventional radiology and streptokinase injection with insertion of arterial stents in 2 of them, one case managed by exploration and thrombectomy then recurrence of HAT managed by interventional radiology and streptokinase injection the last case had intimal dissection intraoperatively and arterial anastomosis repeated 6 times and vein graft was used but there was no flow. One case had HAS and managed by interventional radiology and stent. Two cases had both PVT and HAT, thrombectomy for PVT and vein graft for HA in one case and arterial stent for the
other one. Six cases had PVT only and all of them managed by exploration and thrombectomy. One case had both PVT and HVO and managed conservatively. Three cases had HVO only, two of them managed conservatively and the third one managed by interventional radiology and HV stent was inserted. Time of occurrence of vascular complications (0 – 14 days) mean (5.6 ± 3.4 days) with survival (0.2 – 70 months) mean. Mortality was 15 cases (75%) out of cases with vascular complications.

**Conclusions:** Major vascular complications in LDLT have dismal outcome.

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**Splenic Artery Aneurysm in Liver Transplant Patients**

Mohsen Reza Mansoorian¹, Alireza Rasekhi², Kourosh Kazemi³, Alireza Shamsaeefar⁴, Siavash Gholami⁵, Goli Mehrdad⁶, Saman Nikeghbalian⁷, Seyed Ali Malek Hosseini⁸

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**Introduction:** Splenic artery aneurysm (SAA) is rare, most commonly affects patients with cirrhosis and portal hypertension. The incidence of SAA in cirrhotic patients ranges from 7 to 17%. Due to high mortality and morbidity of SAA rupture, it is important to diagnose SAA in patients before liver transplantation. Here in we studied the incidence and clinical data of our SAA patients who underwent liver transplantation over the past 2 years.

**Materials and Methods:** A retrospective review of archive of our transplant center revealed 730 orthotopic adult liver transplantations between 2011 and 2013. Among these we had 4 patients with SAA. They were 3 women and 1 man with age range of 26-39 years.

**Results:**

- The incidence of SAA in our patient was 0.5 %.
- The primary diagnosis was cryptogenic (1 patient), autoimmune hepatitis (2 patients) and Caroli’s disease (1 patient).
- All the patients had moderate to severe portal hypertension with history of variceal bleeding. Routine pre transplant imaging studies (abdominal ultrasound, color Doppler and spiral abdominal-pelvic CT scan) revealed increased port systemic collaterals but no SAA was reported. 3 patients (case 1-3) were diagnosed as having SAA in post transplant period and one patient (case 4) was diagnosed intra operatively. The latter patient also showed aneurysm of jejunal branch of superior mesenteric artery. The duration between liver transplantation and presentation of SAA was 3 months in one patient (case 3) and 48-72 hrs in two patients (case 1 &2). All the patients were symptomatic. Case 1 and 2 present with internal bleeding 48-72 hrs after transplantation and exploration revealed distal SAA so splenectomy and removal of aneurysm was done for them. Case 3 present with abdominal pain 3 months post transplantation. Abdominal CT scan showed SAA so the proximal and distal parts of aneurysm was ligated. In case 4 due to increased transplantation time, the ligation of SAA and removal of jejunal branch of superior mesenteric artery aneurysm was done 72 hrs after transplantation. The aneurysms size ranges from 2-3 centimeter and all of them were located at the distal end of splenic artery except aneurysm of case 4 that was originated from the mid part.

**Conclusions:** The low incidence of SAA in our liver transplant patient may be due to short waiting list of our transplant candidates and consequently less severe portal hypertension in our patients. Also because of distal location of most SAAs, identifying them in the setting of large dilated
and tortuous collaterals in spleen hilum may be difficult by sonography or venous phase CT scan. So in high risk patients with severe portal hypertension and large port systemic collaterals SAA should be suspected and accurate pre transplant CT angiography should be performed.

O19
MANAGEMENT OF BILIARY COMPLICATIONS AFTER LIVER TRANSPLANTATION: RESULTS OF A SINGLE CENTER

Sedat Yıldırım¹, Hatice Ebru Ayvazoğlu Soy¹, Aydincan Akdur⁴, Mahir Kırnap¹, Fatih Boyvat¹, Feza Yarbuğ Karakayalı¹, Adnan Torgay³, Gökhan Moray¹, Mehmet Haberal¹
Departments of ¹General Surgery, ²Radiology, and ³Anesthesiology, Baskent University, Ankara, Turkey

Introduction: Biliary complication remains the most common postoperative complication after liver transplantation (LT). In this study we aimed to review the management of early and late biliary complications.

Materials and Methods: We retrospectively analysed 377 LT (188 pediatric, 189 adult) procedures performed in between September 2001 – February 2014 in our center. We performed 304 living donor LT (LDLT), 73 deceased donor LT (DDLT). Biliary reconstruction was hepaticojejunoanostomy (HJ) in 65 patients and duct to duct (DD) in 312 patients. Biliary complications were evaluated as early (first 6 months of LT) and late (6 months after LT) biliary leakage (BL) and biliary stricture (BS).

Results: Biliary complications were more in LDLT (LDLT vs DDLT, 37% vs 28%), pediatric LT (pediatric vs adult, 34% vs 36%) and DD group (HJ vs DD, 15.9% vs 38%). Sixty nine BL (69/377, 18%), 30 BS (30/377, 8%) was detected as early biliary complication. Three BL (3/377, 0.8%), 38 BS (38/377, 10%) was detected as late biliary complication. Fifty two interventional radiologic techniques were applied for early BL, four of which failed and had surgical revision. Thirty two interventional radiologic techniques were applied for early BS one of which failed and had surgical revision. For 3 late BL we performed 1 surgery, 1 interventional radiology which caused biliary stricture and ended with surgery. For late BS we performed 4 surgery, 28 interventional radiology, three of which ended with surgery. Fifty two interventional radiologic techniques that we performed for early BL caused 19 late BS and each patient had at least ≥3 percutaneous dilatations or drainage catheter insertion and eventually four patients had revisional surgery for failed repeated percutaneous modalities.

Conclusions: Early BL and BS can successfully be managed with percutaneous interventional techniques. However, the need for repeated procedures significantly reduces morbidity and life quality of patients. For these reasons, revisional surgery may be the first choice for treatment, especially for early BL.

O20
WHAT IS THE PREFERRED METHOD FOR BILIARY RECONSTRUCTION IN LIVER TRANSPLANT PATIENTS WITH PRIMARY SCLEROSING CHOLANGITIS?

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¹Shiraz Organ Transplant Center and ²Shiraz HIV/AIDS Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

Introduction: Traditionally Roux-en-Y hepaticojejunostomy was the method of choice for biliary reconstruction in primary sclerosing cholangitis (PSC) in patients undergoing orthotopic liver transplantation. In this study, we compared the result of duct to duct anastomosis versus Roux-en-Y hepaticojejunostomy as biliary reconstruction in patients with primary sclerosing cholangitis who underwent liver transplant in Shiraz organ transplant center.

Materials and Methods: We reviewed information of 69 patients with primary sclerosing cholangitis who underwent liver transplant. Mean follow up period was 27 months (range, 9-46 months). We performed duct to duct reconstruction in those patients who had grossly normal bile duct during hepatectomy. In 29 cases duct to duct reconstruction was done and Roux-en-Y hepaticojejunostomy reconstruction in 40 cases. Data collecting form contained biliary complications (leak, stricture, stone, and cancer in the remnant bile duct), documented episodes of rejection, and morbidity.

Results: In duct to duct group, two patients presented with anastomotic stricture and one patient developed cholangiocarcinoma in distal bile duct which underwent pancreaticoduodenectomy (3/29). In Roux-en-Y group, five patients developed anastomotic stricture in the follow up (5/40). This difference was not significant (fisher exact test, P value = 0.999). Also documented episodes of rejection were similar between two groups (Chi. Square test, P value = 0.66) and there was no significant difference.

Discussion: We concluded that duct to duct reconstruction is safe and maybe the choice method for biliary reconstruction in some patients with PSC. In addition, due to innovations in ERCP, management of strictures in duct to duct group was more easy and feasible in comparison to revision of Roux-en-Y hepaticojejunostomy.
Introduction: Renal transplantation (RT) is the best treatment of choice for patients with end-stage renal disease. Despite improving of renal dysfunction, patients are at risk for existing or new onset of conditions as hypertension and dyslipidemia after transplantation. In present study, we aimed to determine the hydration status by bioimpedance analysis (BIA) in RT recipients and to analyse the association of body fluid status, graft function, biochemical parameters and echocardiographic measurements.

Materials and Methods: Eighty two (58 male, mean age: 38.7±11.5 years) RT recipients being followed in our centre who were using at least one anti-hypertensive treatment were enrolled into the study. Biochemical parameters as lipid profile (total, HDL and LDL cholesterol, triglyceride), parathyroid hormone, 24 hour urinary protein loss, estimated glomerular filtration rate (eGFR); transthorasic echocardiography, bioimpedance analysis (BCM, Fresenius) as systolic blood pressure, total body weight (TBW), lean tissue index (LTI), extracellular volume (ECW), intracellular volume (ICW), lean tissue mass (LTM) and phase angle (phi50) levels and renal resistive index (RRI) were evaluated.

Results: TBW and ECW were significantly correlated with RRI and systolic blood pressure (p:0.001). Patients with <70 ml/min of eGFR values were divided into five groups according to each 10 ml/min decline in eGFR. RRI, urinary protein loss, pulmonary artery pressure, frequency of overhydration, systolic blood pressure, TBW, LTI, ICW, LTM and phi50 values were significantly higher in patients with 15-50 ml/min (p:0.000), however similar in patients with 50-70 ml/min (p=0.648).

Conclusions: Hypertensive RT recipients have increased TBW, LTI, ICW, FTI, LTM and phi50 values. Graft function is positively correlated with systolic blood pressure, RRI and BIA parameters. Thus, hypertensive RT recipients should be closely follow-up with RRI and BIA for an early diagnosis of loss of graft function.

Introduction: Metabolic syndrome (MS) is a cluster of cardiovascular (CV) risk factors (hypertension, dyslipidemia, obesity, and glucose homeostasis alterations). In Renal transplant recipients, MS has been shown to be an independent risk factor for chronic allograft dysfunction. One of the common finding in patients with MS is hyperuricemia. However in kidney transplant recipients, other factors such as cyclosporine therapy, use of diuretics and diabetes can also contribute to hyperuricemia. Recently hyperuricemia considered as a risk factor of graft survival. So we tried to find the relation of hyperuricemia with MS in our patients.

Materials and Methods: We performed a cross-sectional study on 106 stable renal transplant recipients to detect association of hyperuricemia with metabolic syndrome between January 2013 and August 2013. The MS was diagnosed according to the National Cholesterol Education Program–Adult Treatment Panel III (NCEP-ATPIII) criteria. Patients with past history of Diabetes mellitus were excluded.

Results: In this group of patients 56 (52.8%) had metabolic syndrome. They were 32 (57.1%) male and 24 (42.9%) female. The mean age of the MS group was significantly higher than non-MS group. Mean serum creatinine was higher in MS group than non-MS group, but there wasn’t significant difference between them (P>0.05). Calculated GFR was also similar in two groups (P>0.05). The MS patients had higher weight (64.61 ± 14.17 vs. 58.76 ± 11.70 kg, p < 0.05), and also higher body mass index (BMI) (P < 0.05). Prevalence of BMI >25 kg/m2 in MS group was 75% vs non-MS group that only 25% had BMI >25 kg/m2 (P<0.05). Totally 38 patients (35.8%) had hyperuricemia. The prevalence of hyperuricemia in patients with metabolic syndrome was slightly higher than non- MS patients (52.6% vs.47.4%), but the difference wasn’t significant. The mean serum uric acid level in MS and non-MS groups were 6.77± 2.24 vs. 6.41± 2.13 mg/dl respectively (P>0.05).

Conclusion: It is appeared that both of MS and hyperuricemia are common in renal transplant recipients, as they are risk factor for graft dysfunction, so modifying them may help to graft survival. Although based on our study, there isn’t direct relation between them.
**O23**

**ELEVATED FGF-23 LEVEL COULD PREDICT PROGRESSIVE ARTERIAL STIFFENING AND GRAFT LOSS IN KIDNEY TRANSPLANT RECIPIENTS**

Siren Sezer, Zeynep Bal, Mehtap Erkmen Uyar, Orhan Guliyev, Begüm Erdemir, Turan Çolak, Mehmet Haberal  
Baskent University Faculty of Medicine, Ankara, Turkey

**Introduction:** Arterial stiffness contributes independently to cardiovascular mortality in renal transplant recipients and pulse wave velocity (PWV) is a marker of arterial stiffness. An increased circulating level of fibroblast growth factor 23 (FGF23) is an independent risk factor for mortality, cardiovascular disease, and progression of chronic kidney disease. This study aimed to investigate in impact of FGF23 and Klotho levels on 3 years progression of PWV and eGFR in stable kidney transplant recipients.

**Materials and Methods:** 80 kidney transplant recipients aged 39.7 ± 11.7 with mean creatinine level of 1.34 ± 0.45 mg/dL were enrolled. Carotid-femoral PWV was measured (PWV1) and samples for FGF-23 and Klotho were taken at the beginning of the study. Clinical and laboratory data were also recorded and after 36 months of follow-up second PWV was measured (PWV2). GFR was calculated with MDRD formula (eGFR). ∆PWV was calculated as (PWV2-PWV1)/PWV1. Patients were divided into two groups according to initial median FGF-23 level: Group 1 having initial FGF23 >60 pg/mL and Group 2 FGF23 ≤ 60 pg/mL.

**Results:** 40 patients in group 1 (age: 38.9 ± 10.9 yrs) and 40 subjects in group 2 (age: 40.5 ± 12.6 yrs) were evaluated. At baseline two groups' PWV measurements and eGFR levels were similar. During follow-up period, PWV was significantly increased from 7.33 ± 1.84 m/sn to 7.94 ± 1.84 m/sn (p<0.001) and eGFR was significantly decreased from 65.5 ± 26.0 mL/min/1.73m² to 57.6 ± 27.4 mL/min/1.73m² (p<0.001) in group 1. There was significant positive correlation between ∆PWV and serum creatinine, serum uric acid level, serum LDL-C level and FGF-23 level (p<0.05, for all). ∆PWV was inversely correlated with serum albumin level and eGFR (p<0.05, for all). Multivariate analysis showed that PWV changes depend on serum creatinine and FGF-23 (p<0.005 and p<0.009).

**Conclusions:** We suggest that increased FGF-23 levels appear to be independently associated with arterial stiffness and could be a potential biomarker that can be assessed as a cardiovascular as well as graft dysfunction risk in renal transplant recipients.

**O24**

**FIBROBLAST GROWTH FACTOR 23/ KLOTHO AXIS IS A RISK FACTOR FOR KIDNEY TRANSPLANT LOSS**

Baskent University Faculty of Medicine, Ankara, Turkey

**Introduction:** Chronic allograft nephropathy (CAN) is a major cause of late kidney allograft loss. Increased circulating level of fibroblast growth factor 23 (FGF23) is an independent risk factor for mortality, cardiovascular disease, and progression of chronic kidney disease (CKD), but its role in transplant allograft and patient survival is unknown. The aim of this prospective study is to evaluate the relationship between FGF-23 and allograft loss and to identify risk factors for progression to ESRD in this population.

**Materials and Methods:** We performed a cross-sectional observational study of 80 maintenance kidney recipients with stable allograft function who had received their transplant at least 36 months previously. All acute cellular and humoral rejections were excluded. According to renal biopsy patients divided four groups: Group CAD (n:38) was the patients diagnosed as chronic allograft dysfunction; group TED (n:18) was included the patients with tubular epithelium damage and group CON (n:24) was defined as control group. Samples for FGF-23 and Klotho were taken on the biopsy day and patients were followed at least 36 months after renal biopsy.

**Results:** FGF23 and parathyroid hormone (PTH) values were higher in CAD group, while the calcium levels and Klotho were significantly lower compared to other groups. A significant inverse correlation was found between FGF23 and MDRD (r =−0.580; P <0.001), Klotho (r =−0.343; P< 0.002), serum calcium level (r =− 0.234; P <0.037) and albumin level (r =−0.359; P <0.001). FGF-23 levels were positively correlated with duration after transplantation (r =+0.359; P <0.037), serum uric acid level (r =+0.285; P <0.010), serum creatinine level (r =+0.549; P <0.001), interstitial fibrosis score (r =+0.641; P <0.001), glomerulosclerosis rate (r =+0.550; P <0.001) and proteinuria (r =+0.479; P <0.001). Multivariable analysis showed that serum albumin (P =0.003), interstitial fibrosis score (P = 0.049) and percentage of glomerulosclerosis (P= 0.003) were associated with high FGF23 levels.

**Conclusions:** We conclude that elevated FGF23 and decreased Klotho were associated with chronic allograft dysfunction and an independent risk factor allograft loss in kidney transplant recipients. We suggest that FGF-23/Klotho axis could play a role as triggering factor and could be a prognostic marker in case of progressive renal injury.
EPSTEIN-BARR VIRAL LOAD BEFORE A LIVER TRANSPLANT IN CHILDREN WITH CHRONIC LIVER DISEASE

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2Shiraz Transplant Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
3Department of Microbiology and Immunology, Assiut University, Egypt

Introduction: Many children with chronic liver disease require a liver transplant. These patients are prone to various infections, including Epstein-Barr virus infection. This study sought to measure the Epstein-Barr viral load by polymerase chain reaction before a liver transplant.

Materials and Methods: This cross-sectional study was done at the Shiraz University of Medical Sciences, Shiraz, Iran, in 2011. All patients were aged younger than 18 years with chronic liver disease and were candidates for a liver transplant at the Shiraz Nemazee Hospital Organ transplant Center. They had been investigated regarding their demographic characteristics, underlying disease, laboratory findings, and Epstein-Barr viral load by real-time TaqMan polymerase chain reaction.

Results: Ninety-eight patients were studied and the mean age was 6.5 ± 5.9 years. Cryptogenic cirrhosis was the most-prevalent reason for liver transplant, and the death rate before a transplant was 15%. Among the study subjects, 6 had measurable Epstein-Barr viral load by polymerase chain reaction before the transplant, and 4 of them had considerably higher Epstein-Barr viral loads (more than 1000 copies/mL).

Conclusions: With respect to the close prevalence of post-transplant lymphoproliferative disease (6%) and the high Epstein-Barr viral load in the patients before a transplant (4%), high pre-transplant Epstein-Barr viral load can be considered a risk factor for post-transplant lymphoproliferative disorder.

THE CONTRAST PATTERN OF CYTOMEGALOVIRUS AND EPSTEIN-BARR VIRUS INFECTION IN PEDIATRIC LIVING DONOR LIVER TRANSPLANT RECIPIENTS

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3Department of Microbiology and Immunology, Assiut University, Egypt

Introduction: Cytomegalovirus (CMV) and Epstein-Barr virus (EBV) remain a leading cause of morbidity and mortality in the solid organ transplantation population, particularly in pediatric patients.

Materials and Methods: Herein we compare the incidence, timing, and risk factors for their infection.

Results: A retrospective study was performed that included a population of 344 consecutive pediatric patients (56.1% were female) who underwent living-donor liver transplantation (LDLT) in Kyoto university hospital. Patients were followed up for maximum 7.1 ± 3.6 (range; 0.02-13.2) years after operation. The mean age at the time of transplantation was 3.95±4.75 years (the median, 1.38 years; range, 0.07-17.87 years). A total of 156(45.2%) patients developed viral infection, from those patients 91 patients (26.5%) developed CMV infection, Ninety three (27%) of patients developed EBV. CMV infection developed at 39.3± 34.589days meanwhile EBV developed at 3.99± 3.67years after transplantation. Frequent attacks of rejection (Hazards ratio (HR) = 1.58, 95% confidence interval (95% CI) =1.14-2.178, p=0.006) was independently predictor for postoperative CMV infections, while pre operative CMV seropositive (HR =1.76, 95% CI=1.03 –2.178, p=0.038) short cold ischemia time (HR =1.95% CI=0.99 –1, p=0.02), bigger graft (HR =1.3 95% CI=1.003 –1.73, p=0.047) new cases compared to old cases (HR =2.27, 95% CI=1.144 –4.516, p=0.019) were independently predicted postoperative EBV infections.

Conclusions: Correction of preoperative medical condition of recipients, together with extended surveillance of CMV and EBV antigenemia is recommended for pediatric patients receiving LDLT, especially infant who are at high risk, frequently exposed to attacks of rejection or infant who received bigger graft.
O27
IL-17 MRNA EXPRESSION UP-
REGULATED IN CYTOMEGALOVIRUS INFECTED LIVER TRANSPLANT PATIENTS
Afsoor Afshari1, Ramin Yaghobi2, Mohammad Hossein Karimi3, Mojtaba Darbouy1, Negar Azarpia2, Bita Geramizadeh2, Seyed Ali Malek-Hosseini3, Saman Nikeghbalian1
1Department of Molecular Genetics, Science and Research, Islamic Azad University, Fars; 2Shiraz Transplant Research Center, and 3Shiraz Transplant Center, Shiraz University of Medical Sciences, Shiraz, Iran

Introduction: Cytomegalovirus -replication play a role in acute and chronic allograft rejection and impaired long-
term graft outcomes. IL-17 producing CD4+ T-cells (Th-17) are a newly described subtype of CD4+ T-cells. The precise role of Th-17 responses during cytomegalovirus replication has not been well elucidated, although recent studies suggest that viral infections induce a Th-17 response. They constitute a part of the normal host response to infection. Due to their pro-inflammatory effect, Th-17 cells have also been associated with allograft rejection and autoimmune diseases. Therefore, in this study the possible association between cytomegalovirus infection and IL-17 cytokine was evaluated in liver transplanted patients.

Materials and Methods: Two groups of patients were enrolled in this study. First group was consisting of 45 cytomegalovirus uninfected liver transplanted patients and the second one consists of 15 cytomegalovirus infected patients. Tree EDTA treated blood samples were collected from each patient in days 1st, 4th and 7th post liver transplantation. Diagnosis of cytomegalovirus was done using antigenemia and TaqMan real-time PCR protocols according to manufacturer's instructions. Using antigenemia test helped to find cytomegalovirus infected liver transplanted patients and also Taqmann real-time showed the copy number of cytomegalovirus in each patient in the time of sampling in the selected patients. Also for analyzing of the IL-17 gene expression level the SYBR green real-time PCR technique was used.

Results: The IL-17 expression level was down regulated after day 4 of post-transplant follow-up in first group of liver transplanted patients. But in cytomegalovirus infected group of transplant, IL-17 expression level was significantly increased during all days of post-transplant follow up especially in the last follow-up period. The results of comparison between IL-17 gene expression level between two liver transplant Patient groups showed that, IL-17 expression level significantly increased in second group compared with first group during day 4 (p=0.038) and day 7 (p=0.009) post-transplantation.

Conclusions: Based on these findings; significant increase of IL-17 mRNA levels in second group of liver transplant patients compared with first group, re-enforce on the important role of IL-17 as a pro-inflammatory cytokine during pathogenesis and control of viral infections in liver transplanted patients need to be considered in further studies.

O28
THE ASSOCIATION BETWEEN IL-21 GENE EXPRESSION LEVELS AND CYTOMEGALOVIRUS INFECTION IN LIVER TRANSPLANTED PATIENTS
Ramin Yaghobi1, Afsoor Afshari2, Mojtaba Darbouy2, Mohammad Hossein Karimi3, Negar Azarpia1, Bita Geramizadeh1, Seyed Ali Malek-Hosseini3, Saman Nikeghbalian3
1Shiraz Transplant Research Center, Shiraz University of Medical Sciences, Shiraz; 2Department of Molecular Genetics, Science and Research, Islamic Azad University, Fars; 3Shiraz Transplant Center, Shiraz University of Medical Sciences, Shiraz, Iran

Introduction: Orthotopic liver transplantation has become the treatment of choice for selected patients with advanced liver diseases. The improved success of this procedure has been attributed to refinements in many criteria, including the control of viral infections. Cytomegalovirus is a ubiquitous herpes virus that causes asymptomatic infection in up to 90% of the healthy adult population. Cytomegalovirus infects most individuals early in life and establishes thereafter a lifelong latent infection. However, latently infected cytomegalovirus is frequently activated in immunocompromised individuals such as those with organ transplants, causing severe morbidity and mortality. On the other hand, Interleukin-21 (IL-21) which belongs to the family of type I cytokines. IL-21 production and secretion seems to be restricted to activated CD4+ T cells and Th17 cells and is a critical regulator of their differentiation. Most importantly, the chronic production of IL-21 by activated CD4+ T cells is needed to sustain effector T cell function for viral control and autoimmune destruction. Thus, blocking IL-21 production and signaling in alloreactive T cells may provide a unique therapeutic strategy for targeting the late-phase alloimmune response. Therefore, in this study, the immune regulative activity of IL-21 is evaluated in cytomegalovirus infected liver transplanted patients.

Materials and Methods: In this study, 32 persons were participated which divided into 2 groups including: cytomegalovirus infected liver transplant patients, as first group and healthy controls as second group. Three EDTA treated blood samples were collected from each liver transplanted patients within the first week after transplantation. The RNA expression level in each sampling time and in each liver transplanted patient was evaluated using an inhouse-SYBR green real-time PCR method. Diagnosis of cytomegalovirus was done using antigenemia and TaqMan real-time PCR protocols according to manufacturer's instructions.
**Results:** By comparing the result of mRNA expression level in each sampling time, an elevation in IL-21 mRNA expression level was found in cytomegalovirus infected transplant patients especially significant during the third sampling time (p=0.001). But the IL-21 mRNA expression level was not increased in healthy controls.

**Conclusions:** To date, very little is known about the role of IL-21 cytokine in the pathogenesis of viral infections. Despite limitations, this study provides novel insight into IL-21 role in transplant recipients with cytomegalovirus active infection and shows the significant increase in mRNA expression level in cytomegalovirus infected transplant patients compared with healthy controls during first week post-transplantation.

**O29**

SELLING YOUR BODY FOR CASH – SEX AND ORGANS ON THE FREE MARKET: WHAT WE SHOULD LEARN FROM THE LEGALIZATION OF PROSTITUTION AND WHY ORGAN SALES SHOULD NOT BE LEGALIZED

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**Introduction:** The shortage of donated organs raises the question whether the current prohibition of organ sales should be abolished for a free market for organs.

**Materials and Methods:** The consequences of criminalizing or legalizing prostitution are assessed, since sex and organs can be seen as goods with similar characteristics.

**Results:** Legalization has a multitude of negative consequences, such as increased human trafficking, a bigger illegal sector, higher costs for law enforcement, sex or organ tourism, an increased activity of the market (more exchanges) and a lower price due to the competition between vendors. Examples of countries that legalized prostitution have shown that the external effects for society are considerable. Moreover, sex and organs cannot be regarded as normal goods; organs should be merit goods.

**Conclusions:** The insufficient alternatives for market design lead to the conclusion that a free market for organs is doomed to fail.

**O30**

TRAVEL FOR TRANSPLANTATION IN IRAN: CONS AND PROS REGARDING IRANIAN MODEL

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Transplant tourism is one of the main unacceptable aspects of medical tourism, implicating travel to another country for receiving an allograft. Traditionally people travelled from less developed countries to developed countries to receive the types of medical treatment that was not available in their home countries. However in case of organ transplantation the route has mostly reversed from wealthier to underdeveloped world countries for the sake of economical issues or bypassing the legal barriers. Organ shortage in wealthier countries has persuaded a number of patients to preclude long term organ waiting lists in USA, Canada, Australia, Israel, Japan, Oman, Saudi Arabia, and European countries and travel to other countries for getting organs especially kidneys. On the other hand in some countries such as Azerbaijan, Tajikistan, Afghanistan and Uganda, there is no transplantation program available and hemodialysis is expensive and not covered by insurance companies. In these countries patients with end-stage kidney disease may have to travel abroad for getting a kidney allograft for the sake of their life expectancy.

In most of the countries of the world buying and selling organs are illegal and allografts can be just received from cadavers, live relatives and sometimes emotionally related donors. However in many countries there are no strict rules for patients who have been transplanted through transplant tourism and the medical team has to take care of the recipients after returning back to home countries. The Istanbul Declaration distinguishes transplant tourism from travel for transplantation. Travel for transplantation is the movement of organs, donors, recipients or transplant professionals across borders for the purpose of transplantation. Travel for transplantation becomes transplant tourism if it involves organ trafficking and/or transplant commercialism or if the resources devoted to providing transplants to foreigners undermine the country’s ability to provide transplant services for its own population.

In this review we will try to elucidate the recently raised debates in Iranian transplant model regarding travel for transplantation and/or transplant tourism and try to provide an acceptable resolution considering the Istanbul declaration and international laws.
O31

TRANSPLANT TOURISM FROM THE MIDDLE EAST

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Introduction: The objective would be to consider transplant tourism from the Middle East to foreign destinations, outside of the Middle East in general and to China in particular, and the efforts to combat them.

Materials and methods: The presentation would address first the international standards addressed to transplant tourism. These would include policies of The Transplantation Society; The World Health Organization Guiding Principles on Human Cell, Tissue and Organ Transplantation; the World Medical Association Bangkok statement on organ and tissue donation; The Declaration of Istanbul on Organ Trafficking and Transplant Tourism; and the United Nations Trafficking in Persons Protocol to the Transnational Organized Crime Convention.

The presentation would consider, second, transplant tourism from the Middle East in general and to China in particular. One focus will be the Omar Healthcare Service website <http://www.cntransplant.com> which has a history of catering to Middle Eastern transplant tourists coming to China, amongst others, and attempts of The Transplantation Society and the Declaration of Istanbul Custodian Group to end this solicitation. This focus will draw attention to the sourcing of organs in China in order to explain why the need to combat transplant tourism is acute. Another focus will be a drawing together of information already published in the literature about transplant tourism from the Middle East in general and into China in particular.

The presentation would consider, third, efforts in the Middle East already undertaken to combat transplant tourism. This facet would focus partly, by way of example, on what some non Middle Eastern countries have done to combat transplant tourism, whether through legislation or professional ethical standards. It would also focus on what has been done to date both at the international and at the Middle East regional and national level to address transplant tourism from the Middle East.

Results: The presentation would demonstrate that there is substantial transplant tourism from the Middle East to countries outside the Middle East in general and China in particular. The international and Middle East regional and national efforts to combat this transplant tourism are underdeveloped.

Conclusions: The conclusion would be that there needs to be more of an effort in the Middle East in terms of both ethical standards and legal mechanisms at the international and Middle East regional and national level to combat transplant tourism from the Middle East.

O32

CROSS-BORDER QUEST: PATIENTS GOING ABROAD FOR PAID ORGAN TRANSPLANTS

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Introduction: Patients are known to travel worldwide for living kidney transplants. Although travelling abroad does not directly imply an illegal organ purchase, it is commonly seen as an illegal and/or immoral endeavour involving risks. The limited amount of available data about these transplants makes it difficult to draw conclusions about its scale, nature and potential illegality. We aimed to increase knowledge about transplants abroad (how, where and by whom it was facilitated) as well as to give a description of the motivations, experiences and characteristics of patients travelling abroad. The scope was on kidneys because these are the most frequently bought organ.

Materials and Methods: Between March and May 2014 half-structured interviews were performed with patients from Sweden, Macedonia and The Netherlands who travelled outside the EU for kidney transplantation.

Results: 22 patients (19 men; born between 1949-1985) were interviewed who traveled from Sweden (N=4), Macedonia (N=10) and The Netherlands (N=8). Transplants took place between 2000-2011. The most frequently reported countries were Pakistan (N=14), India (N=3) and Iran (N=2). 7 patients went to their country of origin. For 6 patients a facilitator organized their transplant abroad, the others received help from family while organizing with the transplant center. 17 patients directly paid the doctor, hospital or a broker; some paid for the transplant service as a whole. 13 patients met the supplier. One supplier received money from a patient. From the others it is unknown. The costs varied from €280-€33.000. Almost all patients mentioned a lack of hygiene and poor hospital conditions. 13 patients received functioning and uninfected kidneys; 9 patients had complications after the transplant (infections, poor kidney function or kidney loss). Patients’ motivations to go abroad were the long waiting time for deceased organs, discrimination in the health care system and the impact of dialysis treatment on health.

Conclusions: Despite the worldwide prohibition of organ trade, patients still purchase organs. Some purchases take place with the help of brokers. Knowledge about how these transplants are facilitated helps to disrupt and prevent illegal transplant networks. Warning patients against the medical, ethical and legal risks and increasing the supply of organs.
by encouraging living donation and introducing an opt-out system for donation are strategies to prevent patients from purchasing organs abroad.

**O33**

**DOES ADDITION OF N-ACETYLCYSTEINE TO UNIVERSITY OF WISCONSIN SOLUTION DECREASE THE RATE OF ISCHEMIA-REPERFUSION INJURY IN ADULT ORTHOTOPIC LIVER TRANSPLANT?**

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**Introduction:** One of the main concerns in liver transplant is the prolonged ischemia time which may lead to primary graft non-function or delayed function. Ischemia-reperfusion injury, also a major complication of liver transplant, is the result of two phases including local ischemia and inflammation-mediated reperfusion insult. N-acetylcysteine (NAC) is proven beneficial as a hepatoprotective agent in different studies. Also, considerable improvement in human hepatocyte viability using NAC in steatotic donor livers, are reported. The aim of this study was to investigate whether N-acetylcysteine can decrease the rate of ischemia-reperfusion syndrome and improve short-term outcome in liver transplant recipients.

**Materials and Methods:** This was a double-blind randomized clinical trial of 115 patients. Cases with cold ischemic time <5 hours, donors and recipients under 18 years, and liver grafts unsuitable for transplant were excluded. Between Apr 2012 and Jan 2013, patients with orthotopic liver transplant were randomly divided into two groups: in 49 cases NAC was added to UW solution as the preservative liquid (test group) and in 66 cases, a standard UW solution was used (control group). The same organ retrieval procedure was used for both groups and 3 liters of standard UW solution was used for in-situ portal and arterial perfusion. Two grams of N-acetylcysteine was added to the preservative liquid of test group before bench perfusion, while standard UW solution was used for control group. The following variables were compared between the groups: post-reperfusion hypotension, inotrope requirement before and after portal reperfusion, intermittent arterial blood gas analysis and potassium measurement (baseline at the beginning of the procedure, 5 minutes before and 5 minutes after portal reperfusion), pathologic review of transplanted liver, in-hospital complications, morbidity and mortality.

**Results:** Among total of 115 patients, NAC-UW (49) or standard UW (66) was used for portal bench perfusion. The two groups were comparable for the age, sex, MELD score, graft weight, and intra-operative bleeding. Mean warm ischemia time was 46.00±9.72 and 44.00±8.77 minutes in test and control groups, respectively (p=0.288). As well, there was no significant difference between the groups according to time to hepatic artery reperfusion, hospital stay, biliary and vascular complications, inotrope requirement before and after portal declamping and blood gas analysis. Hypotension after portal reperfusion was significantly more common in test group compared to control group (p=0.005). Retransplantation and in-hospital mortality were comparable in the two groups.

**Conclusions:** In this prospective study, preservation of the liver inside UW solution plus N-acetylcysteine didn’t change the rate of ischemia reperfusion injury and short-term outcome in liver transplant recipients.

**O34**

**AN ANALYSIS OF OUTCOME FOR LIVER RETRANSPANTATION IN ADULTS: 12 YEARS SINGLE CENTER EXPERIENCE AND FIRST MIDDLE EAST REPORT**

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**Introduction:** Liver transplantation is an established line of treatment. Unfortunately; a significant proportion of patients suffer graft loss following primary liver transplantation. Liver Retransplantation is the only therapeutic option for irreversible liver graft failure. The incidence of retransplantation varies between 5% and 22% worldwide. Liver retransplantation - despite some recent improvement - is associated with significantly poorer outcome compared with that following primary transplantation. Our objectives were:

- To assess the outcome of liver retransplantation as compared to primary liver transplant;
- To compare the outcome of early and late liver retransplantation;
- To compare the outcome of liver retransplantation in relation to different Prognostic Index Categories (PIC) proposed by UCLA group.

**Materials and Methods:** We retrospectively reviewed our database for cases of liver retransplantation for adults, from May 2001 to December 2013. Liver retransplant procedures were divided into two groups: Group A: early liver retransplants, which included cases transplanted within 30 days following primary liver transplant. Group B:
late liver retransplants, which included patients who were transplanted more than 30 days following primary liver transplant.

**Results:** From May 2001 till end of December 2013; 460 liver transplants for adult patients were performed at our center with 17 liver retransplants for sixteen adult patients; this represents a retransplantation rate of 3.7%. Median patient survival following liver retransplantation was 29.5±31.9 months. The 1 year, 3 years and 5 years patient survival was 68.8%, 51.6% and 38.7%, respectively. On the other hand; median graft survival following liver retransplantation was 27.9±32.1 months. The 1 year, 3 years and 5 years patient survival was 51.5%, 34.3% and 22.9%, respectively.

In group B; patient survival was insignificantly better as compared to group A (62.5% vs 75% and 46.9% vs 56.3%) for 1 & 3 years patient survival in group A&B respectively. On the other hand; graft survival in group B was significantly better as compared to group A (41.7% vs 62.5% and 27.8% vs 41.7%) for 1 & 3 years patient survival in group A&B respectively. PIC IV was found in 9 liver retransplants (52.9%), PIC III in 7 retransplants (41.2%) and PIC II in only single procedure (5.9%). None of our liver retransplants was of PIC I category. Patient survival following liver retransplant differed according to the PIC category. PIC III had significantly higher 1year and 3 years patient survival than PIC IV categories (100% vs 37.5% and 80% vs 25%) for PIC III and PIC IV respectively.

**Conclusions:** Liver Retransplantation is the only therapeutic option for irreversible liver graft failure. Patient and graft survival following liver retransplant is still poorer than primary liver transplantation. Graft and patient survival is better in late liver retransplantation as compared to early liver retransplantation. Prognostic Index Categories (PIC) proposed by UCLA group is relevant index for predicting outcome of liver retransplantation.

**O35**

THE EVALUATION OF HEMODYNAMIC CHANGES DURING REPERFUSION PHASE IN ADULT LIVING DONOR TRANSPLANTATIONS: THE ROLE OF CARDIOVASCULAR PROBLEMS

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**Introduction:** To evaluate the hemodynamic changes and to analyze the effects of presence or absence of coronary artery disease (CAD) and its risk factors on hemodynamic parameters during reperfusion phase.

**Materials and Methods:** This single center retrospective study evaluated 154 adult patients being assessed for orthotopic liver transplantation (OLT) from January 2001 to December 2013. The patients were divided into separate groups according to the presence or absence of CAD and presence of its risk factors such as diabetes, hypertension, dyslipidemia, gender (male) and age (>50years). The hemodynamic parameters during the reperfusion phase were noted with respect to the patient files and electronic hospital database. The comparison of the groups and the effects of cardiovascular problems on hemodynamic parameters were statistically analyzed.

**Results:** More than 20% decrease in systolic arterial pressure (SAP) were seen in 16 (10.4%), 7 (4.5%) and 17 (11.0%) patients; without CAD, with CAD and with high risk factors (>3) groups, consecutively (p<0.001). The decline in both SAP and DAP were significantly correlated with the number of risk factors (SAP: p<0.0001, DAP: p<0.05).

**Conclusions:** Reperfusion phase in adult living donor transplantations remain a challenging issue not only for the surgeons but also for the anesthesiologists. One should aware of CAD and its risk factors before OLT and successful management of such problems are mandatory for hemodynamic stability during this formidable process.

**O36**

PRECEDENTS OF HYPERNATREMIA AND LIVER TRANSPLANTATION OUTCOME

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**Introduction:** The main source of liver for transplantation to the patients with end stage hepatic disorders is brain dead donors. One of the most common electrolyte disturbances in brain death cases is hypernatremia (Na >150 meq/L). Some studies have shown that donor hypernatremia can negatively affect post-OLT (orthotopic liver transplantation) allograft function and other studies shown no influences on liver transplantation outcome. In addition, no study has determined the effect of corrected hypernatremia on liver transplantation. The purpose of this retrospective investigation was to evaluate the effect of treated hypernatremia in brain dead liver donors on one month and one year survival of their liver recipients.

**Materials and Methods:** In this study 125 liver donors from Shahid Beheshti University of Medical Science Organ Procurement Unit, and their recipients from Shiraz Namazi hospital; as the most active center of liver transplantation in Iran, from March 2012 to September 2013, were reviewed. These patients were divided into two groups: patients...
with precedents of hypernatremia and without it. From 97 patients with precedents of hypernatremia 78 cases (80%) had corrected Sodium levels before harvesting and 19 cases (20%) had still some degrees of hypernatremia at the time of liver retrieval. Treatment of hypernatremia took 12 hours in 40 cases (51%), 24 hours in 25 cases (32%), 36 hours in 6 cases (7%), 48 hours in 4 cases (5.5%) and 72 hours in 3 of donors (4.5%).

**Results:** Precedents of hypernatremia in different phases and its duration in brain dead donors showed no influences on liver transplant patient’s survival in one month and one year period after transplantation. There were no significant differences in SGOT, SGPT, PT, PTT, INR, Sodium, Potassium and Bilirubin levels as well as ABG indices at the time of transplantation and one month after that. One month and one year survival was 96% and 89.4%. In addition, there was no significant difference in liver ultrasonography results after transplantation in patients with precedents hypernatremia and without it.

**Conclusions:** Hypernatremia whether completely corrected or not, does not show any significant effect on liver function after transplantation.

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**O37**

**PULMONARY HYPERTENSION IS CLOSELY RELATED WITH ARTERIAL STIFFNESS IN PATIENTS WITH RENAL TRANSPLANTATION**

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**Introduction:** Pulmonary hypertension (PHT) is defined as a mean pulmonary artery pressure (PAP) ≥35 mm Hg and is a recently recognized complication of chronic kidney disease (CKD). PHT is an independent predictor of increased mortality in patients on dialysis and those undergoing renal transplantation (RTx). Potential mechanisms contributing to PHT in renal CKD were hypertension, fluid overload, AVF and myocardial ischaemia result in heart failure. Also vascular calcification and endothelial dysfunction may result in increased pulmonary vascular resistance. RTx increases survival when compared with CKD however cardiovascular disease remains the most important cause of mortality and morbidity after RTx. We investigated PHT and its associated factors among patients after kidney transplantation.

**Materials and Methods:** Analyses of the records of 300 consecutive patients who underwent renal transplant at our center between the years 2005 to 2012 was undertaken. Demographic and clinical characteristics and echocardiographic findings were evaluated. Patients who had PHT at pre-transplant period were excluded. At post-transplant follow up Doppler echocardiographic examination was performed on 100 patients. Five patients were excluded due to rejection and massive pulmonary emboli. According to PAP measurements patients were divided into two groups: PHT group was defined patients with PAP≥35 mmHg and nPHT group whose PAP < 35 mmHg after renal transplantation. Additionally pulse wave velocity (PWv) measurement and renal recessive (RRI) index were analyzed.

**Results:** 8 patients in group PHT (age; 37.6 ± 10.8 yrs) and 87 subjects in group nPHT (age; 36.9 ± 9.9 yrs) were evaluated. Demographic and clinical characteristics and laboratory data of two groups were similar. In group PHT, RRI value in 12th month was 0.73 ± 0.07 whereas in nPHT group, RRI in 12th month was 0.68 ± 0.05 (p<0.037). When we compared the patients who had PWV > 7 m/sn (n:34) to patients with PWV < 7 m/sn (n:61) we found in the first group, PAP and diastolic blood pressure were significantly higher compared to second group (p<0.004, p<0.001 respectively). Additionally, PAP was positively correlated with PWV (β:+.303; p<0.003). In multivariate analyses, PWV (p<0.002), RRI (p<0.002) and duration after transplantation (p<0.022) were associated with pulmonary artery pressure.

**Conclusions:** Pulmonary hypertension is significantly associated with arterial stiffness in renal transplant recipients who are accepted to have a high risk of cardiovascular disease. Considering the common prevalence of cardiovascular diseases including PHT, we suggest that in clinical practice all patients with renal transplantation should be evaluated for regular echocardiographic examination.

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**O38**

**DOES HYPERTENSION REMAIN AFTER KIDNEY TRANSPLANTATION?**

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**Introduction:** Systemic arterial hypertension is a common complication of kidney transplantation so that different studies have shown the prevalence of 80%[7]. Studies in adults have shown a high prevalence of hypertension (HTN) in the first three months of transplantation, while this rate is reduced to 50 to 60% at the end of the first year[9]. It remains as a major risk factor for cardiovascular disease, lower survival rates and poor function of transplanted kidney in adults and children.

**Materials and Methods:** In this retrospective study, medical records of 400 kidney transplantation patients (September 1994 to February 2013) of Sina Hospital were evaluated. Patients had been followed monthly in the 1st year, every two months in the 2nd year and every three months thereafter.

**Results:** In this study 244 patients (61%) were male and
156 (39%) were female. Mean ± SD age of recipients was 39.3 ± 13.8 years. In most patients (40.8%) the cause of end-stage renal disease (ESRD) was unknown followed by HTN (26.3%). 166 (41.5%) patients were hypertensive before transplantation and 234 (58.5%) were normotensive. Among these 234 individuals, 94 (40.2%) developed post transplantation HTN. On the other hand, among 166 pre-transplant hypertensive patients, 86 cases (56.8%) remained hypertensive after transplantation. Totally 180 patients (45%) had post transplantation HTN and 220 patients (55%) didn’t develop HTN.

Conclusions: Based on the results of the present study, the incidence of post transplantation hypertension is high and kidney transplantation does not lead to remission of hypertension. On the other hand, hypertension is one of the main causes of ESRD that relatively contribute to a high proportion of causes. So early screening of hypertension at early age can prevent kidney damage and reduce further problems in renal transplant recipients.

O39
MORNING BLOOD PRESSURE PULSE IN RENAL TRANSPLANT RECIPIENTS: ITS RELATION WITH GRAFT FUNCTION AND ARTERIAL STIFFNESS

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Introduction: The term that blood pressure rises before awakening in the morning is called as morning blood pressure pulse (MBPS). MBPS is considered to be an independent risk factor for cardiovascular diseases. The aim of this study was to investigate the associations between MBPS, graft function, arterial stiffness and echocardiographic indexes in renal transplant recipients.

Materials and Methods: Among 600 renal transplant recipients, 122 patients who had history of hypertension and using at least one antihypertensive treatment (182 male, mean age: 38.5 ± 10.7 years) were enrolled into the study. Routine biochemical parameters (serum creatinine, estimated glomerular filtration rate, 24 hour urine protein loss) were assessed. 24 hour femoral pulse wave velocity (PWv) by SphygmoCor system analyzed. Arterial stiffness was measured by carotid-glomerular filtration rate, 24 hour urine protein loss) were assessed. 24 hour femoral pulse wave velocity (PWv) by SphygmoCor system analyzed. Arterial stiffness was measured by carotid-

Results: Mean morning, day time and asleep systolic blood pressure values were 171.2 ± 23.9, 137.9 ± 18.1, and 131.7 ± 18.9 respectively. Dipper hypertention status was in 93 patients. Mean MBPS was 35.6 ± 19.5 mm Hg, mean PWv was 6.5 ± 2.0 m/sec. Patients with MBPS ≥ 35 mm Hg (n:72, 59%) had significantly lower eGFR (p<0.001) and higher proteinuria (p=0.004) and PWv (p=0.000). Patients with MBPS ≥ 35 mm Hg had higher left atrium volume (p=0.034) and LVMI (p=0.002) however systolic and diastolic functions of left ventricule did not show significant difference. In regression analysis; day time systolic blood pressure, asleep systolic blood pressure, morning blood pressure surge, dipper status and left ventricular mass index were detected as the predictors of graft function.

Conclusion: Increased morning blood pressure surge is associated with graft dysfunction, increased arterial stiffness and LVMI that contributes to cardiovascular mortality and morbidity in renal transplant recipients.

O40
AGE-MATCHING IMPROVES GRAFT SURVIVAL AFTER LIVING DONOR KIDNEY TRANSPLANTATION

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Introduction: Donor and recipient age in kidney transplantation are known to affect graft and patient survival. To address the question of whether the age difference between donor and recipient impacts on graft survival and death-censored graft survival after transplantation, we examined the impact of age matching (less than 10-year age difference) on the survivals after living donor kidney transplantation.

Materials and Methods: Two hundred one cases of the primary living donor kidney transplantation were performed and were divided into two groups, age-matched (n=123) vs. age-discrepant (n=78). Variables included in this study were age, gender, body weight, height, kidney disease, type and duration of dialysis prior to transplantation, degree of HLA mismatch, ischemic time, graft weight, episode of rejection, type of immunosuppression, recipient serum creatinine after transplantation, and causes of patient death and graft loss.

Results: We observed the disparities of graft survival (P=0.008) and death-censored graft survival (P=0.003) between the groups. One-, three-, and five-year death-censored graft survival was 100%, 100%, and 97% in the age-matched group; 97%, 90%, and 88% in the age-discrepant group. By Cox regression multivariate analysis, the variable of age-matching was an independent predictor for both graft survival (ß=1.325, P=0.017) and death-censored graft survival (ß=2.217, P=0.021).

Conclusions: During living donor and recipient matching, age difference between donor and recipient should be minimized.
BLOODSTREAM INFECTIONS AMONG SOLID ORGAN TRANSPLANT RECIPIENTS: EIGHT YEARS' EXPERIENCE FROM BASKENT UNIVERSITY

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Introduction: To evaluate the incidence and spectrum of etiologic agents of bloodstream infections (BSI) among solid organ transplantation (SOT) recipients. The second aim is to evaluate the in vitro antimicrobial susceptibilities of causative agents of bacteremia throughout the study period.

Materials and Methods: The conducted study was a retrospective descriptive study in which data were collected from medical records for each SOT recipient regarding of their age from January 1st 2004 to August 15th 2012. The study population comprised 927 (64 heart, 556 kidney, 307 liver) consecutive recipients. BSI were divided into three groups according to the onset time of bloodstream infections after transplantation: early, mid-term and late. The incidence and microbiological features of BSI were evaluated.

Results: Of the 863 SOT recipients, 687 underwent living donor organ transplantation (441 kidney, 246 liver). The number of BSI episodes was 317 in 191 recipients which was distributed as 228 (72%) in liver, 70 (22%) in kidney and 19 (6%) in heart transplantation (Table 1). Ninety-eight (30.9%) of the episodes were diagnosed within the early period, 134 (42.3%) within the mid-term and 85 (26.8%) in the late period. Early and mid-term BSI were seen statistically more often in liver than in kidney or heart transplantation (p=0.01 and p=0.031, respectively). Late BSI were also common in liver transplant recipients which was not statistically significant (p=0.229) (Figure 1). Gram negative BSI were the most frequent etiologic agents for all types of SOT (Figure 2). The most frequently isolated five pathogens were Escherichia coli (28.7%; 57.7% ESBL production), Klebsiella spp. (13.1%; 48.5% ESBL production), enterococci (13.5%; 15% VRE), coagulase negative staphylococci (11.6%; 77.4% methicillin resistant) and Acinetobacter baumannii (7.3%; 72.2% MDR, 38.9% possible XDR).

Conclusions: Liver transplant recipients are more vulnerable to develop BSI than others. Gram negative BSI outnumber gram positive ones in all types of SOT. Carbapenem seems to be the first choice in the empirical antimicrobial therapy in BSI among SOT recipients due to high incidence of ESBL producing Enterobactericeae in Turkey.

Table 1. Characteristics of the Recipients of a SOT with BSI, According to the Type of Transplantation

<table>
<thead>
<tr>
<th></th>
<th>Kidney</th>
<th>Liver</th>
<th>Heart</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transplants performed</td>
<td>556</td>
<td>307</td>
<td>64</td>
<td>927</td>
</tr>
<tr>
<td>Living donor</td>
<td>441</td>
<td>246</td>
<td>0</td>
<td>687</td>
</tr>
<tr>
<td>Number of BSI episodes</td>
<td>70</td>
<td>228</td>
<td>19</td>
<td>317</td>
</tr>
<tr>
<td>Number of BSI episodes &gt;1</td>
<td>10</td>
<td>55</td>
<td>4</td>
<td>69</td>
</tr>
<tr>
<td>Number of patients with BSI</td>
<td>58 (10%)</td>
<td>121 (19%)</td>
<td>12 (19%)</td>
<td>191 (21%)</td>
</tr>
<tr>
<td>Ratio BSI episodes/patients</td>
<td>1.2</td>
<td>1.9</td>
<td>1.6</td>
<td>1.7</td>
</tr>
<tr>
<td>Incidence by episodes</td>
<td>12.9%</td>
<td>74.2%</td>
<td>29.6%</td>
<td>34.1%</td>
</tr>
<tr>
<td>Incidence by patients</td>
<td>10.4%</td>
<td>39.4%</td>
<td>18.8%</td>
<td>20.6%</td>
</tr>
</tbody>
</table>

Figure 1. The Distribution of Bloodstream Infections According to the Time of Onset after Transplantation
**O42**

**MYCOBACTERIUM TUBERCULOSIS INCIDENCE AND OUTCOME POST SOLID ORGANS TRANSPLANTATION**

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**Introduction:** Patients going for organ transplantation are at increased risk of Mycobacterium tuberculosis (MTB) infection particularly in endemic area of tuberculosis. We aimed to study the incidence of tuberculosis in solid organ transplant’s recipients, identify the potential preventable risk factors of this infection and describe its outcome in solid organ transplantation recipients.

**Materials and Methods:** This is a single center, retrospective study of all Solid Organ Transplant recipients at King Faisal Specialist Hospital at Riyadh, Saudi Arabia, a large tertiary care hospital that cover patients from all Saudi Arabia, a country with high prevalence of MTB. The study covered the period from January 2003 until December 2012 with minimal of 1 year follow up. Demographic data, date of transplantation and medications used for induction and maintenance, MTB onset, transplantation, treatment, and outcome were collected. Risk factors for tuberculosis in this population are pursued. Annualized incidence rates and point prevalence are calculated.

**Results:** During the study period 2020 patients received solid organ transplantation. Out of these patients 17 developed MTB with point prevalence of 0.84%. Infection distribution among different organ transplanted as follows: 1,405 kidneys (7 developed TB; 0.5%), 459 livers (6 developed TB; 1.3%), 115 hearts (2 developed TB; 1.7%), and 41 lungs (2 developed TB; 4.9%). The majority of MTB developed within the first year post transplant (11 out of 17; 65%). No age pattern was noted among recipients. Only one patient died (5.9% case fatality rate) for non-tuberculosis related cause. Most of patients (16 out of 17 patients; 94%) were cured clinically without any documented relapse cases.

**Conclusions:** In conclusion the occurrence of Mycobacterium Tuberculosis among our solid transplant recipient population is very low in spite of high prevalence in our region. The reason is probably related to aggressive chemoprophylaxis approach. The outcome of these patients is very good with near universal cure.

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**O43**

**POST KIDNEY TRANSPLANT TUBERCULOSIS IN IRAQ: PREVALENCE, CLINICAL COURSE AND OUTCOME**

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**Introduction:** Tuberculosis (TB) is one of the major causes of morbidity & mortality in kidney transplant recipients worldwide. The aim of this work is to study the incidence, clinical course & outcome of post transplant TB (PTTB) in Iraqi kidney recipients.

**Materials and Methods:** This is a retrospective review of the records of randomly selected (412) live kidney transplant recipients in Alkarama Kidney Transplant Center in Iraq. The demographic data, clinical manifestations, diagnostic criteria, types of Immunosuppressant & anti-TB drugs & long term outcome of these cohort patients were analyzed & studied.

**Results:** 18/412 (4.37%) had developed PTTB in the first year of transplantation & males were commonly affected. The mean age of the involved patients was (28.83±7.14) years & the time interval between transplantation & PTTB ranging (4-52) months. Pulmonary TB was the commonest form (66.6%) in our sample. All our patients were on double or triple immunosuppressant & (3-4) types of anti-TB drugs used initially for (2) months then continued on two types for (9-12) months. The clinical presentation of TB in our studied group has no differences with that of pretransplant TB & the type of drugs used has no effects on the outcome of TB, while acute kidney rejection has strong correlation to the outcome. Only (5) of our recipient patients died giving a mortality rate of 27.8%.

**Conclusions:** PTTB in Iraqi kidney recipients occur most commonly in the first (13) months of transplantation with prevalence rate of (4.37%) & mortality of (27.8 %). Pulmonary type is the most common one & the types of immunosuppressant & anti-TB drugs does not affect the outcome of tuberculosis while acute rejection & increase in SCr at time of diagnosis of TB have a significant correlation with the bad outcome of the disease.
**O44**

**IGRA FOR THE DIAGNOSIS OF LATENT TUBERCULOSIS IN KIDNEY TRANSPLANT RECIPIENTS**


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**Introduction:** Kidney transplantation is a significant risk to reactivate latent tuberculosis. Diagnosis of latent tuberculosis relied on clinical findings and tuberculin skin test. Interferon Gama Release Assay has evolved as another tool to diagnose latent tuberculosis. However, no long-term data on reactivation of latent tuberculosis diagnosed using IGRA are available. We aimed to assess IGRA and long-term risk of reactivating tuberculosis in patients planned for kidney transplantation.

**Materials and Methods:** All patients considered for kidney transplantation were offered to have IGRA using Quantiferon TB Gold. Tuberculin skin test and other parameters for latent TB diagnosis and prophylaxis were unchanged. Patients were followed post-transplantation for tuberculosis reactivation.

**Results:** 278 patients were enrolled, 124 women and 154 men consented to participate. Transplantation was performed for 173 patients. Contributed follow-up was 836.5 patient-year, and tuberculosis-free transplant duration was 478.5 patient-year. By standard methods, latent tuberculosis was diagnosed in 14 patients. Pre-transplant chemoprophylaxis was given to 53 patients including recipients from deceased donors and living donors with latent tuberculosis. No patient developed tuberculosis post-transplantation. Quantiferon TB Gold test was positive in 70 patients, negative in 200 patients and indeterminate in 8. The agreement between latent tuberculosis diagnosis using standard methods and Quantiferon was poor (Kappa: 0.089 ± 0.046, p-value = 0.017). Of the patients who had positive Quantiferon, did not receive prophylaxis, and were transplanted (27) only one was diagnosed to have latent tuberculosis by standard methods, and none developed tuberculosis after a median follow-up of 25 months (range 2-58 months, mean 27 months).

**Conclusions:** Quantiferon agreement with standard diagnosis of latent tuberculosis in kidney transplant recipients was poor. Although more patients were positive by Quantiferon, none developed tuberculosis post-transplantation after an average of two years.

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**O45**

**STUDY OF THE ASSOCIATION BETWEEN GLUTATHIONE S-TRANSFERASE (GSTM1) POLYMORPHISM WITH POST LIVER TRANSPLANT DIABETES IN IRAN**

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**Introduction:** Diabetes after transplantation is a serious complication in transplant recipients. Oxidative stress is the result of accumulation of free radicals in tissues which specially affects beta cells in pancreas. Glutathione S-transferases (GSTs) are a family of antioxidant enzymes that include several classes of GSTs. To investigate the association between GSTM1 polymorphism with post liver transplant diabetes, we investigated the frequency of GSTM1 genotypes in liver transplant patients with DM and patients without diabetes (as controls).

**Materials and Methods:** The genotypes of GSTM1 were determined in 52 clinically documented diabetic patients and 169 controls by polymerase chain reaction.

**Results:** In diabetic patients, the frequency of GSTM1-null genotype was (51%) higher than that in control (63%) but it was not statistically significant.

**Conclusions:** Our results indicated that GSTM1 genotypes are not involved in the pathogenesis of post liver transplant diabetes.

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**O46**

**RESCUE OF ABOI TRANSPLANTS WITH ANTIBODY MEDIATED REJECTION: A SINGLE CENTRE EXPERIENCE**

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**Introduction:** ABO incompatible transplants were previously deemed too high risk and costly but as transplantation techniques and immunosuppression have improved they have become possible particularly in live donor situations. Though the overall results are good there are an increased number of early losses from antibody mediated rejection. Each time this has occurred we have improved our technique to the point that we have now successfully salvaged this situation.

**Materials and Methods:** A total of 49 ABO incompatible renal transplants have been performed at our centre. A retrospective review of the antibody profiles and daily therapeutic interventions were analysed for those ABO
incompatible transplants that had antibody complications and the outcomes determined.

**Results:** Four complex ABOi cases have been encountered in our centres where pre-operative antibody titres were low but which developed AMR shortly post-op. In the first case recognition of antibody titres was delayed until day 6 and once methylprednisolone was given on day 7 IgM titre increased to 256 and the graft was lost on day 13. The second patient had microangiopathic haemolytic anaemia (MAHA) so Tacrolimus levels were kept low post-operatively resulting in rejection and IgM titres reached 512 despite methylprednisolone and the kidney rapidly infarcted without IA. The third patient had SLE with antiphospholipid syndrome and rising antibody titres from day 6 which did not respond to IA and methylprednisolone Ecluzimab was given on day 9 but just after urine output had declined and this treatment was too late to prevent graft infarction. Nephrectomy was performed on day 11. The fourth patient had rising antibody titres from day 6 and treatment with Therasorb IA was initiated. Ecluzimab was given earlier than the previous case; on day 7 at first signs of a rising creatinine (100umol/L from 76umol/L previous day) together with 8 Glycorex IA treatments. Further doses of Ecluzimab were given on day 17 and 24 and titres reduced down to 32 (IgG) and 16 (IgM) by day 27 and creatinine of 205 umol/L. This kidney was successfully rescued and remains functioning with a baseline creatinine of 90umol/L.

**Conclusions:** Development of antibodies post ABOi renal transplantation requires attention to detail and rapid initiation of treatment. In our series we have experienced a learning curve which identified the most dangerous period being 5-7 days post transplant.

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**O47**

**FRACTALKINE RECEPTOR GENE POLYMORPHISMS AND ALLOGRAFT OUTCOMES**

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**Introduction:** Inflammation has critical role in the development of chronic renal disease. Chemokines are a superfamily of chemoattractant cytokines that play an essential role in leukocyte recruitment in acute and chronic inflammation. Fractalkine is a membrane-bound chemokine that mediates chemotaxis through the fractalkine receptor. Fractalkine Receptor BSMBI T280M (C) and Fractalkine Receptor ACI V249I (G) genes were associated with inflammation. We have investigated the association of genetic polymorphisms of fractalkine receptor encoding genes with the outcomes after pediatric renal transplantation.

**Materials and Methods:** Sixty-two children with renal transplant and 96 healthy children were enrolled in the study. Fractalkine Receptor BSMBI T280M and Fractalkine Receptor ACI V249I gene polymorphisms were analyzed by polymerase chain reaction and restriction fragment polymorphism. Allelic prevalence was compared with reference values of control group and Hardy-Weinberg equilibrium was tested.

**Results:** Mean age of the patients was 15.55±5.53 years. Urological problems were the leading causes of chronic renal disease in our study. The frequency of Fractalkine Receptor BSMBI T280M (CC) allele was occurred higher in patients and control groups. The frequency of Fractalkine Receptor ACI V249I (GG) allele was occurred higher in control group compared with patients. Twenty two (35%) patients developed acute rejection. Fractalkine Receptor BSMBI T280M (CC) allele was occurred higher in patients with rejection when compared with patients without rejection. Any association between Fractalkine Receptor ACI V249I and rejection has not been shown. Eight patients (13%) have lost their grafts. Frequencies of Fractalkine Receptor BSMBI T280M (CC) and Fractalkine Receptor ACI V249I (GG) alleles were higher in patients with graft loss when compared with patients without graft loss.

**Conclusions:** These results suggest that Fractalkine Receptor BSMBI T280M and Fractalkine Receptor ACI V249I gene polymorphisms are associated with the risk of acute rejection and graft loss. Different approach of treatment such as fractalkine receptor blockade strategies could reduce or finish renal damage in acute and chronic rejection.

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**O48**

**CONVERSION FROM TACROLIMUS TO CYCLOSPORINE IN PATIENTS WITH NEW ONSET DIABETES AFTER RENAL TRANSPLANT: AN OPEN LABEL RANDOMIZED PROSPECTIVE PILOT STUDY**

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**Introduction:** New Onset Diabetes after transplant (NODAT) is a common problem after renal transplantation that can have serious associated morbidity and mortality. Studies have shown that incidence of NODAT is greater with tacrolimus (Tac) as compared to cyclosporine (CsA) based immunosuppression; however, the effect of switching from Tac to CsA after the development of NODAT has not been studied well.

**Materials and Methods:** The study was a single centre, open label, randomized, prospective study. The inclusion criteria
were renal transplant recipients of either gender above 18 years, receiving Tac based immunosuppression and who developed NODAT according to the diagnostic criteria of the American Diabetes Association (fasting plasma glucose ≥126mg/dl and/or postprandial blood glucose ≥200mg/dl on at least two occasions) that persists despite optimal Tac blood levels. The subjects who had rejection episode ≥ 3 months before inclusion were also eligible for inclusion. The exclusion criteria were those with diabetes at the time of transplantation, recipients of multiorgan transplants, hypersensitivity to CsA, Tac or any of its known excipients, patients unable or unwilling to follow or comply with all study related procedures, those with severe systemic infections and those not willing to give informed consent. The subjects who developed NODAT despite the tacrolimus levels being in therapeutic range were randomized in 1:1 ratio to either switch to CsA or continuation of Tac. The fasting and post prandial blood sugars, HbA1C, fasting insulin levels, fasting C-peptide levels, insulin and oral hypoglycaemic agents (OHA) requirements were monitored before switch and then on monthly basis for three months. The side effect profile was also monitored.

**Results:** A total of 67 subjects were randomized to receive either CsA (n=32), or continuation of Tac (n=35). The mean age, sex distribution, duration of NODAT, and baseline renal function, fasting and postprandial sugars, HbA1C levels, fasting insulin & C-peptide levels, and requirement of insulin and OHA were similar in the two groups. After randomization, there was significant improvement in the blood pressure, fasting and postprandial blood sugar, fasting insulin & C-peptide levels, and insulin requirement in the CsA group, while, there was significant improvement in fasting and postprandial blood sugar, fasting insulin levels and insulin requirement but no improvement in HbA1C, fasting C-peptide levels or blood pressure in the Tac group. Decline in fasting blood sugar levels and insulin requirement was more significant in CsA group as compared to Tac, while there was no difference in other parameters. An equal number of subjects in each group (n=19, 59.4% in CsA group and n=14, 40% in Tac group, p=NS) had resolution of NODAT during the three months of follow-up. There was no significant difference in the side effect profile or rejection rates in the two groups. Both groups had significant weight gain; however, the weight gain was more significant in CsA group.

**Conclusions:** A switch from tacrolimus to cyclosporine is beneficial in patients with NODAT, however, large, multicenter studies involving different races is required for its wider implication.

**O49 THE EFFECT OF ANTI-HLA ANTIBODIES ON RENAL GRAFT FUNCTIONS**

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**Introduction:** Long term donor-specific tolerance remains one of the important goals in transplantation. The identification of suitable donor kidneys for transplant candidates with high levels of circulating antibodies against human leukocyte antigen (HLA) is a major challenge and results in adverse graft outcome. Post-transplant de novo donor specific HLA antibodies play an important role on allograft damage and rejection.

**Materials and Methods:** Seventy four kidney transplanted children without any shown HLA antibody in the pre-transplant period were enrolled in the study. Their anti HLA antibody status was checked at 6-12 monthly intervals and during acute graft dysfunction using Luminex in post-transplant period and its relation with the graft function and prognosis of the patients is studied.

**Results:** Mean age of the patients was 13.5±5.2 years. Mean follow-up time was 3.8±1.1 years. Pre-transplant cytotoxicity tests and PRA was negative in all patients. Nine (12.1%) patients were found to have anti HLA antibodies after kidney transplantation. Mean time for the detection of antibodies was found as 11±4.8 months. Patients with anti HLA antibodies were similar with patients without antibodies in the terms of age, sex, HLA mismatch, transfusions and immunosuppressive drugs as well as the presence of viral infections. Mean serum creatinine level was found to be higher in patients with anti HLA antibodies. The antibody mediated rejection rate was found to be 7.2% (5/65) in patients without anti HLA antibodies while it was 55.1% (5/9) in patients with anti HLA antibodies. There was a prominent C4d positivity in all patients with anti HLA antibodies except one. Three patients (33.3%) had graft loss in spite of intensive treatment.

**Conclusions:** Anti HLA antibodies have important role in the development of antibody mediated rejection and graft loss in children. It is vital to detect patients with the risk of development of anti HLA antibodies as early as possible.
WHO IS “WILLING” TO DONATE?

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Introduction: Transplantation raises a number of bioethical issues. Although women seem to be willing to donate organ or tissue, statistics state that donation is actually influenced by educational, religious, cultural and ethical factors. It is known that positive attitude towards organ donation was significantly influenced by educational status. The aim of the study was to investigate donor relation and gender amongst the patients.

Materials and Methods: For this purpose, we investigated 1797 donors and 1345 patients. These are candidates for hematopoietic stem cell transplantation. And 407 donors and 994 patients. These are candidates for renal transplantation, who applied to Baskent University Adana Research and Medical Center Tissue Typing Laboratory (between 2010 and 2013) for performed tissue typing and/or cross-match tests. Statistical analysis was performed using the statistical package SPSS v 17.0. Data was summarized according to the frequency distribution. The categorical variables between the groups were analyzed by using the Chi square test or Fisher Exact test. Values of p < 0.05 were considered statistically significant.

Results: Our study results show that female donor candidates are more frequent in HSCT and renal transplantation (Tables 1 and 2, Figures 1 and 2).

Conclusions: In our study group, females seemed to be more willing to donate organ and tissue compared to males. In most of the previous surveys the main factors affecting the willingness to be a donor seems to be education and religion whereas in our study gender is the main factor. The results need to be investigated. Why living donors were more likely to be women than men? Religion, education, sociocultural effects and emotional behavior; which one is the reason?

LOOKING FOR SOLUTIONS: AN INSIGHT INTO CONTRIBUTING FACTORS AND THERE SOLUTIONS FOR DECEASED ORGAN DONATION AMONG BRITISH MINORITY POPULATION

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Introduction: Organ donation from minority ethnic groups in the UK is a matter of grave concern as the demand for organs far outweighs its supply. In 2011/12, only 4% of deceased organ donations came from minority ethnic groups. Ironically, as of July 2012, these very groups made up 15.25% of the active transplant waiting list. The aim of this study is to gauge the perception of individuals from minority ethnic groups in the UK, on the causes of low organ donations from their communities, and their opinions on solutions to solve this problem.

Materials and Methods: We conducted a survey using traditional and online methods of communications with use of social media networking. Over a period of one month we received 547 responses.
**Results:** Majority of responded were females (58%). Responded from diverse ethnic minority groups participated in survey including Pakistani 33.4%, Indian 19.5%, Afro-Caribbean 17.9%, Chinese 12%, Bangladeshi 10.2% and others 6.7%. Muslims were 47.3%, Christine 26.8%, Hindu 15.1%, Buddhist 7.1% and 3.4% were from other religions. 71.4% supported living donor transplants as compared to 34.1% supporting deceased donor transplants. 67% people were aware of UK transplant registry but only 14.4% were registered donors. Religious/moral believes, fear of defacement and mutilation of the dead body and family objection accounted for 61% of refusal reasons. More than 80% of people thought that by religious education, improved awareness campaigns specially targeting minority groups and support from religious leaders and family members can significantly help in improving organ donation rates among these groups.

**Conclusions:** To address the issue of lack of organ donation from minority ethnic groups a new approach should be adopted tailored made according to their needs and suggestions.

**O53 ATTITUDES OF BAHRAINI PEOPLES TOWARD KIDNEY DONATION**

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**Introduction:** A severe shortage of organs is one of the major barriers facing transplantation today. Kidney organ donation rates continue to be low among Bahraini, leading to disproportionate numbers awaiting transplants, longer waiting times and problems of tissue matching.

**Materials and Methods:** A questionnaire survey was undertaken based on a convenience sample of people attendees to examine knowledge and attitudes to organ donation. Self-administered questionnaires from subjects in rural and urban areas were employed to collect data regarding their socio-demographic information, knowledge and attitude toward kidney donation and transplantation in Bahrain. About 1394 of people approached agreed to participate, and 1200 (86.1%) questionnaires were fully completed. The mean age of was 28.32 ± 23.5 years, 49.6% were males, 26.3% were single, 49.6% were highly educated, 66% had urban background, 54% were from upper socio-economic strata, and 86.6% were office-workers.

**Results:** The study revealed that 53% of participants knew what chronic renal failure is and only 31% know its treatment. The results showed that 35.1% of participants heard about the existence of kidney transplantation in Bahrain, 74.5% knew the need for organ donation, and 59.1% knew that organ donation could save lives. Sixty five percent expressed willingness to donate. Sixty percent expressed willingness to donate a kidney to their relatives during their live (44.6% of highly educated, 52.1% of the high socio-economic people, 33.1% of rural, and 33.7% aged <30 years). Sixty-two percent of the respondents agreed to donate their organs after death. Among the various reasons against organ donation, 33.5% feared that the act of organ donation contradicted their religious beliefs, while 25.6% believed that there was no benefit to organ donation and 39.4% afraid from the surgical procedure. Sixty-six percent agreed to send patients for organ transplantation abroad due to their belief that transplantation technology in Bahrain is lacking. Willingness to donate had a significant association with female gender, young age and high level of education. Nineteen percent agreed that the donor should be paid for donation.

**Conclusions:** In conclusions, programs aimed at increasing awareness about the safety of kidney donation, reducing adverse beliefs about kidney donation, and encouraging altruistic tendencies will increase the availability of kidney donors.
Prevalence of Metabolic Syndrome in Pediatric Liver Transplantation

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Introduction: Metabolic syndrome components such as overweight, hypertension (HTN), hyperlipidemia and diabetes mellitus (DM) are common complications following liver transplantation with a probable multi-factorial cause that increase risk of cardiovascular defects in adulthood. We aimed in this study to evaluate prevalence of each other pre and post operationally.

Materials and Methods: All of the children under eighteen years old that at least 6 months were lasted from their transplantation in a period of twenty years were included. Prevalence of metabolic syndrome components, pre and post operation lab data were gathered to evaluate in patients.

Results: Overall we enrolled 391 cases of liver transplantation in the twenty years period out of 167 (42.7%) females and 224 (57.3%) males to our study. Prevalence of post-operation hyperlipidemia, hyperglycemia, HTN and metabolic syndrome were 7.5%, 22%, 9.6% and 50.2%, respectively; while this prevalence was 10.5% for preoperational metabolic syndrome.

Conclusions: The results of this study confirm that the prevalence of metabolic syndrome in patients after liver transplantation has increased dramatically and should be of interest to researchers.

Outcome of Critically-Ill Children After Living-Donor Liver Transplantation

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Introduction: We analyzed the outcome of children underwent living donor liver transplantation (LDLT) according to their status before transplant. To analyze the outcome of critically-ill children who were admitted to intensive care prior to transplant.

Materials and Methods: This study included children who received primary LDLT at Kyoto University hospital from June 1990 to October 2008. Inclusion criteria were primary liver transplant for chronic-end stage liver disease by the standard technique. Patients who had acute liver failure, re-transplants and auxiliary liver transplants were excluded. According to UNOS criteria, we divided them into three groups. Group A consisted of the patients who had been admitted to the ICU before LDLT; Group B who were hospitalized but did not require ICU and Group C who were living at home and underwent an elective transplant. All clinical and laboratory data were collected from patients’ charts and both patient and graft survival were assessed.

Results: A total of 605 patients met the inclusion criteria with a mean follow-up of 7.52 ± 5.13 years. Group A included 41 patients while Group B and Group C had 316 and 248 respectively. In Group A, children were younger than group B and received liver grafts from younger donors than group B and C. Biliary atresia represented the main indication for LDLT in all groups, however, its proportion is lower in group A. Metabolic liver diseases contributed to 19.5% of group A while they constitute less than 5% in other groups. Group A patients had marked impairment in liver and renal functions and coagulation as indicated by the significantly high bilirubin, creatinine, blood urea nitrogen, prothrombin time and INR. However, there were comparable values for albumin and liver enzymes. Patients who received ICU before LDLT had a significantly poorer outcome than others. They had patient survival of 68.3%, 63.2%, 60.1%, and 56.1% at 1, 5, 10, and 15 years after LDLT (P=0.001). On the other hand, group B and C patients had better survival and showed comparable figures (P=0.799). In group B, patients had patient survival of 87.6%, 85.9%, 82.7%, and 81.4% at 1, 5, 10, and 15 years while group C patients showed survival of 89.4%, 87.1%, 82.4%, and 76.1% at 1, 5, 10, and 15 years. The more remarkable feature of critically-ill patients is not only the poor outcome but also the pattern of patient loss where early patient loss accounted for 80% survival in the first month after LDLT. Group A had markedly worse graft survival than other groups (P=0.001), it had graft survival of 68.3%, 65.9%, 54.1%, and 49.9% at 1, 5, 10, and 15 years. In contrast, group B and C, showed better graft survival of 89%, 85.9%, 80.1%, and 72.6% at 1, 5, 10, and 15 years and 89%, 85.9%, 80.1%, and 72.6% at 1, 5, 10, and 15 years, respectively.

Conclusions: Children were admitted to ICU prior to LDLT had a significantly poorer outcome than other groups. They had marked impairment of their pre transplant laboratory parameters.
**O56**

**EFFECT OF PARENTS EDUCATIONAL LEVEL ON MORTALITY AND MORBIDITY OF CHILDREN AFTER LIVER TRANSPLANTATION**

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**Introduction:** Since the innovation of organ transplantation, numerous post-transplant outcome predictors have been studied to restrict the loss of resources and grafts. The role of educational level on non-adherence with medication, post-transplant mortality and morbidity had been studied in several articles, but; in most of them, it was evaluated as a surrogate marker of socioeconomic status or other variants. The absolute impact of parents’ education has been less studied. In the present study, we tested the hypothesis that parents’ educational level of the children who underwent liver transplantation has an impact on post-transplant mortality and complication.

**Materials and Methods:** We studied a group of 91 children who underwent liver transplantation in our center from 21 March 2012 to 21 July 2013. In this retrospective study, patients’ medical charts and questionnaire were used to collect our desired data. Demographic data, cause of cirrhosis, PELD and CHILD score, graft type, immunosuppressive drug type and blood level were included in our questionnaire. Post-transplant mortality and complications were divided into two categories: Early (i.e. rejection, hepatic artery thrombosis, portal vein thrombosis, hepatic vein thrombosis, biliary complications, infections, convulsion, renal problems, PTLD, etc.) and late (i.e. rejection, vascular thrombosis, biliary complications, infections, drug side effects, lymphoma, leukemia, etc.). Parents’ educational level was also categorized into 5 groups: 1. illiterate, 2. schooling < eight years, 3. eight years < schooling < twelve years, 4. Diploma to bachelor’s degree, 5. Educational level > bachelor’s degree. T-test and chi-square test were used to determine the effect of mentioned factors on liver transplantation outcome.

**Results:** Multivariate analysis of all groups showed that paternal education (p=0.031) is an independent predictor of late post-transplant complications, whereas Educational level of children’s mothers had no meaningful relation (p=0.131) to late post-transplant complications. Both maternal (p=0.59) and paternal (p=0.607) education has no impact on late post-transplant mortality, as well.

**Conclusions:** In conclusion, paternal educational level of children who underwent liver transplantation is associated with late post-transplant complications.

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**O57**

**LARGE FOR SIZE LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE**

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**Introduction:** The ideal ratio between the liver graft mass and recipient body weight (GBWR) is not yet clear, but it is believed that the graft must weigh approximately 0.8 to 2.0% of the recipient’s weight. When this ratio exceeds 4%, we may face up with problems due to large for size transplantation, especially in recipients below 10kg. This condition is caused by the discrepancy of small abdominal cavity and large graft and is characterized by diminished blood supply to the liver graft, results with dysfunction. In this study, we reported our experience with large for size grafts.

**Materials and Methods:** We retrospectively evaluated 377 orthotopic liver transplantations (OLT) that were performed between 2001 and 2014 in our center. We included 188 pediatric OLT in our study.

**Results:** Fifty eight of the patients were less than 10 kg and GBWR were higher than 4%. All of them were living donor living transplantation. Two patients’ abdomens were closed with Bogota bag. Five patients were reoperated due to vascular problems and abdominal hypertension and closed with Bogota bag. All Bogota bags were closed in two weeks. After closing fascia, 10 patients vascular problems were diagnosed in the operating room by Doppler USG and only skin were closed without fascia closure. No graft loses were occurred due to large for size. Eight patients passed away in early postoperative period of transplantation (two brain deaths, six sepsis). There was not any donor mortality or major morbidity.

**Conclusions:** The main problem of large-for-size graft include the risk of abdominal compartment syndrome due to the small size of recipient abdominal cavity, size discrepancies in vascular caliber, insufficient portal circulation and so disturbance of tissue oxygenation. Abdominal closure with Bogota bag in these patients is safe and efficient to avoid abdominal compartment syndrome. Early diagnose by postoperative ultrasonography in the operating room after fascia closure and repeated ultrasonography at the clinic will avoid graft loss.
NEW ONSET DIABETES AFTER RENAL TRANSPLANTATION: A NEW PREDICTIVE MODEL

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Introduction: Many patients develop diabetes after kidney transplantation termed as New Onset Diabetes after Transplantation (NODAT). NODAT has been reported to be associated with poor clinical outcomes. We aimed to determine the incidence of NODAT, risk factors for its development, long-term outcomes and develop a predictive model for NODAT.

Materials and Methods: This is a single centre retrospective study of all adult kidney transplant recipients who received a kidney transplant between January 2003 to December 2009 at King Faisal Specialist hospital & research centre Riyadh Saudi Arabia. Patients’ case notes and electronic databases were interrogated to gather clinical information. NODAT was defined according to the criteria outlined in the 2003 international consensus guidelines. A total of 500 patients were included in this study, 136 patients (27%) developed NODAT. The majority (74%) developed NODAT in the first 6 months. Older age (OR 1.06), family history of diabetes (OR 1.09), Hepatitis C infection (OR 1.92) and impaired glucose intolerance (OR 1.79) were found to be significant risk factors for the development of NODAT.

Results: Based on multivariate analysis, we have developed following predictive model:

\[ \text{Risk} = (1 + e^{-h})^{-1} \]

Where \( h = -5.1987 + 0.0529(\text{age}) + 0.1058(\text{FHx}^*) + 0.7524 (\text{IGT}^*) + 0.5892(\text{HCV}^{**}) \)

\(-5.1987\) is a constant
* Family history of diabetes
^ Impaired glucose tolerance (impaired fasting or random glucose pre-transplant)
** Hepatitis C infection

For FHx, IGT and HCV a value is “1” for positive and “0” for negative.

Conclusions: We have developed a model to predict diabetes in renal transplant recipients, this model need to be validated by further studies. This study has shown that around quarter of patients develop new onset diabetes after transplantation. Older age, family history of diabetes, impaired glucose tolerance and hepatitis C infection were identified as risk factors for the development of NODAT.

HYPERPROTEINURIA AS A CARDIOVASCULAR RISK FACTOR IN RENAL TRANSPLANT RECIPIENTS

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Introduction: Proteinuria is a marker of renal injury that can often be detected earlier than decline in glomerular filtration rate. As well as being a risk marker for decline in renal function, proteinuria is now widely accepted as an independent risk factor for cardiovascular morbidity and mortality. The aim of this study is to evaluate the association between proteinuria and clinical, biochemical parameters and graft dysfunction in kidney transplant recipients.

Materials and Methods: Ninety eight kidney transplant recipients (31 female, 38.7±11 years with 45.9±9.6 months post-transplantation period) with normal graft functions in the 3-5 years of post-transplantation period were enrolled. All patients were evaluated for their standard clinical (age, gender, duration of hemodialysis) parameters. The clinical biochemical parameters including the proteinuria levels in the first year of post transplantation period were retrospectively recorded and searched for the predictive value in yearly determined graft function and association with cross-sectionally analyzed cardiovascular parameters including body composition analyses (Tanita BC-420MA), ambulatory blood pressure monitoring data (ABPM), pulse wave velocity (Pwv) (SphygmoCor system). eGFR was calculated according to MDRD formula.

Results: Patients were divided into two groups; group 1 patients with ≥500 mg/24 h (n:30) and group 2 patients with <500 mg/24 h (n:60). Patients with higher proteinuria had significantly higher serum creatinine (p<0.0001), triglyceride (p<0.037), total cholesterol (p<0.039), uric acid (p<0.006), higher yearly GFR decline (%7.7 and %5.7 %/year, p<0.001) and lower hemoglobin (p<0.012) and albumin (p<0.003) levels than group 2 patients. In terms of cardiovascular parameters, group 1 patients had significantly higher mean arterial pressure (p<0.045), day-time mean diastolic BP (p<0.032) than group 2 patients according to ABPM recordings and had significantly higher PWV levels (7.4±1.5 vs. 6.4±1.9 ms, p<0.021) than group 2 patients.

Conclusions: Post-transplant hyperproteinuria is strongly associated with cardiovascular risk predictors as hypertension, hyperlipemia and vascular stiffness. Therefore it should be accepted not only as a marker for renal allograft dysfunction but also as a cardiovascular risk factor in renal transplant recipients.
O60

STUDY OF THE RISK FACTORS AND THE COMPLICATIONS OF DIABETES MELLITUS AFTER LIVE KIDNEY DONATION

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Introduction: Kidney donors, similar to the general population, are at risk for development of type 2 diabetes mellitus (T2DM). The course of donors who develop T2DM has not been well studied. Our aim was to estimate the prevalence of Diabetes after kidney donation, and study the risk factors and nephrogenic complications of diabetes after kidney donation.

Materials and methods: In this study 2267 donors who donated their kidneys at the urology and nephrology center between 1976 and 2013 were examined, 344 donors were declared dead either by their related recipients or by a verified hospital patient information system data.

Results: The studied 388 live kidney donors showed a percentage of 11% (43 donors) developed diabetes mellitus; their mean age was 48.4 years old, 39.5% of them were males. The mean interval between donation and development of DM was 6.9 years. The mean BMI was 34.3 kg/m2. The highest percentage of diabetes among the studied donors was between the ages of 51-60 years 51.5% (20 donors). Our study also revealed 60 donors with prediabetes representing a percentage of 15.4% of the studied group. The mean BMI of the prediabetic group was 34.2 kg/m2. Twenty five donors (58.1%) showed microalbuminuria, macroalbuminuria and/or decreased creatinine clearance, all had evidence of different types and stages of diabetic retinopathy. The mean interval between kidney donation and development of nephropathy was 10.2 years and the mean interval between the development of DM and diabetic nephropathy was 5.7 years. The percentage of Microalbuminuria among the 60 prediabetic donors was 26.7%. The percentage of Diabetic donors with a family history of diabetes was 64.3% (28 donors) 18 of them (64% of diabetics with a family history of DM) developed micro- or macroalbuminuria. In our study we compared diabetic donors on metformin alone (17/43) versus other oral hypoglycemic agents (15/43). The mean albumin creatinine ratio of the Metformin group was significantly lower (P 0.0008), and the estimated creatinine clearance by CKD-EPI equation was significantly higher than the other oral hypoglycemic agents group (P 0.011).

Conclusions: Fasting and two hour post prandial blood glucose levels should be performed as frequent as possible so as to early diagnose diabetes or prediabetes. We must consider albuminuria preventive measures in both prediabetics and diabetics. For example, we can start a small dose of RAAs blockade even in normotensive diabetic and prediabetic donors. We should strongly advise obese donors to start modifying their lifestyles aiming to reduce their weights giving the positive correlation between both the BMI and albumin creatinine ratio. We should also have a lower threshold of starting metformin giving its proven beneficial effects on both albumin creatinine ratio and creatinine clearance. On failure of metformin to achieve the desired glycemic control we should add insulin giving its proven beneficial effects on both albumin creatinine ratio and creatinine clearance.

O61

PRE-TRANSPLANT RENAL ARTERIAL VASCULOPATHY PREDICTS POOR RENAL ALLOGRAFT SURVIVAL

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Introduction: Atherosclerosis and chronic allograft dysfunction share common pathway of chronic low-grade vascular endothelial damage and inflammation. Renal transplant vasculopathy occurring after transplantation is major predictor of poor outcome. In this study, we investigated whether pre-transplant renal arterial vasculopathy of grafted kidneys affected allograft survival.

Materials and Methods: Totally 128 recipients (age, 29.1±11.9 years; male/female ratio, 89/39; dialysis vintage, 18.1±15.2 months) and their donors (age, 39.8±15.3; male/female ratio, 54/74; cadaveric/living, 32/96) were included in study. Pre-transplant renal arterial biopsy was performed in each donor and presence of renal arterial intimal thickening was determined. Recipients were followed up for 86.4±38.8 months post-transplantation.

Results: Pre-transplant renal arterial intimal thickening was present in 55 (43%) donors. In Kaplan-Meier survival analysis, allograft survival was significantly lower in recipients with pre-transplant vasculopathy in renal arteries than those without vasculopathy (53.2% vs. 77.9%; P: 0.0016). Univariate and multivariate Cox regression analysis (variables including gender, dialysis vintage, hypertension, hyperlipidemia, acute rejection, type of transplantation (cadaveric/living), mismatch and post-transplant calcineurin inhibitor usage for recipient and gender; advanced age (≥55 years), presence of renal arterial intimal thickening for donor) was done to determine potential predictors of allograft survival. In univariate analysis, acute rejection (RR: 2.729, 95% CI: 1.496-4.977; P: 0.001), advanced donor age (RR: 1.970, 95% CI: 1.038-3.736; P: 0.04) and renal arterial intimal thickening (RR: 2.466, 95% CI: 1.382-4.401; P: 0.002) were associated with decreased allograft survival. Multivariate Coxanalysis
showed that only acute rejection (RR: 3.585, 95% CI: 1.781-7.217, P<0.0001) and renal arterial intimal thickening (RR: 2.642, 95% CI: 1.355-5.150, P: 0.004) were independent predictors of allograft survival.

**Conclusion:** Pre-transplant vasculopathy implies a poor prognosis in renal allograft survival and is independent of other traditional risk factors. Pre-transplant biopsy of renal artery should be a part of the procedure both in cadaveric and living donors and therapeutic interventions to modify the progression of transplant vasculopathy should start in recipients with affected renal arteries in the very early post-transplantation period.

### O62

**IMPACT OF TRANSFER PROCESS OF BRAIN DEAD POTENTIAL DONORS ON HEMODYNAMIC STABILITY AND OXYGENATION**

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**Introduction:** Transfer process of critically ill patients has been shown to cause alterations in hemodynamics and lung oxygenation quality. To make sure of appropriate management of brain dead potential donors, all of the brain dead cases are transferred to “organ procurement unit” ICUs in our country. In this study we decided to assess hemodynamic alterations and need for vasopressor and fluids administration before, during and after the transfer process and check the possible factors for any associations.

**Materials and Methods:** In this observational study we recorded information from 23 brain dead donors which were transferred to organ procurement unit of Masih Daneshvari hospital in February and March 2014. Hemodynamic indices such as mean arterial pressure, vasopressor needs to maintain stability at both before and after transfer, central venous pressure and transfer time were obtained. Lung oxygenation capacity marker (PaO2/FIO2 ratio) also was measured before and after transfer using 100% oxygen for 20 minutes. Paired sample T-test and Spearman’s rho test were used to test associations and correlations and a P-Value < 0.05 was considered significant.

**Results:** Mean donors age was 37.3 ± 15.5 (rang of 6 - 66) and 14 (60.8%) of them were male. Cause of brain death in 14 (60%) donors was trauma. Mean arterial blood pressure before and after the transfer were not significantly different. (91.7 VS 89.9 mmHg, P = 0.61) But vasopressor dosage was significantly higher both while transferring and also after it. (8.8 ± 6.6 and 9.36 ± 6.38 µg/Kg VS 6.44 ± 5.39 µg/Kg, P = 0.002 and 0.01) there were no correlation between the vasopressor need and age, sex, cause of brain death, intubation period and amount of fluid administration. The latent finding was noticeable because we figured that PaO2/FIO2 ratio significantly decreased after transfer of donors (From 302.1 ± 119.4 to 259 ± 115.8 mmHg, P < 001) and the drop was correlated positively with amount of administered IV-fluids during transfer. (P = 0.02 and correlation coefficient = 0.54).

**Conclusions:** This study showed that increased need for vasopressor and amount of administered fluids are two independent variables. But higher amounts of fluids may cause a higher reduction in lungs oxygenation capacity while lacking any effects on hemodynamics. So less administration of IV-fluids at the time of transfer process of brain dead donors is recommended. We also recommend a larger study to clarify the numerous affecting factors more.

### O63

**ORGAN VIABILITY ASSESSMENT DURING THE PRESERVATION PERIOD USING NOVEL REAL-TIME RAPID SAMPING MICRODIALYSIS MONITORING: A PROMISING NEW TOOL FOR MARGINAL KIDNEY ALLOGRAFTS**

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**Introduction:** Viability assessment during the preservation period is imperative to avoid unnecessary discarding of marginal organs and maximising graft outcomes. To address this need, we have developed a novel system based on a rapid-sampling microdialysis analyser that allows continuous tissue monitoring and measurement of the metabolic markers of cell damage. We report the results from our ongoing study. We aim to develop a new tool that allows for accurate organ viability assessment during preservation.

**Materials and Methods:** Twenty-two kidneys were retrieved from cadaveric pigs, flushed and transported to the laboratory (Warm Ischaemia Time=15 minutes, Static Cold Ischaemia Time=4-5 hours). 10 kidneys underwent 24 hours of static cold storage (SCS); 12 underwent 10 hours of hypothermic machine perfusion (HMP, Waters Medical Systems RM3). Kidneys were monitored for tissue lactate throughout by tunnelling a probe superficially into the parenchyma of the lateral cortex; online measurements of lactate concentrations were made every 60 seconds. Following preservation monitoring continued while tissue temperature increased passively to ambient temperature. 10 kidneys underwent.

**Results:** On commencement of monitoring quantifiable lactate concentrations were successfully detected within 15 minutes (See Figure 1). During the initial 1.5 hours lactate
concentrations were similar during SCS (88.0<sub>μ</sub>M) and HMP (140.5 μM, p>0.05). Lactate concentrations were however lower after 10h of SCS preservation compared with HMP (77.3 μM Vs 266.8 μM, p<0.01). Overall lactate levels during SCS remained low and stable during preservation while in HMP lactate increased between 1.5-10 hours from 140.5 to 266.8 μM (p<0.01). Warming data suggests a resilience of HMP kidneys to subsequent temperature induced ischaemia compared to SCS kidneys.

Conclusions: This preliminary work provides the baseline ischaemic profile for porcine kidneys whilst validating the technique of microdialysis as a tool for organ viability assessment during preservation with potential for clinical application. Differences can be seen between the preservation methods with cortical lactate progressively increasing in HMP, while remaining stable in SCS. The data here may help elucidate why HMP is clinically superior to SCS, and allow development of further interventions to augment these benefits.

O64
EARLY ACTIVE MANAGEMENT OF BRAIN DEAD POTENTIAL DONORS: GOOD RENAL TRANSPLANT OUTCOME

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Introduction: End-stage renal disease (ESRD) is one of the chronic diseases with high prevalence in Iran (253 per million populations). 47% of these patients are taking transplantation every year. One of the most common abnormalities in brain dead cases is dehydration. It can cause prerenal azotemia and renal failure. Proper management of brain dead potential donors should theoretically reduce kidney injury and improve the transplanted kidney outcome. The aim of this study was to assess impact of active brain dead donor management on increasing donor pool for renal transplantation and quality of transplanted kidneys.

Materials and Methods: In this retrospective study, records of 127 brain-dead donors of Organ Procurement Unit of Shahid Beheshti University of Medical Sciences (SBMU-OPU) were reviewed from August 2011 to May 2012. Donor demographic data (age, sex), brain death causes and creatinine level of first visit at original hospital (Cr1), time of detection (Cr2), right before transportation to OPU ICU (Cr3) and just before transplantation(Cr4) have been recorded and their effect on the transplanted kidney function were compared.

Results: The cause of brain death in 50 (36%) patients was trauma. The mean age of donors was 33 yr and 80 (57%) patients were male. The donors’ creatinine level at the time of admission in SBMU- OPU (Cr3) was 2mg/dl or more in 21 cases (14%) that decreased below 2mg/dl by fluid and electrolyte management in all of them. First and final mean serum Cr of donors changed significantly by active management of OPU team (1.3 ± 0.7 and 0.85 ± 0.3 mg/dl, respectively, P<0.001 Paired t test). Proper donor management could increase donor pool by 16.5%. Patients were divided into two groups; group1: who had normal creatinine all the time (106 cases), group2: who had impaired Cr sometime before donation but was managed and corrected (21 cases). There was not any significant difference between 2 groups in terms of demographic data. kidneys recipients of both groups were followed for patient and graft survival. One month, 6 months and one year patient survival were 95%, 93%, and 93%; one month, 6 month and one year graft survival were 93%, 89%, 89% respectively without any significant difference between two groups.

Conclusions: Findings of this study demonstrated that active donor management can increase suitable donor pool and acceptable results are considerable. Also it has been shown
that the results of kidney transplant from deceased donors are highly acceptable in Iran. The future studies with larger sample size and longer follow-up period is recommended.

O65
HLA-DR MISMATCHED PAEDIATRIC RENAL TRANSPLANTATION: PATIENT AND GRAFT OUTCOME WITH DIFFERENT KIDNEY DONOR SOURCES

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Introduction: Renal allograft failure in children has been associated with several factors, including age, race, donor source, cold ischemia time, primary renal disease, HLA antigen mismatch, and transplantation year. Graft survival has improved substantially over the years owing to changes in the induction and maintenance immunosuppression regimens. Our aim was to determine the impact of HLA-DR mismatching on rejection, graft survival, and sensitization in pediatric renal transplant patients and to determine the likelihood of finding an appropriate donor based on HLA-DR mismatch.

Materials and Methods: In this retrospective analysis, paediatric renal transplants performed in Hamed Al-Essa Organ Transplant Centre of Kuwait (n=104), between 1994 and 2011 were examined for the effect of HLA-DR mismatches on graft and patient survival. DR zero mismatch (group1, n=17); one mismatch (group 2, n=63) and two mismatch (group3, n=34) comprised the three arms of our study. Pre-transplant complement-dependent cytotoxicity and flow cytometry cross matches were negative. Basic immunosuppression comprised Tacrolimus, MMF and steroids.

Results: The three groups were matched regarding mean recipient age (12.2±5.5, 13.9±3.8, 3.7±4.2 years respectively); patient and donor sex; donor age (35±8.2,34±7.4,30±9.3 years), original kidney disease, type of maintenance immunosuppression, basal graft function, viral profile and pretransplant co-morbidities(diabetes, anemia, hypertension and tuberculosis). Most of patients with two DR mismatch received cadaveric grafts and ATG induction; while patients with grafts from live donors received simulect induction (p<0.05).

We found that patient survival at 1, 5, and 10 years was comparable in all groups. Posttransplant complications were comparable in all groups especially infections (bacterial and viral), hypertension, mean rejection episodes and NODAT. Moreover, we found no significant difference in the graft function as represented by serum creatinine at 1, 3, 5, and 10 years of follow up(p>0.05).

Conclusions: HLA-DR mismatch pediatric renal transplantation-especially with cadaveric donors-is feasible with potent induction and maintenance immunosuppression.

O66
LESSONS LEARNED FROM LIVING DONOR LIVER TRANSPLANTATION AT CAIRO UNIVERSITY: SINGLE CENTER EXPERIENCE

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Introduction: Living donor liver transplantation (LDLT) is widely used for patients with end-stage liver diseases. However, this procedure exposes the donor, a healthy individual, to morbidity & mortality which makes it of low applicability. The main objective is to improve the outcome of LDLT by analyzing the data collected from our patients, regarding possible causes of morbidity and mortality, and hence modify our protocol of management according to our results. Also adopting new techniques by our team.

Materials and Methods: We did a retrospective analysis regarding our experience in LDLT of 116 cases during the past 9 years. Results: we transplanted 127 cases, 26 pediatric cases (due to congenital or hereditary disorders) and 101 are (mostly post hepatitis HCV cirrhosis) adult cases.

Results: We have mortalities 22.4% infections and severe sepsis are the most common cause of mortality in our patients. The most common causes of morbidity among those patients are the biliary complications (31%), followed by rejection (20%), and followed by infections (18%) mostly due to viral infections.

Conclusions: Starting to take the left lobe, using intraoperative biliary stents with interrupted sutures may decrease biliary complications. Venous outflow optimization by using the anterior venous patch to the right hepatic vein more than 5mm for reconstruction of segment V&VIII. Portal pressure measurement intraoperative may help in prediction of small for size syndrome. Patients with hepatocellular carcinoma are preferably transplanted if they are within the MILLAN criteria as it has better out come on recurrence.
O67
LIVING DONOR LIVER TRANSPLANTATION EXPERIENCE AT KHM (JORDAN)

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Introduction: To evaluate the outcome of living related liver transplantation as a single centre experience.

Materials and Methods: During the period June 2004 to November 2013, a total number of 90 living related liver transplantation were performed at King Hussien medical center. Only one of them was re-transplanted. The age ranged between 1.5 to 62 years (average 37 years), 66 males and 24 females. The indication for transplantation were end stage liver disease in 77 patients, while other patients 12 for hepatic malignancy and one patient had combined liver-kidney transplantation for primary hyperoxlosis.

Results: No donors mortality, donors morbidity 18%. Average hospital stay for donors was 6 days for left lobe donors and 9 days for right lobe donors. Average hospital stay for recipient 21 days, morbidity for recipients 35%, post transplant one year survival 80% and five years survival 75%. 12 cases had hepatic malignancy, 10 cases hepatocellular carcinoma and one case for cholangio- carcinoma and hepatoblastoma, two cases of malignancy had recurrence post transplantation.

Conclusions: Results of liver transplantation in our center are comparable with the international figures. With the shortage of cadaveric donation in Jordan, living donor liver transplantation is the only hope for end stage liver disease and patients with early hepatocellular carcinoma.

O68
RESULTS OF LIVER TRANSPLANTATION OF ELDERLY PATIENTS: A SINGLE CENTER EXPERIENCE

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Introduction: With the increased life span the need of liver transplantation for elderly patients also increased in the world. In this study we reviewed our experience to determine the outcomes and relative problems of patients over 60 years old who had liver transplantation.

Materials and Methods: Data of patients over 60 years old recipients were reviewed retrospectively. We analyzed 16 elderly patients who had liver transplantation for chronic liver disease, between 2001 and 2014 in our center.

Results: In our series, there were 5 female, 11 male patients between ages 60 and 65. The mean Child score was 7.9±1.7 and MELD score was 14.1±5.1. Primary liver disease was Hepatitis B in 9 patients (34.5%), most of them with hepatocellular carcinoma. The other etiology for liver failure were Hepatitis C (n=4), alcoholic cirrhosis (n=2) and cryptogenic cirrhosis (n=2). One of the patients had both HBV and HCV; one patient had both HBV and alcoholic cirrhosis. Nine of the patients had HCC. Mortality was seen in four patients. The reasons of mortality were sepsis (n=3), HCC (n=1).

Conclusions: LT can be safely performed and has acceptable long-term outcomes in low-risk elderly recipients. Age should not be a contraindication alone for LT in elderly patients.

O69
LIVER TRANSPLANTATION FOR THE TREATMENT OF BUDD-CHIARI SYNDROME: A SINGLE CENTER EXPERIENCE

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Introduction: Budd-Chiari syndrome is a relatively rare cause of liver failure characterized by obstruction of hepatic venous outflow that usually associated with underlying hypercoagulable state. In patients with end stage liver disease, these patients are candidates for liver transplantation. The aim of this study is to evaluate current status of liver transplantation in our center for Budd-Chiari syndrome.

Materials and Methods: A descriptive analysis of patients who underwent liver transplantation at Shiraz organ transplant center, Iran, was performed in March 2014. Data of patients diagnosed with Budd-Chiari syndrome were gathered and extracted from old charts of patients. Information regarding age, sex, type of allograft, graft and patient survivals, complications and underlying diseases after transplant were collected.

Results: From more than 2000 liver transplant recipients in Shiraz organ transplant center, there were 60 liver transplant patients with Budd-Chiari syndrome. There were 33 females and 27 males. Mean age of patients at the time of transplantation was years. Fifty four patients received liver from deceased donors, 3 patients underwent partial liver transplantation and 3 patients split liver transplantation. There were 9 episodes of acute rejection requiring methyl
THE IMPACT OF INSERTION OF DOUBLE J URETRAL STENT ON UROLOGICAL COMPLICATIONS IN RENAL TRANSPLANT RECIPIENTS: A SINGLE CENTRE EXPERIENCE

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Introduction: This study aimed to analyze retrospectively the impact of routine Double J stent placement on early urological complications in live related renal transplantation and compared the results with those transplanted without a stent at SIUT.

Materials and Methods: A retrospective study was conducted on 158 patients who underwent live related renal transplantation between December 2007 and May 2008 at SIUT. Based on exclusion criteria 103 patients were selected for the study. These patients were categorized into two groups. Group A comprised of patients who received a Double J stent while group B consisted of patients who were stent free. Early urological complications were recorded. Inclusion criteria were the recipients between 18-50 years, single renal transplants, with normal lower urinary tract and all patients underwent ureterovesical anastomosis by Lich Gregoir technique. The patients with pathological lower urinary tract, having minimum follow-up period of 3 months and those who lost their grafts within this period were excluded.

Results: Group A comprised of 54 (52.4%) patients of which 39 were males and 15 females whereas group B had 49 patients (47.6%) of which 41 were males and 8 females. None of the patients in either group developed a urinary leak. In group B, 3 patients developed urinary obstruction while no obstruction was recorded in the Group A (p=0.06). Although 7 patients in group A (12.96%) had a positive urine culture, only 3 patients in Group B developed UTI (p=0.242).

Conclusions: This study suggests that routine placement of DJ stent is unnecessary in renal transplant recipients and its use should be limited to patients with an abnormal lower urinary tract.

DOES LOWER URINARY TRACT STATUS AFFECT RENAL TRANSPLANTATION OUTCOMES IN CHILDREN?

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Introduction: Lower urinary tract dysfunction (LUTD), an important cause of end stage renal disease in pediatric age group, can adversely affect renal graft survival and function if it is not properly managed prior to renal transplantation. In our study, we compared renal transplant patients previously had LUTD as primary cause of end stage renal disease to the renal transplant patients with prior history of other causes retrospectively.

Materials and Methods: Among 60 children who underwent renal transplantation between 2000 – 2012 in our clinic, there were 25 children with LUTD as primary cause of end stage renal disease. 39 patients received renal grafts from living donors while 21 patients received from deceased donors. Patients with prior diagnosis of LUTD were evaluated with urodynamic tests. 15 patients required clean intermittent catheterization and 9 patients underwent augmentation cystoplasty before renal transplantation. All patients were evaluated by urinary system ultrasonography and Tc-99m-DTPA renography after receiving renal graft.

Results: The mean follow-up for LUTD (+) and LUTD (-) groups were 63 (22-155) and 101 months (14 - 124), respectively. During follow-up graft survival between LUTD (+) and LUTD (-) groups were not statistically different (76% and 80%, p=0.711). Also there was no difference at 5-year graft survival (73% and 75%, log-rank p=0.892). When rejected patients were neglected, creatinine levels at last follow-up were lower for LUTD (-) group (0.96±0.57 vs 1.3±0.3 mg/dl, p<0.001). Infectious complications and postoperative urinary tract infection incidences were higher in LUTD (+) group (25.7% vs 68%, p=0.002 and 11.4% vs 60%, p<0.01, respectively). With regard to graft survival, low compliance (normal: 11/12 and low: 4/4, p=1.000) and high grade reflux (absent: 9/10 and present: 6/6) in LUTD (+) group were not found to be affecting the graft survival outcomes. One patient who received his kidney from a cadaveric donor in LUTD (+) group was lost due to respiratory problems secondary to dialysis 10 years after transplant.

Conclusions: All end stage renal disease patients with severe LUTD should be investigated as renal transplantation candidates and their bladder must be rehabilitated. With careful patient selection, preoperative evaluation, and close
postoperative monitoring, renal transplantation can be performed safely in these patients.

**O72**

THE EFFECT OF RENAL TRANSPLANTATION ON FERTILITY IN UREMIC MEN ON HEMODIALYSIS

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**Introduction:** Male infertility is a serious problem especially in young patients. Spermogenesis is now known to be an extremely sensitive process and can be depressed temporarily or permanently, by various factors apart from primary disease of endocrine glands. Among these are heat, radiation, severe malnutrition and chronic debilitating diseases such as chronic renal failure, diabetes mellitus and tuberculosis. Since up to 40% of men receiving a kidney transplant are younger than 50 male fertility with kidney transplantation is a major concern. Advances in kidney transplantation technology allow patients with kidney failure to survive after receiving a transplanted organ. It has therefore become important for both clinical investigators and transplant recipients to understand the effects of transplantation on patient fertility and on children fathered after the procedure.

**Materials and Methods:** In this study we compared two groups comprised of 20 patients in each group. Group one include 20 patients on hemodialysis at least 2 years that compared with group two consist of 20 kidney recipients with 2 years successful graft function. Evaluation between two groups were done in testis biopsy, semen Analysis, gonadotropin hormones and also Hb, Hct, BUN, Cr, CRP. Then we assessed the effect of transplantation on fertility.

**Results:** Mean age of men on hemodialysis was 37.35 ±10.58 years and mean age of transplanted men was 34.75 ± 6.82. In hemodialysis group from 20 biopsies 11(55%) had normal spermatogenesis and interstitium and 9 (45%) abnormality were seen. In transplanted group from 20 performed biopsies 16 (80%) had normal spermatogenesis and interstitium and 4 (20%) abnormality were observed. Semen Analysis indicis in quality and quantity had improvement after transplantation, since improvement in volume, count, motility, live ratio, morphology were statistically significant. (P= 0.0001) LH mean on hemodialysis was 12.49 ± 7.28 and after transplantation was 7.05 ±3.02 (P= 0.004), FSH mean on hemodialysis was 13.15 ± 32.27 and after transplantation was 6.5 ± 7.07 (P= 0.377) .PRL mean on hemodialysis was 41.93± 65.87 and after transplantation was 13.73 ±5.77 (P= 0.064). TSH mean on hemodialysis was 1.8± 0.99 and after transplantation was 1.7 ±0.9 P= 0.89.

**Conclusions:** In our practice we could define that renal transplantation is able to correct histologic and endocrinologic abnormalities and also verify quality and quantity of semen, and it is important particularly in men with chronic renal failure who hope to father a child.

**O73**

RECURRENT URINARY TRACT INFECTION AMONG RENAL TRANSPLANT RECIPIENTS: RISK FACTORS AND LONG TERM OUTCOME


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**Introduction:** Urinary tract infection (UTI) is the most common type of bacterial infection contracted by recipients of renal allografts and may have an adverse impact on graft and patient’s survival. We aimed to evaluate the risk factors of recurrent UTI in renal transplant recipients, and its impact on patient and graft survival.

**Materials and Methods:** 86% of 1019 patients (who were transplanted from 2000 to 2010 in Hamed Al-Essa Organ Transplant Center of Kuwait) developed at least one episode of UTI however; only 6.2% patients had recurrent UTI. We compared the patients who had recurrent UTI (group 1) and those who had no or non-recurrent UTI (group 2) against their risk factors.

**Results:** Patients of group 1 were significantly younger than those of group 2 (34.9 ± 23vs. 42.8 ± 16 year, p<0.001 respectively), with female preponderance (p<0.001). The percentages of thymoglobulin induction(21.5%) were significantly higher in group 1. Patients with pretransplant urological problems experienced significantly more recurrent UTI (p<0.0001). Hepatitis C patients were significantly more prevalent among group 1(10.8% vs. 3.8%, p=0.008). Long term graft outcome (functioning, failed and lost follow up) were 78.5%, 21.5 and 0% vs. 84.5, 13.9 and 1.2% respectively (P = 0.18). The patient outcome (live, dead and lost follow up) were73, 1.6 and 25.6% vs. 62.1, 0.3 and 33.6% respectively (P = 0.187).

**Conclusions:** Adult age, female sex, thymoglobulin induction, pretransplant urological problems and hepatitis C infection were considered risk factors of recurrent UTI among our renal transplant recipients. However, recurrent UTI did not adversely impact graft or patient survival.
ORGAN TRANSPLANTATION IN AZERBAIJAN

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Introduction: Many innovations have been made in the field of transplantation in the world and now it is the lifesaving procedure. If history of transplantation is going to many years back in the world, it is very young in Azerbaijan. The transplantation in our country started in 1971-1972 by Dr. Javadzade who performed both living and cadaveric kidney transplantation. But this process stopped because of certain reasons. After Soviet Union is collapsed the professionals again launched this business. In early 2000 few kidney transplantation was carried out with the help of our foreign colleagues.

Materials and Methods: Azerbaijani doctors educated in Turkey made transplantation actual issue. In 2008 first liver transplantation in Caucasian and Central Asia region was performed in Azerbaijan by our center specialists. Parallel to this we restored kidney transplantation.

Results: At present we succeeded in both liver and kidney transplantation. Apart from our centre, there are few hospitals also performing transplantation with the help of foreign specialists.

Conclusions: Unfortunately we would like to stress the fact that we are performing only living donor transplantation. We hope and believe that soon we could start also cadaveric organ transplantation.

THE LONG TERM PATIENTS AND GRAFT SURVIVAL OF KIDNEY TRANSPLANT PATIENTS: AKDENIZ UNIVERSITY EXPERIENCE

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Introduction: Kidney transplantation (KTX) is best therapeutic option for endstage renal disease patients. It is well known new immunosuppressive drugs provided the decrease at acute rejection rate in KTX patients. In this study we aimed to investigate if there is beneficial effects of these new drugs on graft and patients survival.

Materials and Methods: We retrospectively analysed the data of 3184 KTX patients operated between 1978 and 2014. We divided into patients into 2 groups; Group I (n=342) included the patients operated between 1978 and 2000 (n=342), Group II included the patients operated between 2000-2014 (n=2842). We compared the patients and graft survival between two group.

Results: Median age of group I and II were 32 and 38 respectively (p<0.05). HLA matching in Group I was better than Group II (4±1.5 vs 3±2, p<0.05). One, 5 and 10 year graft survival in group I were lower than group II (82%, 61% and 47% vs 95%, 59% and 78%, respectively, p<0.01). We also found that one, 5 and 10 years patients survival in group I were lower than group II (96%, 74% and %65 vs 97%, 96% and 94%, respectively, p<0.01).

Conclusions: This study showed that at the last decade, graft and patient survival have been prolonged.

SURGICAL COMPLICATIONS OF RENAL TRANSPLANTATION AND RESULTS OF MANAGEMENT EXPERIENCE WITH 2100 CONSECUTIVE IN 2100 RECIPIENTS

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Introduction: Intra or postoperative surgical complications of renal transplantation (RTX) is a serious problem and can lead to graft dysfunction or loss and even patient loss. We have studied retrospectively the demographic of intra and post transplant surgical complications as vascular, urological complications for 23 years (1990-2013).

Materials and Methods: Records of all recipients were reviewed and retrospective data was analysed as: intra and post transplant surgical complications (vascular, urological complications (ureterovesical junction leak, ureteral stricture) and symptomatic Lymphocele. Finally, the results of procedures for management of these complications were reported.

Results: Out of 2100 RTX, 1580 were performed from living and 520 from deceased donors. Intraoperative haemorrhage that needed blood transfusion occurred in 36 cases. 20 cases had bleeding after operation: 12 from soft tissue and 8 from anastomosis site, in one case because of deep infection and severe bleeding the graft was removed. Vascular events like arterial and venous thrombosis, torsion and kinking occurred in 29 cases (1.2%) and the grafts were saved by immediate exploration about 70%. Urologic complications occurred in 42 cases (2%), 13 with distal end ureteral necrosis which were managed by reimplantation. Ureteral stricture occurred in 29 cases (16 short and 13 extensive), short stricture managed by endourological procedures but we reconstructed ureter by ureteropyeloplasty, ipsilateral pyelopyeloplasty, contralateral
POST-TRANSPLANT C-REACTIVE PROTEIN PREDICTS GRAFT FUNCTION IN KIDNEY TRANSPLANT RECIPIENTS

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Introduction: C-reactive protein (CRP) is an acute phase protein that produced by hepatocytes in response to IL-6. High serum levels of CRP are predictive for cardiovascular diseases in patients ongoing dialysis and even in healthy individuals. Although the outcomes of pre-transplant CRP levels and graft function was shown in the literature, the effects of post-transplant CRP levels on graft function is not well-known. The aim of this study was to evaluate the factors predicting post-transplant CRP levels and to determine the renal and cardiovascular outcomes of pre and post-transplant CRP levels.

Material and Methods: One hundred and fifty renal transplant recipients (113 male, median age was 38.9±10.8 years) were cross-sectionally analyzed. The median follow-up was 32 months. All subjects underwent clinical and laboratory evaluations (serum creatinine, calcium, phosphorus and albumin, estimated glomerular filtration rate (eGFR ), 24 hour urinary protein loss, complete blood count). Mean pre-transplant and post-transplant CRP levels were analyzed by the 1st, 3rd, 6th, 12th and 24th months according to mean post-transplantation CRP levels: Group 1 (CRP >20 mg/L: n: 21) and group 2 (CRP 6-20 mg/L: n: 40), group 3 (fluctuations in CRP levels; range: 6- 48 mg/L, n: 21) and group 4 (CRP <6 mg/L; n: 76). Arterial stiffness was measured by carotid-femoral pulse wave velocity (PWv) by SphygmoCor system.

Results: Pre-transplant CRP levels were similar in four groups. Patients in group 3 had significantly lower eGFR (p<0.005), lower left ventricular systolic function (p:0.035) and higher duration of dialysis before transplantation, PWv, proteinuria and left ventricular mass index (0.004, 0.000, 0.004 and 0.036, respectively) when compared to other three groups. Group 1 patients had significantly higher PWv, proteinuria, left ventricular mass index and lower eGFR values when compared with group 4 (p<0.001, 0.000, 0.028, 0.008, respectively). In regression analysis; eGFR (0.002) and PWv (p:0.001) were detected as the predictors of post-transplantation CRP levels (p<0.005).

Conclusions: Fluctuating and high stable (>20 mg/L) post-transplant CRP levels predicts eGFR, proteinuria, left ventricular mass index and PWv after transplantation. Thus, CRP levels may be a useful marker to anticipate graft survival and cardiovascular morbidity in renal transplant recipients.

Efficacy and Safety of Lamivudine and/or Tenofovir Plus a Year of Hepatitis B Immunoglobulin Against HBV Recurrence After Liver Transplantation

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Introduction: Hepatitis B immunoglobulin (HBIG) prophylaxis in combination with antiviral drugs is well-accepted treatment recommended by many centers for prevention against hepatitis B virus (HBV) recurrence after liver transplantation. However, there is no consensus on a gold standard prophylaxis protocol and several controversies over the duration, dose and route of administration of HBIG exist among transplant centers. We conducted this study to evaluate the safety and effectiveness of intramuscular HBIG in combination with lamivudine and/or tenofovir and discontinuation of HBIG after one year for prevention of HBV recurrence after liver transplantation in our center.

Materials and Methods: Patients with HBV-related liver failure underwent primary liver transplantation in Imam Khomeini Hospital, Tehran University of Medical Sciences from 2006 to March 2013 were enrolled in the study. The data of recipients were recorded prospectively. The prophylaxis protocol was intraoperative IM HBIG 10,000 IU followed by 5000 IU daily for the first 6 days, weekly for a month, every two weeks for the next month and monthly for a year post-LT. The target anti-HBs titer was greater than 250 IU/L. All HBV patients received lamivudine before and after transplant. Tenofovir was added to lamivudine after transplant in patients who were transplanted from 2012 (n=11).

Results: From January 2006 until March 2013, 168 liver transplantations were performed in 162 patients. Twenty-three patients (14.2%) who underwent liver transplantation due to HBV-induced liver failure were enrolled in the study.
Two patients had hepatocellular carcinoma and four had hepatitis D virus in addition to HBV infection. The overall mean age was 47.8±7.5 years (range=26-59) with mean MELD score of 21.1±5.9. Nineteen patients (82.6%) were males. All patients were negative for HBV DNA at the time of transplant. The mean follow-up time was 39.6±25.3 months (range=12.8-87.7). Just one patient (4.3%) experienced HBV reinfection at 44.7 months post-transplant who was successfully treated with tenofovir and was alive until the end of the study. Four patients (17.4%) died during the follow-up period due to non-HBV cause. Deaths occurred at 6, 11, 60 and 119 days post-transplant due to primary non function, cardiac arrest, hepatic artery thrombosis-related sepsis, and post-transplant lymph proliferative disorder, respectively.

Conclusions: IM HBIG in combination with lamivudine and/or tenofovir and discontinuation of HBIG after a one-year period post-LT may be a safe and cost-effective protocol for the prevention of post-LT HBV recurrence.

O79
INTERLEUKIN 28 B GENOTYPE AS A PREDICTOR OF RESPONSE TO THERAPY WITH PEGYLATED INTERFERON PLUS RIBAVIRIN IN HCV INFECTED EGYPTIAN PATIENTS
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Introduction: Hepatitis C virus (HCV) infection is a major health problem throughout the world. Last estimates indicate that 175 million people are infected. Egypt has the highest worldwide prevalence of HCV (10-20%). HCV causes a chronic infection that can result in chronic hepatitis, liver cirrhosis, and hepatocellular carcinoma. Predictor of response to therapy with pegylated interferon (PEG-IFN) plus ribavirin (RBV) serve as decision tools for physicians to identify patients who are likely or unlikely to achieve sustained virological response (SVR) and to consider pre-treatment counseling in those patients with a reduced likelihood of successful therapy, perhaps sparing them the side effects and cost of therapy. Single nucleotide polymorphisms (SNPs) in the gene that encodes interleukin IL28B predict response of patients with chronic hepatitis C to antiviral therapy.

Materials and Methods: We investigated the role of polymorphism IL28B rs8099917 on SVR of treatment of HCV infected Egyptian naïve patients. Our study was conducted on 153 Egyptian patients infected with HCV who treated with pegylated interferon α plus ribavirin. Successful treatment was ascertained based on SVR. Genotyping of rs8099917 polymorphisms near the IL28B gene was performed. Patients were grouped to TT, TG and GG. IL-28B genotypes (rs8099917) were analyzed for association with treatment response. We have demonstrated that carriers with the TT genotype are more likely to achieve SVR.

Results: We found that the rate of SVR was significantly higher near three times response (73.3% vs. 26.7%, p = 0.002) in patients with the IL28B major allele (TT, wild type) compared to those with the minor allele (non TT, mutant type). In conclusion, IL28B gene polymorphism was significant pre-treatment predictors of response to PEG-IFN/RBV in chronically infected Egyptian patients with HCV.

Conclusions: Analysis of IL-28B genotype might be used to guide treatment for these patients particularly in the context of emerging therapies and direct-acting antiviral agents.

O80
HBV/HDV-RELATED LIVER TRANSPLANTATION RESULTS OF OUR PATIENTS: SINGLE-CENTER DATA
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Introduction: Hepatitis delta virus (HDV) is a defective RNA virus that requires the presence of hepatitis B virus (HBV) to be infectious. HBV-HDV coinfection or superinfection leads to chronic liver disease with the consequences of poor treatment results and poor prognosis. Post transplant period of these patients also face with different and difficult problems. The aim of our study is to report the long term data of our liver transplant recipients who had HBV-HDV-related chronic liver disease

Materials and Methods: This retrospective, longitudinal study includes 25 consecutive hepatitis B surface antigen (HBsAg)-positive patients with anti-HDV antibodies who attended to Gastroenterology and Hepatology department, Baskent University between 2003 and 2014. HBV and HDV infections were diagnosed by commercially available enzyme-linked immunosorbent assays for HBsAg and anti-HDV antibody. The data of patients (age, sex, antiviral treatments, post transplant use of hepatitis B hyperimmunglobulin and/or nucleoside/nucleotide analogs, the presence of hepatocellular carcinoma transplation age, follow-up time) were extracted from patients’ records.

Results: The data of 25 patients with chronic hepatitis B+D virus patients who underwent liver transplantation were evaluated. 32% of patients were females (male 17 and female 8). The median age was 44 years (range 23-63). The status of serum HBe Ag level was negative in all patients. At the time of transplantation, 4 patients were positive for HBV DNA and 11 patients also had hepatocellular carcinoma. Post
transplant follow-up period was 59 months (range 3-120). During follow up 4 patient died and 4 patients lost follow up while 17 patients are still alive. Post-transplant survival of patients with and without HCC was 50.45 months (range 3-84) and 65.8 months (range 4-120) respectively. Three patients experienced acute rejection period and treated successfull with pulse doses of prednisolone. Hyperimmuneglobuline therapy was used in conjunction with oral nucleotide/nucleoside analogs for 18 months and thenafter ceased. During posttransplant follow up 4 patients’ antiviral medicine were changed to either entecavir or tenofovir because of drug resistance and otherwise all patients remained as HBV DNA negative during follow up.

Conclusions: Patients transplanted for hepatitis B and D virus (HBV/HDV) cirrhosis even with hepatocellular carcinoma have favorable prognosis and good long term results. Close follow up patients and effective viral supression with suitable drugs are key factors for efficient patient care.

O81
LATENT TUBERCULOSIS INFECTION IN LIVER TRANSPLANTATION OF ADULTS IN IRAN: CHEMOPROPHYLAXIS AND THE EFFECT ON SURVIVAL RATE

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Introduction: Immunosupression in liver transplantation (LT) with immunosuppressive drugs could lead to tuberculosis (TB) reactivity; on the other hand, hepatotoxicity due to anti-tuberculosis drugs can worsen the condition of these patients. The main objective of this study was to investigate the prevalence of latent tuberculosis infection (LTBI), risk factors and its effects on survival rate of patients and its prophylactic therapy in liver transplant patients in Iran.

Materials and Methods: In this retrospective cohort study, tuberculin skin test was used to detect LT. We reviewed the medical records of all patients candidate for LT during 2000-20012 in transplantation ward of Nemazee Hospital, Shiraz southern Iran as the sole center of LT in Iran. 661 patients were eligible to enroll in study who TB Skin Test were recorded in medical records. Demographic data, clinical and laboratory findings, risk factors for TB, reports of TB skin test and chest radiography, chemoprophylaxis regimen of LTBI and its complications and patients outcome was recorded in a questionnaire. According to our protocols, chemoprophylaxis of LTBI is isoniazide prescribed for 9 months and is preferentially used prior to LT. It is recommended for patients that the induration diameter of their TB skin test is 10 millimeter or more. We used The Kaplan-Meier method to compare survival rates of patients with and without LTBI prior and after LT.

Results: The prevalence of LTBI in adults was 33.6%. Risk factors for TB were not found in 50.2% of adults and diabetes receiving immunosuppressive therapy were the most common ones (18.1% and 12.2%, respectively). Majority of patients with skin induration at least 10 millimeter received isoniazid according to our protocol (88.5%) and in 81.1% of patients, treatment was completed prior to transplantation. Chemoprophylaxis stopped in 5 patients (9.1%): 3 due to increasing liver enzymes more than five times of normal values and 2 due to repeated vomiting. In adults, only one patient (0.45%) developed to hepatic active TB. Prior to transplantation the survival rate of patients with LTBI was significantly less than those without LTBI (P value= 0.004). No significant difference in survival rates observed among two groups in post transplantation period (P value=0.35).

Conclusions: LTBI is common among Iranian patients candidate for LT. Chemoprophylaxis with isoniazid is tolerated well by adult patients candidate for LT. Lower survival rate among adults prior to LT indicates need for applying newer methods to define LTBI such as interferon gamma release assays, and change in protocols of chemoprophylaxis.

O82
PREDICTORS OF CYTOMEGALOVIRUS INFECTION IN CHILDREN WITH RENAL TRANSPLANTATION, A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Cytomegalovirus infection is one of the serious complications of renal transplantation in children. In this meta-analysis, we assessed the incidence and risk factors of cytomegalovirus infection in pediatric renal transplant recipients.

Materials and Methods: A massive search was done in searching systems such as PubMed, Ovid, MD-consult and ProQuest databases until February 2014. We also assessed reference lists of all articles which were included in this meta-analysis. Any study that was about the cytomegalovirus infection and its risk factors in pediatric renal transplant recipients was included. Eight articles were included in this meta-analysis. In total, 876 pediatric recipients were assessed.

Results: In the different studies, cytomegalovirus infection ranged from 7.5% to 40% with a pooled incidence of 25.1%. Positive donor for CMV IgG regardless of serostatus of the
recipient was the most important independent risk factor for CMV infection in this meta-analysis (relative risk: 4.17, 95% CI: 2.62-6.64, P<0.0001). There was not any association between the use of anti-lymphocyte antibodies, recipient sex and age and source of transplant with the incidence of CMV infection.

Conclusions: In summary, D+ serostatus is an important risk factor for CMV infection/disease in pediatric renal transplantation. We think that recipients with CMV positive donors regardless of their serology are suitable candidates of prophylactic treatment.

O83
RENAL ALLOGRAFT BIOPSY FINDINGS IN 475 PEDIATRIC LIVE RELATED RENAL TRANSPLANT PATIENTS FROM A SINGLE CENTER

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Introduction: There is scanty data in literature on the renal allograft biopsy findings in pediatric renal transplant patients, especially in a live related renal transplant setting. This study was designed to determine the causes of renal allograft dysfunction as detected by renal allograft biopsies in a large cohort of pediatric renal transplant recipients.

Materials and Methods: A retrospective study of 511 renal allograft biopsies from 475 pediatric renal transplant patients was carried out from 1986 to 2011. Their demographic, clinical, laboratory, and biopsy findings were collected and analyzed according to three eras of study period, Era-1 (1986-1995), Era-2 (1996 to 2005) and Era-3 (2006 to 2011) based on development of expertise and facilities for histocompatibility matching and to detect early the allograft rejection, infection and drug toxicity and the availability of immunosuppressive drugs.

Results: The mean age of recipients was 14.82±2.9 years with a M:F ratio of 2:3:1. Acute rejection was seen in 118 (23%) cases, cyclosporine toxicity in 107 (21%), interstitial fibrosis/tubular atrophy (IFTA) in 130 (25.4%) and acute pyelonephritis in 21 (4.1%) cases. Acute rejection declined progressively from 48% in Era-1 to 35% in Era-2 to 17% in Era-3. Rare lesions included; infarction, 9(1.7%), recurrent/de novo glomerulopathy, 6(1.1%), oxalosis, 3(0.5%), and polyoma virus nephropathy, 1(0.2%).

Conclusions: The study defines the causes of graft dysfunction as observed on dysfunctional graft biopsies in a large cohort of live related pediatric renal transplant patients. The incidence of acute rejection declined progressively over the three eras of study.

O84
OUTCOME AFTER RENAL TRANSPLANTATION IN PEDIATRIC PATIENTS: RESULTS OF 20 YEARS EXPERIENCE IN A SINGLE CENTER

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Introduction: The incidence of renal failure in children under 19 years has been put at approximately 11 per million (US data system). In recent years the number of children who survive renal disease and become candidates for renal transplantation have been increased. In this study we reviewed 20 years of our experience in pediatric renal transplantation to determine the rate of patient morbidity and graft survival.

Materials and Methods: Of 1600 renal transplantation performed in our center (1989-2010) 190 were done on children (6-18 years). Causes of renal failure were neurogenic bladder 22 cases, reflux nephropathy 31, posterior urethral valve 6 cases, prunebelly syndrome 2 cases, chronic glomerulonephritis 65 cases. The remaining failures were of unknown etiology. 16% of kidneys were harvested from related living donor and, 66% from unrelated living donor and 22% from cadaveric donors. Immunosuppresive therapy was given with three drugs (prednizocon, azathioprine or mycophenolate mofetile and cyclosporine). In all of the patients with the exception of 11 recipients of HLA identical sibling, who did not receive cyclosporine. The Kaplan-Meier curve was constructed to assess graft and patients survival and the long rank test was used to assess the effect of kidney source and date of renal transplant.

Results: Immediate diuresis occurred in all grafts. Surgical complications included two urinary fistula. Two ureteral strictures and 3 clinical lymphocele which were all managed surgically. The most common causes of graft failure were chronic rejection and recurrence of primary renal disease. The graft survival rate after 1, 2, 5, 10 and 15 years were 97%, 88%, 79%, 65% and 53% respectively.

Conclusions: Renal transplantation in children results in improvement in physical growth, mental development. Rate of graft survival chronic rejection recurrence of primary renal disease and medical non compliance, continue to be problematic.
O85
EFFECTS OF INTERLEUKIN 2 RECEPTOR BLOCKERS ON PATIENT AND GRAFT SURVIVAL IN RENAL-TRANSPLANTED CHILDREN

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Introduction: Renal transplantation is therapy of choice for children with End Stage Renal Failure (ESRF); however there are many conditions that affect patient and graft survival such as rejections and opportunistic infections. Monoclonal antibodies block interleukin-2 receptor on alloantigen-reactive T-Lymphocytes and induce selective immunosuppression. It is postulated that Induction therapy with these agents may decrease acute rejection and improve graft survival with no significant side effect or increase in the incidence of viral infections. The aim of this study was to examine the effects of induction therapy with Interleukin 2 Receptor Blockers (Basiliximab and Daclizumab) in our pediatric patients.

Material and Methods: Two hundred fourteen children aged under 13 years received renal transplantation in Labbafinejad university hospital between 2003-2012 from them 186 patients enrolled the study. All patients received Prednisolone, Cyclosporine and Mycophenolate Mofetil or Azathioprine as basic immunosuppressive therapy. Patients were divided into two groups according to receiving induction therapy with IL2-receptor blockers. They investigated for acute rejection episodes, CMV and BK virus infection and one and three year's patients and graft survival.

Results: From 186 renal transplanted children included in this study, 36 patients received Interleukin 2 Receptor Blockers (Basiliximab and Daclizumab) which served as treated group (group 1) and 150 patients in control group (group 2). The mean age of patients was 10.4±2 years and 55.6% were males. In first six months of transplantation, 8 patients in group 1 had one episode of acute rejection and no one had two episodes, so early acute rejection rate was 8/36 (22%). In control group 37 patients had one episode and 3 patients had 2 episodes of acute rejection, so early acute rejection rate was 43/150 (28.6%), therefore early acute rejection rates were lower in group 1 when compared with patients in group 2. Late acute rejection rates did not show any difference in group 1 and 2 (27.7% vs. 27.3% respectively). There was lower prevalence of steroid-resistance rejection in group 1 patients (5.5%) compared with 6.6% patients in group 2, but it did not reach statistical significance.

None of the patients in IL2-R blocker group died at 1 year follow up (patient survival 100%). However in control group, 4 (2.6%) patients died toward the end of first year (patient survival 97.4%). cause of death of these patients were Acute Tubular Necrosis (ATN) and acute rejection and complications of Acute Renal Failure (ARF) in two patients, cardiovascular complications in one and sepsis in another. The difference in patient and graft survival was not significant; however when patients in group 1 and 2 were age and sex matched with equal number the difference in patient survival was significant (p < 0.05).

Conclusion: Induction therapy with IL2-R blockers reduce the rate of early acute rejection, but had no effect on late rejections. Patient survival was significantly better in treated group, but graft survival did not reach statistical significance. A longer period of follow up is required to discern a clear advantage for induction therapy with these agents in children.

O86
PREVALENCE OF BK VIRUS AMONG UNITED ARAB EMIRATES KIDNEY TRANSPLANT RECIPIENTS: A SINGLE CENTER RESULTS

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Introduction: BK viremia and nephritis are increasing problems in renal transplant recipients. The absence of a safe and effective anti-viral therapy made screening-based prevention a recommended strategy. Data about the prevalence of BK viremia in United Arab Emirates renal transplant recipients is lacking.

Materials and Methods: All renal transplant followed in our transplant clinic between 2012 and 2013 (ns116) were screened by using quantitative PCR. Urine and blood quantitative real-time polymerase chain reaction (PCR) for the BK virus (BKV) was performed in all the study patients. Renal biopsy was performed only in patients with deteriorating renal function associated with positive PCR. Patients who showed positive BKV PCR were followed-up for six to twelve months. This included clinical and kidney function assessment along with BKV PCR viral load.

Results: Among the 116 kidney transplant recipients studied, 65 (56%) were male, age 51±15 years, with a transplantation vintage of 131±61 months, 17 (14.7%) were positive for BKV PCR. Three (2.7%) showed viremia, two of them had deterioration of kidney function, renal biopsy confirmed the diagnosis of BK nephropathy in both cases. The three cases were managed by reducing the immunosuppressive treatment with stabilization of their kidney function. Cases with stable renal function and positive urine for BKV cleared the virus spontaneously after follow-up after minor
oral reduction of the immunosuppressive treatment or without any intervention. None of our patients lost the graft due to BK NP.

Conclusions: Our study suggests that BK virus is not uncommon in our kidney transplant recipients. Routine screening suggested by KDIGO Guidelines could help minimizing its detrimental impact on the transplant outcome.

O87
MANAGEMENT AND OUTCOME OF BK VIREMIA IN RENAL TRANSPLANT RECIPIENTS: A PROSPECTIVE SINGLE CENTRE STUDY

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Introduction: BK viremia can lead to BK nephropathy which can progress to graft loss. Our prospective study shows management and outcome of BK viremia in renal transplant recipient.

Materials and Methods: In this study 34 recipients were diagnosed with BK viremia between 2002 and 2012. They were followed for at least 5 years. Standard immunosuppressive therapy consisted of Steroid, Azathioprine / MMF, Neoral / Tacrolimus was employed. In five patients induction was done with either ATG or IL-2 antagonist. Quantification of BK virus DNA surveillance in plasma / urine was performed at six and twelve months after transplant. Patients with significant viremia (defined as > 10,000 viral copies / ml) underwent graft biopsy and treated with 30-50% reduction in doses of immunosuppression without antiviral therapy. Target CNI level were lowered in the significant viremia group while it was unchanged for all other patients.

Results: 2726 renal transplants were carried out between 2002 and 2012. Out of these, 34 (8.0%) developed significant BK viremia. Eleven patients (39%) developed BK nephropathy, while 23 (61%) presented with viremia without evidence of BK nephropathy on graft biopsy. Mean plasma level of BK virus DNA declined by 98% at 1 yr after peak viremia. In all 13 patients (26%) developed acute rejection and all of them responded to either Solumedrol or ATG.

Conclusions: Reduction in immunosuppression alone resulted in the successful resolution of viremia with preservation of graft function.

O88
IMPACT OF CYTOMEGALOVIRUS ON ANGIOGENESIS IN RENAL ALLOGRAFTS AND ITS ASSOCIATION WITH INTERSTITIAL FIBROSIS AND GRAFT SURVIVAL

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Introduction: The aim of this study is twofold: first to clarify the influence of the cytomegalovirus (CMV) on the promotion of angiogenesis in renal allografts, second to show how CMV and angiogenesis association effects the development of interstitial fibrosis (IF) and graft survival.

Materials and Methods: All indicated and follow-up biopsies of 85 patients with a mean age of 29.6±11 years at the time of transplantation were evaluated. Of 85 patients 29 had CMV infection (Group 1) and 56 had no CMV infection and used as a control group (Group 2). The microvessel density (MVD) was high lightened by CD34 immunostaining. Tubular and interstitial expressions of VEGF and density of macrophages in the interstitium were examined. Follow-up biopsies of all patients were evaluated for the development of IF.

Results: Total 26 (89.7%) patients in group 1 showed acute rejection (AR) episode at least one time, while only 36 (64.3%) patients in group 2 showed AR (p=0.01). Statistically significant more AR episodes were found to be occurred in group 1 (1.52±0.9) compared to group 2 (0.98±0.9) patients (p=0.014). MVD and macrophage infiltration was positively correlated with VEGF expressions (p<0.001). A significant difference in tubular and interstitial VEGF expressions were found between patients with group 1 and group 2 (p<0.001). MVD was highest in group 1 patients compared to group 2 patients (p<0.001). MVD was highest in group 1 patients compared to group 2 patients (p=0.01). In follow-up biopsies development of IF and graft loss found earlier in group 1 patients compared to group 2 patients (p<0.01 and p<0.05 respectively).

Conclusions: Our results suggest that CMV infection play an important role in the induction of angiogenesis. In addition we point out that CMV may potentate interstitial fibrosis in vivo by stimulating angiogenesis and cause early interstitial fibrosis and poor outcome.
O89

WHICH CMV VIRAL LOAD THRESHOLD SHOULD BE DEFINED AS CMV INFECTION IN KIDNEY TRANSPLANT PATIENTS?

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Introduction: Cytomegalovirus infection is prevalent in kidney transplant patients. Which level of CMV viral load should be accepted as the gold standard for CMV infection diagnosis is a relatively unsettled issue. Viral load quantification needs standardization, and this will permit the generation of clinically relevant viral thresholds for the management of patients. In this study we evaluated the correlation of different clinical and para-clinical parameters with CMV viral load, also we tried to determine; accepting of which CMV viral load threshold as obtained by Quantitative Real Time PCR (TaqMan Method), results in most sensitivity and specificity for predicting different clinical and paraclinical parameters.

Materials and Methods: Seventy three kidney transplant patients (mean age=35.97+/-14.07years, 39 male and 34 female) entered this retrospective study. Then mean of time duration for kidney transplantation was 15.9+/-32.55 months. Correlation between variables; age, gender, serum creatinine, serum urea, white blood cells count, platelets count, serum potassium, sodium and liver enzymes level; also occurrence of clinical manifestations like; colitis, retinitis, pneumonitis and acute rejection with serum CMV viral load was evaluated. The area under curve (AUC) of the receiver operative curves (ROC) characteristics was used to define which level of CMV viral load results in the most sensitivity and specificity for different clinical and paraclinical parameters between infected and non-infected patients. Quantitative Real Time PCR (TaqMan Method) was used for measuring CMV viral load. A written consent was obtained from all patients.

Results: Platelets compared with other clinical and para-clinical parameters, had the strongest correlation with CMV viral load, in kidney transplant patients (r=-0.314, p=0.007). There was no correlation between CMV viral load and other laboratory parameters also clinical manifestation like; fever, occurrence of acute rejection, diarrhea, retinitis, pneumonitis, and involvement of liver as estimated by liver enzymes elevation. Choosing a threshold of more than 10000 copies/ml of CMV viral load for defining CMV infection resulted in significance for differing in both white blood cells and platelets count between infected and non-infected patients (AUC=0.68, p=0.023 and AUC=0.70, p=0.014 respectively). Acceptance of no viral load threshold as gold standard for infection was able to discriminate other laboratory and clinical finding between, infected and non-infected kidney transplant patients.

Conclusions: Accepting a CMV viral load threshold of more than 10000 copies/ml as CMV infection has the most sensitivity and specificity for predicting both white blood cells and platelets count in kidney transplant patients. There is no statistically significant correlation between CMV viral load and the severity of clinical manifestations and other laboratory findings in kidney engrafted patients. No CMV viral load threshold as gold standard for CMV infection diagnosis, has the discriminatory power for differing clinical and para-clinical parameters other than platelets and white blood cells count between presumably infected kidney transplant patients and those not infected.

O90

DIFFERENTIATION OF UMBILICAL CORD DERIVED MESENCHYMAL STEM CELLS TO INSULIN PRODUCING CLUSTERS

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Introduction: Diabetes is a major chronic metabolic disease in the world. Mesenchymal stem cell (MSCS) having the ability to differentiate to functional insulin producing cells. In this study, human umbilical cord mesenchymal stem cells (HUMSCS) were differentiate in to pancreatic β-like cells.

Materials and Methods: The samples were collected from full-term cesarean section delivery at the Hafez hospital. HUMSCS in sterile condition were cultured and differentiated in 3 steps for 20 days in DMEM-F12, Retinoic acid (RA), Epidermal Growth Factor (EGF), exendin-4, and Fetal Bovine Serum (FBS). DTZ staining employed for determining the presence of insulin and RT-PCR was done for identifying of gene expression of insulin, PDX1 and NGN3. The Insulin concentration was also evaluated by Immunoradiometric assay.

Results: HUMSCS under special conditions gradually changed from fibroblast-shaped cells in to epithelial-like cells and eventually to IPC. RT-PCR experiments found that, these cells expressed insulin, PDx1 and NGN3 genes. The cells became red color when stained with DTZ and the insulin secretion was confirmed.

Conclusions: HUMSCS have the ability to differentiate in to islet-like cells in vitro and may be a potential new source for cell transplantation in diabetes treatment.
O91
RADIOThERAPY AS DOWN STAGING TREATMENT TO LIVING DONOR LIVER TRANSPLANTATION FOR HEPATOCellular CARCINOMA

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Introduction: Curative surgical resection cannot be an option for most patients with hepatocellular carcinoma (HCC) because of underlying liver disease or extent of tumor. Radiotherapy (RT) for HCC is not generally considered a treatment of choice but RT has been used in advanced HCC patients such as portal venous tumor thrombosis (PVTT) and multiple large tumors. Recently, some studies showed that RT may be bridge to living donor liver transplant (LDLT). We report our experience with RT as pretransplant therapy.

Materials and Methods: Between May 1996 and March 2013, total 1360 patients treated by LT in our institution. Thirteen patients had history of RT and we analyze these patients retrospectively. Objective tumor response is evaluated with CT and/or MRI according to modified RECIST criteria and outcomes is estimated by disease free survival (DFS) and overall survival (OS).

Results: Before RT, seven patients exceed Milan criteria, and four patients have PVTT (Table 2). All patients are LDLT and interval between RT and LDLT is 719.7 days (Table 3). 3, 6 months and 1 year DFS is 82.5%, 73.3%, 55.0%, respectively. And as shown in Table 4, low AFP group (<20ng/mL) and good objective tumor response after RT group have good prognosis compare with the other group.

Conclusions: LDLT is feasible in advanced HCC patients who have low AFP levels and good tumor response after RT.

Table 1. Characters of liver tumor in pre-radiation therapy

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tumor Size</td>
<td></td>
</tr>
<tr>
<td>&lt; 1cm</td>
<td>0</td>
</tr>
<tr>
<td>1 – 5cm</td>
<td>10</td>
</tr>
<tr>
<td>&gt; 5cm</td>
<td>2</td>
</tr>
<tr>
<td>Tumor Number</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>1 – 3</td>
<td>1</td>
</tr>
<tr>
<td>&gt; 3</td>
<td>2</td>
</tr>
<tr>
<td>Beyond Milan Criteria</td>
<td>7</td>
</tr>
<tr>
<td>Presence of Portal Vein Tumor Thrombus</td>
<td>4</td>
</tr>
<tr>
<td>Presence of Bile Duct invasion</td>
<td>1</td>
</tr>
<tr>
<td>Extra-Hepatic metastasis</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 3. Relationships between AFP and prognosis.

<table>
<thead>
<tr>
<th>Prognosis</th>
<th>Value (day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease-Free Survival, Mean (range)</td>
<td>861 (21 - 2911)</td>
</tr>
<tr>
<td>Overall survival, Mean (range)</td>
<td>1018.3 (82 - 2929)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prognosis</th>
<th>Value (day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease-Free Survival, Mean (range)</td>
<td>269 (84 - 659)</td>
</tr>
<tr>
<td>Overall survival, Mean (range)</td>
<td>383 (108 - 661)</td>
</tr>
</tbody>
</table>

Table 4. Relationships between objective tumor response after radiation therapy and prognosis.

<table>
<thead>
<tr>
<th>Prognosis</th>
<th>Value (day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease-Free Survival, Mean (range)</td>
<td>106 (84 - 1565)</td>
</tr>
<tr>
<td>Overall survival, Mean (range)</td>
<td>428 (108 - 1765)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prognosis</th>
<th>Value (day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease-Free Survival, Mean (range)</td>
<td>798 (31 - 1565)</td>
</tr>
<tr>
<td>Overall survival, Mean (range)</td>
<td>1066 (367 – 1765)</td>
</tr>
</tbody>
</table>

O92
PREDICTORS OF TUMOR FREE SURVIVAL AFTER LIVER TRANSPLANTATION FOR HEPATOCellular CARCINOMA

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1Shiraz Organ Transplant Center and 2Shiraz HIV/AIDS Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

Introduction: The primary aim of our study was to identify the potential predictors of both overall survival and tumor-free survival of a cohort of 88 HCC patients, who were treated by orthotopic liver transplantation at Shiraz Organ Transplant Center.

Materials and Methods: We preformed this retrospective study after reviewing the transplant database of all patients who underwent orthotopic liver transplantation secondary to HCC and liver cirrhosis at Nemazee Hospital (Shiraz, Iran), which serves as a referral organ transplant center. We performed approximately 1000 liver transplantations at the
Nemazee Hospital Between January 2008 and December 2013. HCC were diagnosed in 70 patients before liver transplantation and 18 at histological examination of the explanted livers (incidental HCC). Cox regressions were performed to identify independent factors that affected post-transplant survival. All the analyses were performed using SPSS 16.0 (SPSS Inc, Chicago, IL). Differences were considered statistically significant at P <0.05.

**Results:** The 5-year overall survival rate was 83% and the tumor-free survival rate was 79.5%.

The overall survival of patients with incidental and non-incidental HCC were 94.4%, 80% at 5 years, respectively. Tumor free survival of patients with incidental and non-incidental HCC were 94.4%, 75.7% at 5 years respectively. Independent factors for tumor recurrence in Cox regression analysis were; Milan criteria, fetoprotein levels before operation ≤400 ng/mL, grade of tumor, age and vascular invasion. Vascular invasion, and tumor grade were statistically significant in this analysis (P value = 0.05, OR; 5, (CI; 0.985-25.496), P value = 0.000, OR; 14.42, (CI; 3.652-56.95)) respectively.

**Conclusions:** Our study found vascular invasion and tumor grade were two predictor factors for tumor free survival after liver transplantation for hepatocellular carcinoma.

**O93**

**LIVER TRANSPLANTATION FOR HCC: SAUDI ORGAN TRANSPLANT CENTER OUTCOME**

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**Introduction:** Hepatocellular carcinoma (HCC) is a leading cause of cancer-related deaths worldwide, being the fifth most common cancer and the third most important cause of cancer related mortality in men. In North America, HCC is one of only four malignancies with an incidence that increased by more than 2% per year between Overall, 80%-90% of HCC develop in the context of liver cirrhosis. The 5-year survival rate for untreated, symptomatic HCC is < 5%. Following disappointing initial results, the seminal study by Mazzaferro et al established OLT as a viable treatment for HCC. Subsequently; excellent post-transplant survival has been reported in many centers. Our objectives were:

To describe the outcome of liver transplant for HCC at our center.
To identify factors that correlate with worse outcome.

**Materials and Methods:** Patients who underwent liver transplantation at our institution between May 2001 and July 2013 for the presence of Hepatocellular carcinoma (HCC) were retrospectively reviewed. Liver transplant was performed either as primary treatment or following bridging or downstaging locoregional treatment. Only cases with pathologically proven & pure HCC lesions were included in this study. Variables like (pathological tumor size, pathological tumor number, relation to various transplantation criteria, tumor grade, and lymph vascular invasion) were correlated to patient outcome at the end of follow up period.

**Results:** 88 cases of liver transplant were performed between May 2001 and end of July 2013 for pathologically proven pure HCC lesions at our institution. They were 72 males and 16 females (81.2% vs 18.2% respectively) with a median age of 55±10.8 years. Tumor characteristics were based on explant pathology. According to the explant pathology 68.2% were within Milan criteria, 18.2% within UCSF criteria and 13.6% were found outside both criteria. Lesion size varied between 0.5-11cm with mean lesion size of 2.7± 1.7cm. Number of lesions varied between 1 and 5 lesions with a mean of 1.6±0.9 lesion. In regards to degree of differentiation; 23.8% were well differentiated lesions, 56.8% were moderately differentiated, and 7.9% were poorly differentiated. Degree of differentiation was not identifiable in 11.4% of lesions due to complete necrosis of lesion caused by locoregional therapy performed prior to liver transplant. Vascular invasion was present in 9.1% of lesions and absent in 79.5%. Vascular invasion was not identifiable in 11.4% of lesions due to complete necrosis of the lesion caused by locoregional therapy performed prior to liver transplant. Follow up ranged from 8.3-125.5 months with a mean of 35±28.3 months. The 1, 3 and 5 years patient survival was 88.4%, 74% and 74% respectively. On the other hand; the 1, 3 and 5 years disease free survival was 95.9%, 87.5% and 87.5% respectively. Post-transplantation HCC recurrence was significantly related to the vascular invasion, and poor differentiation of HCC lesion (p value of 0, 00 for both). On the other hand; Post-transplantation HCC recurrence was not related to the Milan criteria, UCSF criteria or being outside criteria (p value of 0.93, 0.92 and 0.83 respectively).

**Conclusions:** Results of liver transplant for HCC at our institution showed an excellent outcome.
RADIO-EMBOLIZATION USING YTTRIUM-90 MICROSHERES AS BRIDGING AND DOWNSTAGING TREATMENT FOR UNRESECTABLE HEPATOCELLULAR CARCINOMA PRIOR TO LIVER TRANSPLANTATION: INITIAL SINGLE CENTER EXPERIENCE

Mohamed R. Abdelfattah1,3, Mohammed Al-Sebayel1, Dieter Broering3, H. Alsuhaibani2
Departments of 1Liver transplantation and Hepatobiliary Surgery and 3Radiology, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia; and 1Department of General Surgery, Faculty of Medicine, University of Alexandria, Egypt

Introduction: HCC is the sixth most common malignancy worldwide and is the third most common cause of cancer related mortality. Moreover, the incidence of HCC is increasing. Surgical treatments for HCC including resection and/or transplantation provide the best curative outcomes in early stages. Unfortunately, many patients present at an advanced stage. Currently locoregional therapies have an emerging role in the management of HCC for bridging to liver transplantation and for downstaging the disease to within transplant criteria. Radioembolization is among commonly used locoregional therapies. Our objective was to describe our initial experience with the use of Therasphere as bridging or downstaging modality prior to liver transplantation, including our institutional indications, technique and outcome

Materials and Methods: We retrospectively examined our database for liver transplantation following the use of Therasphere. Nine patients were identified and reported.

Results: They were five females and four males. Their current age range is 40-72 years with a mean of 53.8± 9.5 years. Three patients had Therasphere as downstaging treatment to our institutional transplantation criteria. Our institution is using UCSF criteria as a cut off limit for liver transplantation as primary treatment modality. The other six patients had Therasphere as bridging for liver transplantation especially when other modalities are not possible. None of these lesions were treated by any other locoregional treatment prior to or following Therasphere. Follow up following liver transplantation ranged between 3.7 -60.1 months (mean of 15.8 ±17.7 moths). All patients are still living, no retransplantation was done and none of them showed evidence of disease recurrence (100% graft, patient and disease free survival).

Conclusions: Our initial experience showed that Therasphere is a promising therapeutic tool for both downstaging and bridging of HCC prior to liver transplant.

<table>
<thead>
<tr>
<th>Patient #</th>
<th>Largest diameter of lesion (in cms)</th>
<th>AFP (UI/mL)</th>
<th>Tumor volume</th>
<th>Relation to the main transplantation criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6.2</td>
<td>217</td>
<td>69.9</td>
<td>Beyond</td>
</tr>
<tr>
<td>2</td>
<td>3.7</td>
<td>3</td>
<td>15.6</td>
<td>Within</td>
</tr>
<tr>
<td>3</td>
<td>3.5</td>
<td>499</td>
<td>30.1</td>
<td>Within</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>1</td>
<td>48.4</td>
<td>Within</td>
</tr>
<tr>
<td>5</td>
<td>2.1</td>
<td>13</td>
<td>1.8</td>
<td>Within</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>125</td>
<td>2.4</td>
<td>Within</td>
</tr>
</tbody>
</table>

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POST-TRANSPLANTATION ANEMIA PREDICTS CARDIOVASCULAR MORBIDITY IN KIDNEY TRANSPLANT RECIPIENTS: A SINGLE CENTRE EXPERIENCE

Bahar Gürel Demirci1, Siren Sezer1, Emre Tutar1
Mehtap Erkmen Uyar1, F. Nurhan Özdemir Acar, Mehmet Haberal2
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Introduction: In kidney transplant (KT) recipients, long term graft survival rates are still limited because of cardiovascular events. Anemia is a common complication that contributes to cardiovascular morbidity and mortality. The aim of this study was to investigate the predictive factors of post-transplantation anemia and its effects on renal and cardiovascular outcomes.

Material and Methods: One hundred and fifty (113 male, mean age: 38.9 ±10.8 years) KT recipients with functioning grafts were enrolled into the study. All subjects underwent clinical and laboratory evaluations (serum creatinine, calcium, phosphorus, albumin, estimated glomerular filtration rate (eGFR), 24 hour urinary protein loss, complete blood count) and transthoracic echocardiography (TTE) to assess left ventricular (LV) systolic function. Arterial stiffness was measured by carotid-femoral pulse wave velocity (PWV) by SphygroCor system. Mean hemoglobin levels were analyzed from the 1st, 6 th, 12 th and 24 th months of transplantation. Anemia was defined according
to World Health Organization as hemoglobin (Hb)<13 g/dl in men and <12 g/dl in women. Patients were divided into two groups according to presence of anemia; group 1 (patients with anemia; n: 120) and group 2 (normal: 30).

**Results:** Pulse wave velocity values (6.8±1.9 m/sec vs 6.4±1.1 m/sec in group 1 and 2, respectively; p:0.002) and left ventricular mass index (LVMI) (252.1±93.7 g/m2 161.2±38.5 g/m2 group 1 and 2 respectively, p: 0.001) were significantly higher in group 1. eGFR and (64±28.5 m/min vs 77.8±30 m/min in group 1 and 2 respectively, p: 0.001) left ventricular systolic function (57.2±5.8% vs 77.8±30% in group 1 and 2 respectively, p<0.005) was significantly lower in group 1. In regression analysis LV systolic function and LVMI were the predictors of post-transplantation hemoglobin levels (p:0.001 and 0.000 respectively).

**Conclusions:** We concluded that post-transplantation anemia contributes to cardiovascular morbidity by deteriorating left ventricular function and increasing PWv and associated with poor prognosis for graft survival.

**O96**

**RENAZ TRANSPLANTATION IN HTLV-1 RECIPIENTS: A SINGLE CENTRE STUDY**

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Department of Urology and Renal Transplant, Imam Reza Hospital, Mashhad University of Medical Sciences, Iran

**Introduction:** Renal transplant recipients are susceptible to viral infections because of their immunocompromised background. HTLV-1 is a retrovirus that leads to adult T-cell leukemia/lymphoma or myelopathies. Great Khorasan in northeast Iran is reported as being an endemic region for HTLV-1, with a prevalence of 1.97. So according the high prevalence of this infection in our region and few reports of such cases, we reviewed the results of our experience in these patients.

**Materials and Methods:** This historical cohort study was conducted in Imam Reza Hospital between May 2002 and September 2012. 14 patients with HTLV-1 infection who underwent renal transplantation (group A) were compared with 14 identical non infected patients (group B). Also immunosuppressive drugs were same in both groups. Patient characteristics and medical history was recorded and the outcome of renal transplantation has been followed carefully.

**Results:** The two groups were identical in sex and age. Among mean follow up of 4.3 years (range: 1 to 12) there was only one rejection in group A and also one in group B. In other patients the mean creatinine levels didn’t show any significant difference 1, 3 and 5 years postoperatively. Also the rate of post operative infections was similar in two groups. One patient in group A developed urinary incontinence and gait disturbance 10 years after transplant which was approved to be due to HTLV-1 infection.

**Conclusions:** Although HTLV-1 myelopathy may be likely developed after renal transplantations, HTLV-1 positive patients can undergo renal transplant with confidence of acceptable prognosis and minimal complications.

**O97**

**PERSISTENT HYPERCALCEMIA AFTER KIDNEY TRANSPLANTATION**

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Departments of 1Internal Medicine, Division of Nephrology and 2General Surgery, Ege University, School of Medicine, İzmir, Turkey

**Introduction:** Hypercalcemia that persists for 6-12 months after renal transplantation is defined as persistent hypercalcemia. The most common cause is persistent hyperparathyroidism. The aim of the study is to evaluate the incidence and clinical progression of persistent hypercalcemia.

**Materials and Methods:** In the study, 281 consecutive patients undergoing renal transplantation during 3 years period were evaluated. Fifty eight patients (abnormal renal functions (serum creatinine ≥ 2.0 mg/dl), graft or patient loss, lost in follow up and lack of calcium level at 12 months after transplantation) were excluded. A total of 223 patients were enrolled. The clinical and laboratory findings were retrospectively analyzed. The serum calcium was normalized to a serum albumin of 4.0 mg/dl, assuming that the calcium concentration changed by 0.8 mg/dL for every 1 g/dL change in the serum albumin concentration. Hypercalcemia was defined as corrected serum calcium level > 10.2 mg/dl. Patients were diagnosed persistent hypercalcemia if persisted at 12 months after transplantation.

**Results:** The number of patients who had persistent hypercalcemia was 18 (8.1 %). Five of 23 patients who were hypercalcemic at 6 months posttransplantation were found to be normocalcemic at 12 months. Demographic and laboratory findings are presented at Table 1. Duration of dialysis and parathyroid hormone levels (PTH) measured before transplantation were significantly higher among patients with persistent hypercalcemia. The levels of creatinine at 6 and 12 months were not significantly different. The serum calcium level at 12 months was significantly correlated with PTH level and duration of dialysis before transplantation (r = 0.219, p = 0.017 and r = 0.242, p = 0.001, respectively). The predictors of persistent hypercalcemia were evaluated by linear and binary regression analysis based on age, PTH level before transplantation, duration of dialysis, type and age of the donor. Linear regression analysis revealed that PTH level before transplantation was
the only significant predictor of serum calcium level at 12 months (beta = 0.249, t = 2.432, p = 0.017). Longer dialysis duration was found to be the positive predictor of persistent hypercalcemia (Exp (B) = 1.023, 95.0% CI = 1.003-1.042, p = 0.02).

Conclusions: The incidence of persistent hypercalcemia is 8%. The severity of pre-existing hyperparathyroidism and longer dialysis are the main predictors of persistent hypercalcemia. Nearly one-fourth of patients who were hypercalcemic at six months after transplantation may become normocalcemic on the following months, especially in the presence of excellent graft function.

O98
DUAL KIDNEY TRANSPLANTATION: SINGLE CENTER EXPERIENCE

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Freeman Hospital, Newcastle, UK

Introduction: using organs from expanded criteria donors (ECD) has certainly increased the chance of kidneys availability. However, utilizing ECD for single kidney transplant (SKT) is not always suitable due to reduced nephron mass. Dual kidney transplantation (DKT) is an alternative approach to use marginal kidneys not suitable to be allocated for single kidney transplant. This retrospective study has reviewed the short and long term outcome in terms of graft and patient survival for 9 years period at our unit.

Materials and Methods: between 2005 and 2013, 33 DKT were performed in our unit where allocation was guided by perfusion parameters and/or history (flow rate index (FRI) and Glutathione S Transferase (GST)). One patient was excluded as data was not available. The mean age for recipients and donors were 58.6 ± 12.5 and 54.8 ± 13.6 years respectively. The means for first warm ischemia time (1st WIT), second warm ischemia time (2nd WIT) and cold ischemia time (CIT) were 25 ± 8 minutes, 34.4 ± 6.4 minutes and 21.4 ± 4 hours respectively. The mean Human leukocytes Antigen (HLA) mismatch for HLA-A, HLA-B and HLA-DR was 3.06 ± 1.07. Immunosuppression regime was tacrolimus based.

Results: Median follow up time of 56 months showed patient and death-censored graft survival at 1, 3 and 5 years were 90% versus 84%, 90% versus 81% and 84% versus 81% respectively. The rate of delay graft function (DGF) was 15 (46.9%), primary graft function (PGF) was 15 (46.9%) and primary graft non-function (PGN) was 2 (6.2%). 19 (59.4%) patients required biopsy, 12 of them showed acute tubular necrosis (ATN) and 7 had rejection (1 needed graft removal, 4 treated successfully with steroid and/or ATG, 2 did not required treatment). Creatinine level posts-transplant at discharge, 3 months, 6 months, 12 months, 24 months and last visit were 211 µmol/l, 148 µmol/l, 158 µmol/l, 153 µmol/l, 157 µmol/l, 151 µmol/l respectively. There were 6 (18%) patients developed CMV infection, three had gastrointestinal and 3 respiratory infection. Three patients developed incisional hernia required repair, 3 had ureteric stenosis which required intervention, 3 developed renal cell carcinoma of a native kidney, one had a lymphocele which needed exploration and one had above knee amputation immediately post-transplant. Mean period patients spend in the hospital was 22.4 ± 10.8 days. Average cardiac risk for the recipients was 6.7 ± 3.5.

Conclusions: Outcome of DKT in our center is satisfactory and comparable with other transplant centre in terms of patient and graft survival. The main drawbacks of this study are sample size is small and SKT data from ECD is required for comparison and validation.

O99
PROCUREMENT DAMAGE OF DCD PANCREAS ALONE GRAFTS IS IT A PROBLEM? A SINGLE CENTRE EXPERIENCE

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Introduction: In order to minimise ischaemic damage to DCD (deceased cardiac donors) pancreatic grafts the donor surgery has to proceed as quickly as possible. Because of this previous studies have suggested that organs procured (liver and kidney) from DCD donors have higher discard rates. The aim of this study was to establish whether DCD pancreatic grafts were more likely to be damaged and discarded when compared to conventional DBD (deceased brainstem) pancreatic grafts.

Materials and Methods: Retrospective collection of data from pancreatic organ retrievals over a 12 month period from a single centre and The NHSBT database. Analysis of data from pancreas alone offers to a single centre, SPK grafts were excluded.

Results: Of 33 pancreas alone offers 15 were DCD's and 18 were DBD's. There was no difference in leading cause of death between DCD or DBD donations of which intracranial haemorrhage was the most frequent and Hypoxic brain injury (joint with CVA for DBD donations) the next most frequent cause. There was also no difference in BMI between the 2 groups. For DCD's the mean donor age was 45.5 years compared with 42.6 years for DBD organs. 6% of all organs were discarded (n=2) because of procurement damage and all were from DBD donors. Of the remaining 31 organs only 6 were transplanted (DBD n=5 to DCD n=1). The leading cause of decline for the remaining 27 organs was donor history for both groups followed by prolonged cold ischaemia for DBD's and other logistical reasons for DCD's. Procurement damage was
the third most common cause of decline for DBD pancreas alone grafts.

**Conclusions:** Although there did not appear to be a higher incidence of pancreatic graft damage when the organ was retrieved from a DCD donor there are still organs being discarded because of procurement damage. Enhanced training techniques/supervision during the retrieval process still need to be optimized to reduce organ discard rates even further so no organs are ever wasted because of procurement damage.

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**O100**

**TOTAL PANCREATECTOMY FOLLOWED BY AUTOLOGOUS ISLET TRANSPLANTATION (TP-AIT) FOR THE TREATMENT OF REFRACTORY CHRONIC PANCREATITIS – A SINGLE CENTER EXPERIENCE**

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**Introduction:** For patients with severe chronic pancreatitis refractory to standard treatment, total pancreatectomy followed by autologous islet transplantation (TP-AIT) offers relief from chronic pain and prevention of surgically induced diabetes. Here we present summary of our experience with TP-AIT treatment in a large cohort of CP patients.

**Materials and Methods:** The study population included 88 patients who underwent TP-AIT from Oct 2006 to March 2014. Main indication for TP-AIT included established diagnosis of CP, narcotic dependence for severe abdominal pain, failed medication or endoscopic procedures and positive C-peptide to glucose stimulation test. Resected pancreas was processed at cGMP islet isolation facility and isolated islets were tested for quality and transplanted into portal vein system with bag method.

**Results:** Among 198 CP patients referred for TP-AIT to the transplant surgeon, 88 underwent the procedure. All islet preparations were tested for mass, viability and stat gram stain prior to infusion into portal vein except for 5 cases (6.3%) who received part of islet preparation into peritoneal cavity due to increased portal pressure and one patient (1.2%) with no transplant due to very low yield of islets. An average (SD) of 5,328 ± 3,096 IEQ/kg of patient body weight was transplanted. Portal vein thrombosis occurred in one patient (1.2%) only. No operative mortality was observed, although 6 patients (7.6%) died post TP-AIT due to causes unrelated to the surgery. 59 patients were followed up more than 6 months post TP-AIT and 21 among them achieved insulin independence and average hemoglobin A1c at 1 year post TP-AIT was 6.8 ± 1.1%. All patients reduced the amount of narcotic medications at 1 year follow-up and 69% of the patients successfully discontinued narcotics.

**Conclusions:** Review of our single center experience affirms the safety and efficacy of TP-AIT for refractory CP patients. Established cGMP islet processing facility is critical for improved success.

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**O101**

**MANGANESE PORPHYRIN ENHANCES THE FUNCTION OF NEONATAL PIG ISLET TRANSPLANTS IN DIABETIC MICE**

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**Introduction:** The widespread application of islet transplantation is limited to selected patients due to the scarcity of human donors. This is aggravated because single patient may receive islets from more than one donor to maintain normal blood glucose levels. In addition, significant numbers of islets are lost during isolation and transplantation procedure partly due to oxidative stress. Pig islets are being considered as an alternative source of islets for clinical transplantation due to several reasons including the similarity of insulin structure between human and pig. Synthetic antioxidants have been employed in different models of oxidative stress injuries and manganese (III) tetrakis (N-ethylpyridium-2-yl) porphyrin (MnP) was demonstrated to depress free radical production in mouse models of islet allotransplantation. In this study we speculate that pre-treatment of neonatal pig islets with MnP will protect them from oxidative stress and results in their enhanced function after transplantation. Our aim was to investigate the effect of MnP on neonatal pig islets in vitro and to determine whether pre-treatment of neonatal pig islets with MnP will improve islet function after transplantation into diabetic mice.

**Materials and Methods:** Neonatal pig islets were cultured with 0, 34, or 68 μM MnP for 24 hours at physiological conditions. They were then collected for quantitative–PCR (q-PCR) analysis to determine the gene expression of antioxidant and anti-apoptotic molecules such as heme-oxygenase-1 (HMOX-1), glutathione peroxidase-1 (GPx-1), superoxide dismutase-1 (SOD-1), B-cell lymphoma (Bcl-2), and survivin, respectively. Islet viability was also determined using a two-color fluorescence assay and the percentage of live and dead cells was determined. To examine whether pre-treatment of neonatal pig islets with MnP will improve their function in vivo, streptozotocin induced diabetic (≥20 mmol/L) NOD.SCID γ mice were transplanted.
with neonatal pig islets (2,000 IEQ) pre-treated with 0, 34 or 68μM MnP. Blood glucose levels of these mice were monitored once a week. When mice showed stable normal blood glucose levels, they were injected intraperitoneally with one bolus of glucose to determine how well the islet transplant can respond to glucose challenge. At the end of the study (>100 days post-transplantation) the kidney bearing the islet transplant was surgically removed to confirm that maintenance of normal blood glucose levels in mice was due to the presence of islet transplant.

**Results:** We found a dose-dependent increase in SOD-1, HMOX-1, Bcl-2, and surviving (p=0.04) gene expression in islets pre-treated with MnP compared to untreated islets. The level of GPx-1 gene expression was increased at 68 μM MnP compared to other groups (p=NS). We also found that pre-treatment with MnP is not toxic to islets since the majority of islet cells were alive in all groups. NOD.SCID y mice that received islets pre-treated with 34 μM MnP achieved normal glucose tolerance test compared to those mice that received untreated islets and islets pre-treated with 68μM MnP.

**Conclusions:** Pre-treatment with MnP enhances the function of neonatal pig islets possibly through the antioxidant and anti-apoptotic activities of MnP.

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**O102**

**PANCREATIC MACHINE ORGAN PERFUSION - EXPERIMENTAL MODELS USING PRE-CLINICAL PORCINE AND HUMAN ALLOGRAFTS**

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**Introduction:** The advantages of hypothermic machine perfusion (HMP) over cold-storage for organ preservation include facilitating thorough vasculature washouts; delivery of oxygen/nutrients, removal of toxic metabolites, and opportunities for real-time viability assessment and pharmacological intervention. HMP is increasingly being utilised in Kidney preservation - especially for extended criteria and DCD allografts. Experimental studies into HMP for whole organ pancreatic preservation are lacking, and may be related to fundamental differences in pancreatic flow characteristics. The pancreas is physiologically a low-flow organ, thus attempts to establish pancreatic perfusion models are challenging. Our group has investigated several models of porcine pancreatic MP - including hypothermic perfusion and normothermic reperfusion (NMR) used for organ viability assessment. Here we report our preliminary data in development of pre-clinical HMP models of pancreas preservation using porcine pancreases, as well as human pancreases unsuitable for clinical transplantation (NRES/NHSBT approval gained).

**Materials and Methods:** Six pancreases (WI=30mins) were retrieved from landrace-pigs. Pancreases (n=3, SCS) either underwent 24 hours of SCS, were benched and then underwent 2 hours of viability assessment on an isolated NMR circuit; or (n=3, HMP) 24 hours of SCS then 5 hours of HMP re-conditioning with UW solution on a Waters Medical RM3 perfusion machine followed by NMR. NMR was accomplished using autologous whole oxygenated blood at 30-40mmHg systolic perfusion pressure. Perfusion dynamics were monitored throughout. Human pancreases (n=2, H-HMP) were used in development of a direct pre-clinical model and underwent 56h of SCS, followed by 5h of HMP and then 2h of NMR using a krebs henseleit buffer based reperfusion solution.

**Results:** HMP pancreases demonstrated improving perfusion indices during HMP at low pressures (<20mmHg), with minimal weight gain (15.3 +/- 7%). During 2hours NMR SCS pancreases exhibited overall higher (1.1 ml/min/100g/mmHg) but deteriorating (35% decline) perfusion dynamics compared to HMP pancreases which displayed lower (0.58 ml/min/100g) and stable perfusion. Human pancreases demonstrated stable perfusion (PFI 0.43 +/- 0.35 ml/min/100g) during HMP with minimal oedema (9.3% weight gain). During NMR perfusion indices were stable (1.18 +/- 0.52 ml/min/100g/mmHg PFI). Functional assessment during NMR by addition of glucose demonstrated islet beta cell viability by increased insulin secretion in all pancreases. Human pancreases demonstrated exocrine function with production of pancreatic secretions, but not porcine models.

**Conclusions:** HMP of porcine pancreases is feasible using low perfusion pressures with minimal oedema. Pancreases undergoing SCS for 24h then a period of HMP exhibited stable perfusion dynamics during NMR compared to organs undergoing 24h SCS only. Functional assessment of islet beta cells of perfused pancreases during NMR is feasible. Fundamentally the use of human pancreases with identical protocols demonstrates similar perfusion and functional characteristics to porcine models. HMP and NMR of whole pancreas allografts is feasible and development of these models could be beneficial in improving pancreas preservation prior to transplantation.
O103

GRAFT FUNCTION AT THE TIME OF TRANSPLANTATION: RISK FACTORS AND IMPACT ON LONG TERM OUTCOME IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS


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Introduction: A successful kidney transplant is the most effective renal replacement therapy for children with end-stage renal disease (ESRD). Delayed graft function has detrimental effect on graft and patient outcomes as adults. Therefore, this study was conducted to assess variable peri-transplant conditions that may affect the postoperative graft function and its impact on long-term patient and graft survivals in our pediatric recipients. Materials and Methods: Ninety-one pediatric kidney transplant recipients were included in this retrospective study (53 males and 38 females). The patients were categorized into three groups: group 1 (with immediate graft function, 76.9%), group 2 (with slow graft function, 9.9%) and group 3 (with delayed graft function, 13.2%). The impact of pre-transplantation co-morbidities (infections especially HBV, HCV, CMV, TB, anemia, urologic problems, hypertension and DM), bone disease, dialysis type, donor type, donor origin, type of induction and maintenance immunosuppression, NODAT and post-transplantation BK and CMV infection on the graft function were studied. Graft and patient outcomes were evaluated in relation to the graft function at the time of transplantation. Results: Recorded graft function was significantly affected by donor type (P=0.005), donor origin (P=0.002), and type of induction therapy (P=0.013). No significant difference was found among the three groups in relation to pre-transplantation infections (HBV, HCV, CMV, and TB), anemia, urologic problems, hypertension, DM, bone disease, dialysis type or post-transplantation type of maintenance immunosuppression, NODAT, BK and CMV infection on the graft function were studied. Graft and patient outcomes were evaluated in relation to the graft function at the time of transplantation. Conclusions: Donor type, donor origin, and type of induction therapy are major determinants of postoperative graft function, although none has detrimental effect on long-term patient or graft outcomes.

O104

SAFETY AND EFFECTIVENESS OF BARIATRIC SURGERY IN DIALYSIS PATIENTS AND KIDNEY TRANSPLANTATION CANDIDATES

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Introduction: Chronic renal disease is known to affect adversely the results of bariatric surgery. There is paucity of literature on the safety and effectiveness of bariatric surgery on dialysis patients who are at a very advanced stage in their renal disease. Materials and Methods: A retrospective review of a prospectively collected database was conducted for dialysis patients who underwent bariatric surgery between 01/06 and 01/12. Age, gender, BMI, cause of renal failure, associated comorbidities, type of surgery, early and late complications and mortality were collected. Results: A total of 21 dialysis patients (0.7%) were identified out of 3048 patients undergoing bariatric surgery during the study period. Eighteen underwent laparoscopic Roux-en-Y gastric bypass (LRYGB), two patients underwent laparoscopic sleeve gastrectomy and one patient underwent laparoscopic adjustable gastric banding. Mean preoperative BMI was 47.11 ± 5.52 and BMI decreased to 35.38 ±8.48. After a mean follow-up period of 2.3 years (Range = .12-6.5). Early complications (<30 days of surgery) occurred in 5 patients (23.8%). Three patients had a minor complication and two patients had a major complication. Four patients (19%) had a late complication including one marginal ulcer with bleeding managed endoscopically, one patient small bowel obstruction requiring laparoscopic lysis of adhesions, one cholecystitis requiring cholecystectomy and one anastomotic stricture requiring dilatation. There was one death in this cohort at 45 days after LRYGB that was unrelated to a surgery. Conclusions: Chronic renal failure requiring dialysis should not be considered a contraindication to bariatric surgery. Our experience with this patient population demonstrates excellent medium-term weight loss and acceptable early and late complication rates.
**O105**

**IMPACT OF BODY MASS INDEX ON KIDNEY TRANSPLANT RECIPIENTS’ OUTCOME, SINGLE CENTRE EXPERIENCE**


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**Introduction:** Kidney transplantation improves survival, reduce morbidity and provide better quality of life for patients with end stage renal disease. Obesity as measured by Body Mass Index (BMI), however, increases surgical and medical complications after transplantation and may affect survival of these patients. We aim to estimate the impact of higher BMI on the outcome of kidney transplant recipients.

**Materials and Methods:** This is a retrospective study of a prospectively collected and verified data of all kidney transplant recipients in King Faisal Specialist Hospital in Riyadh. The primary outcomes were patient and graft survival and secondary outcomes were risk of medical complications, surgical complications, infection, acute rejection and development of malignancy. Patients were classified into following five groups based on their BMI as follows < 18, 18-24, 25-29, 30-34 and > 35 kg/m²

**Results:** Total of 1115 kidney transplants were performed between January 2000 and December 2009, 300 were from deceased donors and 815 from living donors. Mean years of follow up were 6.2 + 0.2 years. Patients’ survival was similar across BMI groups. Graft survival was lower with patients with BMI > 35 (Hazard Ratio of 2.1 + 0.1, P 0.046). In addition medical complication increased linearly with increasing BMI, this was mainly driven by the development of new onset diabetes after transplantation. Otherwise the risks of surgical complications, infections, acute rejections and malignancy were similar among different BMI groups (table 1).

**Conclusions:** Patients’ survival was similar across the five BMI groups. However the graft failure and medical complications particularly development of diabetes mellitus were significantly higher with BMI ≥ 35.

<table>
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<th>BMI</th>
<th>&lt;18</th>
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<th>25-29</th>
<th>30-34</th>
<th>&gt; 35</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>274</td>
<td>448</td>
<td>270</td>
<td>110</td>
<td>43</td>
<td></td>
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<tr>
<td>Graft survival</td>
<td>84.15</td>
<td>87.3%</td>
<td>88.5%</td>
<td>86.4%</td>
<td>76.1%</td>
<td>0.046</td>
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<tr>
<td>Surgical complications</td>
<td>6.7%</td>
<td>6.5%</td>
<td>5.1%</td>
<td>8.6%</td>
<td>4.8%</td>
<td>0.4</td>
</tr>
<tr>
<td>Medical complications</td>
<td>5.8%</td>
<td>16.7%</td>
<td>23.4%</td>
<td>27.4%</td>
<td>29.5%</td>
<td>0.0001</td>
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<tr>
<td>Infections</td>
<td>28.1%</td>
<td>26.9%</td>
<td>22.5%</td>
<td>28.3%</td>
<td>33.3%</td>
<td>0.08</td>
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<tr>
<td>Rejections</td>
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<td>9.1%</td>
<td>9.8%</td>
<td>12.1%</td>
<td>5.9%</td>
<td>0.86</td>
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<tr>
<td>Malignancy</td>
<td>2.2%</td>
<td>3.3%</td>
<td>1.8%</td>
<td>7.1%</td>
<td>2.3%</td>
<td>0.08</td>
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</table>

**O106**

**PERCUTANEOUS TRANSLUMINAL BALLOON ANGIOPLASTY (PTA) IN TRANSPLANTED RENAL ARTERY STENOSIS (TRAS) - A DEVELOPING COUNTRY EXPERIENCE**

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**Introduction:** This study reports prevalence of TRAS in a live related transplant and the impact of percutaneous transluminal balloon angioplasty in establishing patency of transplanted renal artery.

**Materials and Methods:** Between 2002-2012, 2977 live related transplant were performed at our center. Patients with accelerated hypertension, graft dysfunction were investigated for TRAS. They underwent Doppler ultrasound, MRI and diagnostic angiography. Patients with TRAS were treated by percutaneous transluminal balloon angioplasty and follow up was under taken at 3, 6 and 12 months to check for patency of transplanted renal artery.

**Results:** Out of 2977 recipients, 26 (0.87%) developed TRAS and all patients had more than 70% luminal narrowing. Stenosis developed within 6 months in 21 (81%) of the cases and the rest within 2 years of transplantation. At 3 months follow up 5 (19%) patients developed recurrence and were retreated with balloon angioplasty. There after all patients showed patency at 6 and 12 months of follow up with relief of symptoms and improvement in renal function where creatinine reduced from 2.01 ± 0.33 to 0.98 ± 0.20 after angioplasty

**Conclusion:** TRAS cases are progressively increasing in parallel with the use of non invasive investigation such as Doppler ultrasound and magnetic resonance angiography. PTA is a treatment of choice for patients with TRAS with long term curative outcome.
THE EFFECT OF WAITING LIST TIME ON RISK OF DEATH POST LUNG TRANSPLANTATION IN IRAN

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Introduction: Although lung transplantation (LTx) provides the only option to improve survival for patients with end-stage lung diseases, it seems that the duration of being in waiting list would affect post transplant results in these candidates. This study was undertaken to evaluate the effect of waiting time on survival after LTx in Iran.

Materials and Methods: 72 LTx has been performed in National Research Institute of Tuberculosis and Lung Diseases, Masih Daneshvari Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran from 2000 to 2013. Cox proportional hazard model was fitted to investigate the effect of waiting time for transplant on risk of death after LTx.

Results: The sample concluded 56 (79%) male and 33 (46.5%) single transplantation. Main causes of transplantation were pulmonary fibrosis in 27 (38%), bronchiectasis in 14 (19.7%) and COPD in 7 (10%). Recipients’ mean (± SD) age was 36.23 (± 13.04). The finding showed that hazard of death multiples by a factor of 0.007 (se=0.015) per staying one week more in waiting list though this association was not significant (p=0.62).

Conclusions: To stay longer in waiting list increases the risk of death post LTX in Iranian candidates. Beside strategies for increasing the donor pool, proper management of lung transplant candidates including controlled rehabilitation, nutrition, on time Antibiotic administration and admission have a considerable effect on the result of lung transplantation. Larger studies including more cases are recommended to find out the exact impact of waiting time on the transplant result in Iran and other countries.
regions of genes found overrepresentation of the ETS-2 gene, suggesting it may play a role in regulating the inflammation of endothelial cells during MOD. Finally, we found that when training an SVM to find the boundary between patient and control samples in the eigengene space, we are able to independently recover the SOFA score from the orthogonal distance from each patient to the boundary.

Conclusions: MICA models biological networks more accurately than previous network analysis algorithms, and can facilitate identification of biomarkers in complex diseases with both predictive and mechanistic insight. Our results reproduce gene ontologies previously linked to diseases with both predictive and mechanistic insight. Our demonstrate the accuracy of this representation by relating the eigengene representation to the commonly used clinical measure of mortality risk.

O109
SURVIVAL RATES IN IRANIAN LUNG TRANSPLANT RECIPIENTS AND ASSOCIATED FACTORS

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Introduction: Since no study has been done to investigate risk factors associated with survival after lung transplantation (LTX) in Iranian recipients, this study was conducted to assess the effect of recipients’ and donors’ characteristics on survival after LTX.

Materials and Methods: It has been performed 72 LTX in National Research Institute of Tuberculosis and Lung Diseases (Masih Daneshvari Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran) 2000-2013. Kaplan-Meier method was used to calculate survival rates. All-cause mortality was examined via multivariate exponential model incorporating 8 variables.

Results: The sample concluded 56 (79%) male and 33 (46.5%) single transplantation. There were 27 (38%) patients with pulmonary fibrosis, 14 (19.7%) patients with bronchiectasis and 7 (10%) with COPD. Recipients’ mean (± SD) age and BMI were 36.23 (± 13.04) and 20.04 (± 3.97), respectively. Half-life was 2.18 years. Survival rate was 72.7%, 66.5%, and 40% at 1 month, 1 year and 5 years, respectively. Half-life time and survival rates improved near to ISHLT.

Conclusions: Due to the effect of early post mortality in median survival rate in Iran, taking every consideration to decrease peri-operative mortality like choosing more stable candidates and using invasive monitoring and supportive instruments like ECMO for unstable patients during surgery are recommended.

O110
CLINICAL UTERUS TRANSPLANTATION TRIAL WITH LIVE DONORS: SIX MONTHS FOLLOW UP REPORT

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Introduction: Despite all advances in reproductive technologies, infertility due to uterine factor, either by absence or dysfunction of the uterus, still remains untreated. Uterus transplantation may provide a treatment for women affected by absolute uterine factor infertility. This study presents the perioperative and six-month postoperative outcome of totaly nine live donor and recipient pairs included in the first clinical trial of uterus transplantation.

Material and Methods: After extensive investigations and in vitro fertilization treatment, nine women with absence of the uterus, underwent uterus transplantation with grafts from live donors. The live donors were from the close family in eight cases and a family friend in one case. The majority of donors were mothers and five donors were postmenopausal. All uterine recipients were treated with thymoglobulin and maintained by standard triple-immunosuppression, which was stepped down during the observation period. Perioperative and postoperative data were recorded and the patients were followed closely during the 6 months observation period.

Results: Durations of donor and recipient surgery ranged from 10 to13h and 4 to 6h, respectively. One donor was diagnosed with a ureteric-vaginal fistula on postoperative day 16. All other donor surgeries and their postoperative periods were without major complications. No immediate perioperative complications occurred in surgeries of the recipients. Still, the uterus was removed in two cases. In recipient number 9, the uterus was removed on three periods were without major complications. No immediate perioperative complications occurred in surgeries of the recipients. Still, the uterus was removed in two cases. In recipient number 9, the uterus was removed on three
cyclic menstrual patterns during the observation period of 6 months. Mild rejection episodes have occurred in four out of the seven patients with viable grafts. All these episodes have been effectively reversed by corticosteroid treatment. 

Conclusions: This study shows the feasibility of live donor UTx with a low dose immunosuppressive protocol and it also demonstrate that the procedure has a low risk despite extended surgery duration. It remains to see if pregnancy will proceed normally in these transplanted uteri. Embryotransfers will start 12-16 months after transplantation.

O111
IMPACT OF TRANSFER PROCESS ON PA02/FIO2 RATIO IN BRAIN DEAD POTENTIAL DONORS AND EFFECT OF RECRUITMENT MANEUVER ON ITS REVERSAL: A CONTROLLED CLINICAL TRIAL

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Introduction: In our country organ donation system is based on transfer of confirmed brain dead donors from original hospitals to organ procurement unit (OPU) of university hospitals for better brain dead approach and management. It has been previously shown that transfer of critically ill patients can be associated with a decrease in oxygenation capacity of lungs as well as hemodynamic casualties. In this study we examined the impact of transfer process on donor's lungs quality indices such as PaO2/FIO2 ratio and effect of a single recruitment maneuver on its reversal.

Materials and Methods: In this two-phase controlled study we followed 23 brain dead donors during transfer and carefully followed the oxygenation criteria of their lungs. We also extracted 23 matched brain dead donor's information retrospectively to form a historical control group. Three blood samples for arterial blood gases were collected immediately before and after transfer (T1 and T2) and 2 hours after an alveolar recruitment maneuver. (T3) We also obtained arterial blood gas test results from records with the same time interval in control group. P-Value < 0.05 was considered significant. Lung suitability criteria in blood gas sample for donation was a P/F ratio higher than 300.

Results: There were no differences in age, cause of brain death, intubation days, presence of chest trauma, chest tube and the amount of fluid administered during transfer in case and control groups. (Table.1) PaO2/FIO2 at T1 and T2 also were not statistically different in both groups. PaO2/FIO2 dropped significantly after transfer. (From 302.1 ± 119.4 to 259 ± 115.8 mmHg, p < 0.001) the transfer process turned 8 potential lung donors to inappropriate ones (4 in each group) which formed 17.4% of all donors. The only influencing factor was the amount of IV-fluid administered during transfer period with a positive correlation with PaO2/FIO2 drop. (P = 0.02 and correlation coefficient = 0.54) The PaO2/FIO2 decrease from T1 to T3 was significantly lower in the recruitment maneuver group than in control group (-4.3 ± 44.1 VS -69.5 ± 61.4 mmHg, P < 0.001).

Conclusions: Transfer of brain dead donors from original hospitals to OPUs is associated with a decrease in PaO2/FIO2 and as a result the percentage of potential lung donors. This can be significantly reversed by a single alveolar recruitment maneuver immediately after hemodynamic stabilization. Avoidance of excess fluid administration while transferring may reduce the above damage to some degrees.

<table>
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<tr>
<th></th>
<th>Control group</th>
<th>Recruitment group</th>
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<tr>
<td>Age</td>
<td>36.5 ± 15.7</td>
<td>37.3 ± 15.5</td>
<td>NS</td>
</tr>
<tr>
<td>Sex (male)</td>
<td>56.2%</td>
<td>60.8%</td>
<td>NS</td>
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<td>Cause of B.D (trauma)</td>
<td>57%</td>
<td>60%</td>
<td>NS</td>
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<td>Intubation days</td>
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<td>NS</td>
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<td>Smoking history (PY)</td>
<td>8 ± 10</td>
<td>6.5 ± 10</td>
<td>NS</td>
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<tr>
<td>Mean arterial Blood pressure</td>
<td>92.2 mmHg</td>
<td>89.9 mmHg</td>
<td>NS</td>
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<td>Central/Venous Pressure</td>
<td>12.7 ± 3.4</td>
<td>11.8 ± 3.1</td>
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<td>PaO2/FIO2 (T1)</td>
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<td>322.6 ± 126.5</td>
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<tr>
<td>PaO2/FIO2 (T2)</td>
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</tr>
<tr>
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<td>230 ± 94.8</td>
<td>319.5 ± 133.2</td>
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<td>PaO2/FIO2 (T3-T1)</td>
<td>33.2 ± 53</td>
<td>56.4 ± 58.5</td>
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<tr>
<td>PaO2/FIO2 (T3-T1)</td>
<td>-69.3 ± 61.4</td>
<td>-4.3 ± 44.1</td>
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NS = not significant

O112
TARGETED ANTI-COAGULATION AND ORGAN PRE-CONDITIONING IN EX-VIVO RENAL MACHINE PERFUSION MODELS

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Introduction: Allograft thrombosis is a severe complication in renal transplantation. It is implicated worldwide in up to 7% of early adult graft loss, and ~35% in children, with the pathogenesis related to preservation & recipient/donor factors, with ‘marginal’ kidneys at higher risk. Microvascular thrombosis in particular is implicated in reperfusion injury and damage. The only preventative measure is systemic anti-coagulation, conferring bleeding risks upon patients. An ideal more effective method would be localised
anticoagulation directly within an allograft. Our group has developed a series of novel endothelial binding hirudin-anticoagulant fusion-proteins (FP). We hypothesise kidney preconditioning with FP will ameliorate deteriorations in perfusion seen in an established ex-vivo renal reperfusion thrombosis model. We report our pre-clinical findings using porcine and human ex-vivo perfusion models testing FP.

**Materials and Methods:** In total 36 kidneys were retrieved from cadaveric pigs (warm ischaemia=15mins) and transported to the laboratory (transport cold ischaemia=5h). Paired kidneys acted as controls. Kidneys first underwent machine perfusion (MP) on a Waters Medical RM3 perfusion machine, with 4°C UW solution (4h). Controls then underwent treatment via MP with either unmodified perfusion solution (Controls n=14) or solution with Inactive-FP (absent anticoagulant effect, Tail Controls n=4). Test kidneys were perfused with FP treated perfusion solution (FP-Treated n=18). All kidneys then underwent autologous whole-blood normothermic perfusion (6h).

**Results:** Kidneys demonstrated similar perfusion dynamics during initial UW perfusion. During the normothermic phase there was reduced deterioration of perfusion in FP-Treated vs. Control kidneys, with superior flow (26.3 vs. 19.7ml/min/100g, p<0.05) and perfusion indices (0.51 vs. 0.43 ml/min/100g/mmHg, p<0.05) in FP-Treated kidneys. With similar superior perfusion dynamics in FP-Treated kidneys compared to the Tail Controls (p<0.05). Perfusate analysis demonstrated less (p<0.05) fibrin generation in FP-Treated vs. Controls correlating with perfusion results. Rapid sampling microdialysis for cortical lactate during reperfusion demonstrated lower detected levels in FP-Treated kidneys vs. Control kidneys. A pair of human kidneys (NRES/NHSBT approval gained) was used in development of direct translational pre-clinical model using a similar treatment protocol. Similar efficacy was demonstrated with superior perfusion dynamics, lower fibrin generation and lower microdialysis cortical lactate levels in the treated vs. control group.

**Conclusions:** We demonstrate that organ preconditioning with localising anticoagulants allows amelioration of deterioration in perfusion dynamics seen in ex-vivo reperfusion thrombosis models. There is high potential for the development and application of this translational strategy to deliver locally-active anti-coagulants directly within the allograft where it is needed, and decrease the development of microvascular thrombosis, while avoiding systemic anticoagulation and its associated risks.

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**O113**

**PPDDP, THE MAIN CAUSE OF INCREASING DETECTED POSSIBLE DONORS IN SBMU-OPU**

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**Introduction:** The most important step in organ donation process is brain dead potential donor identification. There are different methods for brain dead detection in ICU, like regular call to ICU, having a person responsible for informing the OPU about brain dead, unexpected visits of ICU and hospital coordinator. Shahid Beheshti University of medical sciences (SBMU) OPU as the most active Organ procurement Unit of Iran beside all of the above methods started a new project for detection of potential organ donors named PPDDP(Persian Possible donor detection project) since July 2011.

**Materials and Methods:** In a subgroup of PPDDP, named IP (Inspector project) 6 experienced nurses and in another subgroup of this project, named TDDP (Telephone donor detection) 15 medical students were employed and were taught how to detect a possible donor. At first we started IP by visiting all of the hospitals (113 hospitals) by a regular schedule and after 1 year we added TDDP by a supplementary schedule. The specific schedule of these two subgroups was defined according to the number of ICU beds and existence of neurosurgery ward and it was arranged in a way that they cover each other (If a hospital was scheduled to be visited by an inspector on odd days the telephone detector should call there on even days).

**Results:** Mean rate of possible donor detection rose from 60 to 150 with around 27 eligible donors per month by IP and to 200 possible donors with about 38 eligible donors per month by adding TDDP.

**Conclusions:** Active ICU visit by trained inspectors and checking by telephone donor detectors is the most effective way for detecting all possible organ donors especially in developing countries which having in-hospital coordinators is not possible easily in all of the hospitals.
O114

MANAGEMENT WITH SYMPATHOMIMETIC AMINES IN BRAIN DEATH DONORS

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Introduction: Patients diagnosed with cerebral death, possible organ donors, present with hemodynamic instability, electrolytic, metabolic, endocrine disturbances, systemic inflammatory syndrome and alteration of coagulation. 81% of organ donors present with severe hypotension. The clinical necessity to identify the optimal combination of vasoactive amines arises, for obtaining an efficient tissular perfusion and proper oxygenation after adequate volemic refilling.

Materials and Methods: The study was undertaken in the Intensive Care Unit of the Clinical Emergency County Hospital in Oradea, stretching from the 1st of January 2009 to the 31st of December 2013. In 2009, 25 potential donors were identified, of which 13 were subject to organ prelevation, in 2010 there were 39 potential donors identified with 18 of them actually donating, while in the year 2011 we have observed 63 potential donors and undertaken 22 surgical procedures for organ prelevation. In 2012 were identified 60 potential donors, 22 real donors. In 2013 in ICU were 72 potential donors, 29 real donors. 259 patients in cerebral death were included in the study, within the ages of 10-67, ventilated (IPPV), Fi O2 0.5, PEEP 5-10:
Lot A, containing 130 patients, vasoactive support with dopamine associated with dobutamine.
Lot B, containing 129 patients, vasoactive support with noradrenaline.
They were non-invasively monitored by EKG, hourly diuresis, capnography and pulse oximetry. SVO2, DO2, VO2, IC and MAP were measured.

Results: Patient lot B, treated with noradrenaline 3-6 µg/min presented with a better hemodynamic stability than lot A treated with dopamine 3-5 µg/kg/min associated with dobutamine 5-10 µg/kg/min.

Conclusions: The favorable effect of noradrenaline for obtaining hemodynamic stability in an organ donor suggests using the drug with first intent as a main method, after volemic refilling, in the hemodynamic management of brain death patient.

O115

LIVER TRANSPLANTATION AND WHIPPLE SURGERY COMBINED WITH CHEMO-RADIOTherAPY FOR HILAR CHOLANGIOCARCINOMA IN THE CONTEXT OF PRIMARY SCLEROSING CHOLANGITIS

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Introduction: Hilar cholangiocarcinoma (CC) is a fatal malignant tumor that is often diagnosed in advanced stages leading to very short term survival despite surgical intervention. In patients with primary sclerosing cholangitis (PSC), cholangiocarcinoma may arise from multifocal areas of dysplasia and, therefore, be a diffuse disease. Here in, we described 3 PSC patients and hilar CC treated with liver transplantation and Whipple surgery combined with peri-operative chemo-radiotherapy.

Materials and Methods: A descriptive analysis of patients who underwent liver transplantation at Shiraz organ transplant center, Iran, was performed in March 2014. Data and outcomes of patients with PSC patients and hilar CC that underwent with liver transplantation and Whipple surgery combined with peri-operative chemo-radiotherapy were extracted and reviewed.

Results: Among more than 2000 liver transplant patients at Shiraz Transplant Center, 3 patients with PSC underwent liver transplantation with Whipple surgery and peri-operative chemo- radiation. The first patient was a 39 year-old man with PSC, diabetes mellitus (DM) and hilar CC that underwent liver transplantation in August 2011 from deceased donor. Afterwards, the patient underwent Whipple surgery and chemo-radiation. He received mycophenolate mofetil, prednisolone and tacrolimus as immunosuppressive regimen and there were no rejection episodes or other transplant complication. The patient is still alive and has his routine follow-up. The second patient was a 40 year-old lady with PSC,DM, ulcerative colitis and hilar CC that underwent liver transplantation in August 2011 from deceased donor. Afterwards, the patient underwent Whipple surgery and chemo-radiation. He received mycophenolate mofetil, prednisolone and tacrolimus as immunosuppressive regimen and there were no rejection episodes or other transplant complication. The patient is still alive and has his routine follow-up. The second patient was a 40 year-old lady with PSC,DM, ulcerative colitis and hilar CC who underwent liver transplantation in February 2013 from deceased donor followed by Whipple surgery and chemo-radiotherapy 2 months later. Her immunosuppressive regimen includes mycophenolate mofetil, prednisolone and tacrolimus. The patient had an uncomplicated course without rejection episode and has remained tumor free up to now. The third patient was a 38 year-old PSC male with ulcerative colitis and hilar CC. He received chemo-radiotherapy before surgery and underwent simultaneous liver transplantation and Whipple surgery in February 2014 at our center. This patient had also very favorable post operative course and discharged in good health.

Conclusions: Liver transplantation and Whipple surgery
combined with peri-operative chemo-radiotherapy can be considered as a modality of treatment in patients with hilar cholangiocarcinoma in the context of PSC.

**O116**

**LIVER AND KIDNEY TRANSPLANTATION IN PRIMARY HYPEROXALURIA: A SINGLE CENTER EXPERIENCE**

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**Introduction:** The primary hyperoxalurias (PH), especially type I, are disastrous diseases with multi-systemic morbidity and associated with significant mortality. We present three PH1 patients who underwent LT including living-donor LT or combined liver/kidney transplantation in our institution.

**Materials and Methods:** Patients underwent liver transplantation or combined liver/kidney transplantations at our institution were evaluated retrospectively.

**Results:** Between January 2002 and 2013, three patients were underwent transplantation for PH. All three showed disease onset in childhood and the definitive diagnosis was established <1, 6 and 8 years of age. Although early diagnosis, PH was resulted in ESRD in two patients, and hemodialysis (HD) had been introduced before LT. All three patients were underwent living-donor LT (LDLT). First patient was a 10 years old girl; she had an uneventful course after LDLT and received living-donor KT from the same donor 4 months after LDLT. Second patient was 7 years old boy and he was younger brother of first patient. He did not show ESRD, and did not have any renal disorders after successful LDLT. Third patient was a 3 years old boy diagnosed at his second month with renal disorders. He was discharged from hospital after LDLT; unfortunately he was hospitalized because of unconsciousness a day after his discharge. He finally died because of intracranial hemorrhage two months after LT, and was unable to receive kidney transplantation (KT).

**Conclusions:** PH is a rare disorder and also difficult to diagnose until end organ damage is too obvious. Outcomes may be improved with early and accurate diagnosis followed by aggressive supportive management and correction of the enzyme defect by liver transplantation before systemic oxalosis develops. However, kidney transplantation or combined liver/kidney transplantation is required in many PH1 patients because of the delayed diagnosis or long organ waiting duration.

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**O117**

**SEVERELY MALNOURISHED LIVING DONOR LIVER TRANSPLANT RECIPIENTS HAD POOR POST OPERATIVE OUTCOME**

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**Introduction:** Malnourished patients undergoing liver transplantation could have poor outcome. Our aim was to study the impact of nutritional status on liver transplantation.

**Materials and Methods:** 30 patients underwent LDLT, all were males and 18 - 58 years, demographics, MELD, anthropometric and nutritional assessment (Subjective global assessment-SGA, Nutritional Risk screening 2002 -NRS 2002 and Body composition by Bio-electrical impedance) were done. Post transplant liver profile, cultures and outcome; graft rejection by liver biopsy, infection, ICU & hospital stay, graft dysfunction and mortality.

**Results:** Mean age was 50.3±4.85, MELD was 17.6 (range=6-25), 18/30 patients had HCV related ESLD. Mean BMI was 28.4±3.77, skeletal muscle; TSF, MAC and MLC were 33.9±4.03%, 2.25±0.8 cm, 26.56±3.88 cm and 35.56±4.6 respectively. According to SGA 16/30 (53.3%) and 14/30 (46.7%) of patients showed moderate and severe malnutrition respectively. Anthropometrics of severe malnutrition, high SGA and NRS 2002 were significantly related to post operative high billirubin (p-value 0.03), prolonged INR (p-value 0.02), ICU stay (p-value 0.00), number of antibiotics courses (p-value 0.00), and hospital stay (p-value 0.04). Child classification showed no significant correlation with outcome. None of the patients had rejection and 4/19 (21%) patients with severe malnutrition died compared with 0/11 patients with mild malnutrition.

**Conclusions:** 1- Majority of patients awaiting liver transplantation are malnourished. 2- Nutritional assessment with anthropometrics, SGA and NRS 2002 could identify severely malnourished patients who are high-risk for post-operative complications.
**O118**

**FIRST REPORT OF DOMINO LIVER TRANSPLANTATION IN IRAN**


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**Introduction:** Several strategies have been innovated to overcome shortage of livers suitable for transplantation including domino liver transplantation. This modality is most importantly applicable in patients with inborn errors of metabolism that need liver transplantation for enzyme deficiency but their native livers can be used as allograft for other patients. Familial amyloid polyneuropathy, hypercholesterolemia, maple syrup urine disease, and amyloidosis are instances of acceptable indications for domino liver transplantation. Shiraz Organ Transplant center is a pioneer transplant center in Iran with more than 2000 liver transplantation. Herein, we described the first report of domino liver transplantation in Iran.

**Materials and Methods:** Familial amyloid polyneuropathy is an autosomal dominant disease caused by mutations in transthyretin (TTR) that allows this protein to form insoluble amyloid fibrils in the heart, kidneys, and in both the central and peripheral nervous system. Since more than 90% of TTR are produced in liver, orthotopic liver transplantation is hypothetically a treatment modality in these patients. On the other hand, the liver parenchyma is structurally normal and these explanted livers can be good resources of liver allograft for patients with liver cirrhosis.

**Results:** A 37 year-old male patient with amyloid polyneuropathy refereed to our center to be included in our waiting list for liver transplantation. He was diagnosed with amyloid polyneuropathy confirmed by sural nerve and abdominal fat biopsies since 2 years prior to his admission. There were positive history of the same problem in his mother and uncle. He had normal liver and renal function tests and cardiac evaluation revealed normal cardiac function with normal ejection fraction and pulmonary artery pressure. The patient underwent liver transplant from a deceased donor and his liver was simultaneously transplanted to a 57 year-old patient with HBV induced liver cirrhosis. One week after liver transplantation both patients are in good health. The patients were kept on prednisolone, tacrolimus, and cellcept as immnosuppressive therapy. There were no episodes of acute rejection after liver transplantation. There were no surgical complications or renal failure.

**Conclusions:** Domino liver transplantation is safe and has a major impact on supply of liver allograft in transplant center.

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**O119**

**RELATIONSHIP BETWEEN PHOSPHORUS LEVEL AND PEAK OXYGEN UPTAKE IN HEMODIALYSIS PATIENTS WHO ARE WAITING FOR RENAL TRANSPLANTATION**

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**Introduction:** The measurement of exercise capacity through Peak Oxygen Uptake is an important factor in predicting mortality and survival in patients with end stage renal disease after transplantation. Although hyperphosphatemia is a common finding in patients with kidney failure but some patients have hypophosphatemia. Phosphate in ATP has an important role in producing energy; therefore, VO2max can be influenced by phosphorus level.

**Materials and Methods:** For this study 33 renal transplant candidates under hemodialysis were evaluated through spirometry and Exercise Test and results were registered according to the assumed inclusion criteria. Patients were divided into three groups according to serum phosphorus levels: normal (3.5-5.5), hypophosphatemic (less than 3.5), and hyperphosphatemic (more than 5.5).

**Results:** Between these 33 patients the average of phosphorus was 42±1 (maximum 10.6 and minimum 2). 8 patients had low level of phosphorus (less than 3.5). After dividing of VO2 max in 2 groups including normal (≥20) and abnormal (<20) and analysis via independent T test, we found that there was a correlation between phosphorus and VO2 max.

**Conclusions:** In renal transplant patients hypophosphatemia may decrease VO2 max by reducing energy of skeletal muscles. Correct OF this factor may lead to more survival and less mortality in patients with end stage renal disease expecting renal transplantation.
NON-DIPPING HYPERTENSION IN RENAL TRANSPLANT RECIPIENTS

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Introduction: Posttransplantation hypertension has been associated with the incidence of both cardiovascular disorders and renal allograft failure. Additionally, the loss of circadian blood pressure (BP) may be an additional risk factor for comorbid conditions. The aim of this study is to evaluate the association between impact of post transplant hypertension determined by office and ambulatory blood pressure monitoring (ABPM), presence of nondipper status on cardiovascular indices and graft dysfunction in kidney recipients.

Materials and Methods: One hundred recipients with normal graft functions (38.74±11.03 years, 67 male, 45.9±9.8 months post-transplantation period) were enrolled into the study. Office and ambulatory blood pressure monitoring (ABPM), pulse wave velocity and body composition analysis were cross-sectionally performed and patient's post-transplant clinical and laboratory data were retrieved from the records. Renal graft function is evaluated with the yearly decline in eGFR. Patients body composition were analyzed by the Body Composition Analyzer (Tanita BC- 420MA) and PWv was determined from pressure tracing over carotid and femoral arteries using the SphygmoCor system.

Results: Thirty-five patients (%35) were hypertensive with office BP>140/80 mmHg and ABPM mean levels>130/85 mmHg. Systolic hypertension was positively correlated with PWv (r:0.697, p:0.04) and serum uric acid levels (r:0.588, p:0.013). Majority (n:75, 75%) of patients had non-dipping BP pattern. Patients with non-dipping BP pattern had significantly lower HDL levels before (38.1 vs. 46.4 mg/dL, p: 0.044) and after transplantation (47.2 vs. 54.6 mg/dL, p:0.046) than patients with dipper HT. Non-dipper patients had significantly higher PWv levels than dipper patients (7.25 vs. 5.59 m/s respectivelyi p:0.0001). Transplantation from a deceased donor was more frequent in patients with non-dipping BP pattern than dipper patients (25% vs. 9.5%, p:0.039). Yearly decline in eGFR levels were significantly higher in hypertensive patients (7.6% vs. 9.4%, p:0.0001) than normotensive ones.

Conclusions: The non-dipper pattern was associated with arterial stiffness, dyslipidemia, graft dysfunction and transplantation from deceased donor. Posttransplantation HT should be aggressively treated to prevent the development of end-organ damage.

RECURRENCE OF DISEASES FOLLOWING RENAL TRANSPLANTATION-A SINGLE CENTRE STUDY

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Introduction: Purpose of the current study is to determine the prevalence of recurrent disease and its impact on graft function in a developing country setting.

Materials and Methods: Between 2000 and 2012, 2977 renal transplants were carried out at center. Mean follow-up period is 5.12 ± 1.2 years. Recurrent diseases were diagnosed by graft biopsy in the follow-up period. Graft outcome was compared age and sex matched controls transplanted in the same period.

Results: Recurrent disease was found in 40 (1.6%) recipients. Glomerular disease was the most common finding occurring in 32 patients, which included FSGS 24 (82%), MPGN 3 (8%), Membranous GN 2 (5%), IgA 2 (5%), HUS was diagnosed in 3 (8%) patients and Oxalosis in 5 (16%). Graft loss occurred in 15% of the recipients. The graft survival at 1, 5 was 93% and 65% in the recurrence group as compared to 100% and 95% in the control group.

Conclusions: Recurrence of disease is a significant problem after renal transplantation resulting in poor graft function and survival.

FIBROMYALGIA AND ITS CLINICAL RELEVANCE IN RENAL TRANSPLANT RECIPIENTS

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Introduction: Recent evidence suggests that FM syndrome was associated with various pathophysiologic mechanisms and disease states including oxidative stress, inflammation, coronary heart disease, left ventricular function and endothelial dysfunction. Our aim was to determine the prevalence of fibromyalgia syndrome (FS) in renal transplant recipients and to identify possible links between FS and various clinical and laboratory parameters.

Materials and Methods: Ninety nine kidney transplant recipients with normal graft functions (37.15±10.83 years, 67 male, 51.98±16.3 months post-transplantation period) were enrolled into the study. All subjects completed...
The aim of this study is to evaluate the association between fibrosis, and the production of inflammatory cytokines. Vascular smooth muscle, the development of renal interstitial endothelial cell function and to stimulate the proliferation of a marker in healthy population and a common complication.

**Introduction:**

Cardiovascular risk factors including body composition analyses (Tanita BC-420MA), ambulatory blood pressure monitoring data (ABPM), pulse wave velocity (Pwv) (SphygmoCor system) were cross-sectionally analyzed. eGFR was calculated according to MDRD formula.

**Results:**

Mean FIQ score for the whole group was 21.4±14.7. Eight patients had FIQ score >50 and these 8 patients had significantly higher LVMI than patients with lower FIQ score (p:0.048). Patients were divided into two groups according to their physical impairment score (PIS); Group 1 PIS≥5, n:50 and group 2 PIS<5, n:49. Patients with higher PIS had significantly higher serum creatinine (p:0.047) and lower eGFR values (p:0.008) than group 2 patients. In ABPM, group 1 patients had significantly higher overall diastolic (p:0.015) and mean arterial BP than patients with lower PIS. Physical impairment score was positively correlated with serum CRP levels (p:0.024, r:0.227). Patients were also evaluated with the stiffness score (SS) as group1 patients with (n:41) or group 2 patients without (n:58) stiffness. Patients with stiffness had significantly higher office systolic (p:0.027) and diastolic BP (p:0.044) levels than patients without stiffness. BMI (p:0.033) and sagittal abdominal diameter (p:0.05) were significantly higher in patients with stiffness. Stiffness score was positively correlated with systolic BP levels (p:0.027, r:0.223). Yearly decline in eGFR levels were significantly higher in patients with higher FIQ (7.6% vs. 9.4%, p:0.0001) than other patients.

**Conclusions:**

FS in renal transplant recipients was strongly associated with hypertension, arterial stiffness, obesity and renal allograft dysfunction. Fibromyalgia in renal transplant recipients is closely related with adverse clinical outcomes.

**O123**

**HYPERURICEMIA AS A CARDIOVASCULAR RISK FACTOR IN RENAL TRANSPLANT RECIPIENTS**

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**Introduction:**

Hyperuricemia is a cardiovascular risk marker in healthy population and a common complication after renal transplantation. Uric acid is known to impair endothelial cell function and to stimulate the proliferation of vascular smooth muscle, the development of renal interstitial fibrosis, and the production of inflammatory cytokines. The aim of this study is to evaluate the association between hyperuricemia with graft dysfunction and development of cardiovascular risk disorders in renal transplant recipients.

**Materials and Methods:**

One hundred kidney transplant recipients (31 female, 38.7±11 years with 45.9±9.6 months post-transplantation period) with normal graft functions (creatinine <2mg/dl) were enrolled into the study. The clinical biochemical parameters including the uric acid levels in the third year of post transplantation period were retrospectively recorded and searched for the predictive value in yearly determined graft function and cardiovascular parameters including body composition analyses (Tanita BC-420MA), ambulatory blood pressure monitoring data (ABPM), pulse wave velocity (Pwv) (SphygmoCor system). Hyperuricemia was defined as an uric acid level of ≥ 6.5 mg/dl that persisted for at least two consecutive tests. eGFR was calculated according to MDRD formula.

**Results:**

Hyperuricemia was 37% at the third year after transplantation. Hyperuricemic patients (n:27) had significantly higher glucose (p:0.037), LDL (p:0.037), triglyceride (p:0.042), total cholesterol (p:0.007) and PTH (p:0.003) levels than normouricemic patients. According to anthropometric data sagittal abdominal diameter (p:0.002), triceps skin fold thickness (p:0.022), waist (p:0.001) and hip circumferences (p:0.013), body weight (p:0.001), fat mass (p:0.014), muscle mass (p:0.016), visceral fat rating (p:0.001) and BMI (p:0.001) were significantly higher in hyperuricemics than normouricemic patients. Hyperuricemic patients had significantly higher mean systolic BP (p:0.044), day-time mean systolic BP (p:0.022), night time mean systolic BP (p:0.031), day-time and night time mean arterial pressure than normouricemic patients according to ABPM data. Hyperuricemic patients had significantly higher PWV levels (p:0.0001) and LVMI (p:0.044) than normouricemic patients. Yearly decline in eGFR levels were significantly higher in hyperuricemic patients (7.6% vs. 9.6%, p:0.0001) than normouricemic ones.

**Conclusions:**

Post-transplant hyperuricemia had a strong impact on decline in renal function, and associated with cardiovascular risk predictors as hypertension, arterial stiffness and left ventricular hypertrophy. Therefore it should be accepted not only as a marker for renal allograft dysfunction but also as a cardiovascular risk factor in renal transplant recipients.
Introduction: Small-for-size syndrome (SFSS) and acute renal injury (ARI) after living-donor-liver-transplantation (LDLT) are known as critical events affecting post-transplant prognosis. Our objective was to clarify the peri-operative risk factors for SFSS and for post-transplant ARI.

Materials and Methods: We analyzed 200 consecutive adult LDLT with retrospective cohort study. Multivariate analysis revealed that the risk factor for hospital mortality was a GW/RBW less than 0.8% in the first 50 cases. The introduction of portal modulation improved the occurrence of SFSS and hospital mortality in the later 150 cases. The risk factors were a donor age and high MELD. The minimum GW/RBW could be safely lowered to 0.68% with adequate portal modulation. The decision-tree-analysis revealed that the value of any one risk factor affected the cut-off values for the other risk factors. Severe ARI occurred in 37% after LDLT. Fourteen patients in severe ARI developed to chronic kidney disease. One-/5-/10-year survival rates were 96.7/90.6/88.1% for non-ARI and 71.1/65.9/59.3% for severe ARI, respectively (p<0.001). Multivariate analysis revealed risk factors for severe ARI as high MELD, GW/RBW less than 0.7%, blood loss, over-exposure to calcineurin-inhibitor, and diabetes mellitus.

Conclusions: SFSS could be determined not only by graft size, but also by donor age and recipient status. Perioperative treatment strategies should be designed based on the risk factors for the further improvement of transplant prognosis.
TRAGIC COMPLICATIONS OF COMMERCIAL RENAL TRANSPLANTATION (CRT) AS A CONSEQUENCE OF DISREGARD OF THE PREOPERATIVE ADVERSE FACTORS OF RECIPIENTS AND DEFICIENT INVESTIGATION OF THE DONORS

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Introduction: Lack of organ donors in Qatar has compelled many patients to seek commercial kidney providers abroad. Post transplant course was complicated by numerous surgical and/or medical complications and high mortality. Many of these complications were unconventional. The aim of this study is to analyze the correlation between the preoperative adverse factors and the postoperative complications.

Materials and Methods: We reviewed the preoperative and the postoperative medical records of 204 kidney transplant recipients (56 females & 148 males; age range 22-66 y) who were transplanted in China (51), Egypt (61), Philippines (30), India (16), Pakistan (13), and others (33) from January 2008-December 2013 inclusive.

Results: The review showed that the overall postoperative complication rate was 57%, including those attributable to disregard of the recipients’ preoperative adverse factors: iliac vessels disease leading to steal-syndrome of transplanted kidney (n=1) or poor perfusion (n=2), small low compliance high pressure bladder (n=2), genitourinary TB (n=1), morbid obesity (n=6), active TB (n=2), malignant tumor in the native kidney (n=1), mental retardation (n=1), double incontinence & dementia (n=2); or those caused by unhealthy graft or unhygienic surgery: tuberculosis of the graft (n=1), fungal infection of the graft (n=3) leading to rupture of the vascular anastomosis (n=2), staghorn stone in the graft (n=1), mycobacterial wound infection (n=6), in addition to high incidence of other conventional complications like lymphoceles, infections, incisional hernia. After one year of the CRT 37 patients returned back to dialysis (18.1 %) and 19 lost their life (9.3%).

Conclusion: This study has shown that the disregard of the preoperative risk factors of recipients and deficient investigation of the donors have resulted in many serious surgical complications that has a disastrous impact on the graft function and patient survival.

QUALITY AND QUANTITY OF KIDNEY DONORS HEALTH EVALUATION BEFORE AND AFTER DONATION IN IRAN

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Introduction: The history of kidney transplantation is intermixed with shortage of donors and it seems that there is no solution for this problem other than living donation. “Iranian model of kidney transplantation” is a way to overcome this hurdle. The most important challenge toward this model is the financial relation between donor and recipient and it looks like that with new vision of transplant community to regulate reimbursement, this barrier will be removed soon. But it seems that more attention should be paid on the other side of this coin that is the donor health. In this study we tried to evaluate the quantity and quality of health evaluation of donors before and after donation. This is the preliminary results and the survey is going on.

Materials and Methods: We extract the data of all kidney donors between years 2003-2011. There was a questioner
that was filled by expert educated people. We asked the donors to come to a prepared health facility for further clinical and laboratory exams. For statistical analysis, SPSS software (v. 18) was used.

**Results:** Of 388 donors whom were contacted only 60 persons were available. Of them 51 were male. The mean age of donors at the time of donation was 29.6 ± 6.6 years. Fifty two donors were unrelated to recipients. Meantime from donation was 4.8 ±2.7 years. No difference was found regarding the jobless before and after donation. Twenty two donors were satisfied from their act, while 13 donors were unsatisfied and the remaining 25 individuals were partially satisfied. Only 35 donors told that if it was possible they would donate again. %78.3 of donors proceeded through the charity of “Iranian Kidney Foundation Organization”. Forty donors have not been received any information regarding the harm and benefits of donation. Eleven persons had no physical examination and 2 patients with known cardiovascular disease and one patient has hypertension before donation. Thirty four donors received no advisory to how evaluate their health after donation. Nineteen persons received verbal advises and only 7 donors were given written notification for further evaluation. After donation no contact was made to 95% of donors from any health authorities. Only 30 donors have gone for checkup by the mean of 2.98 ± 2.93 times. By the time of our study, 56 donors had no health check-up plan. Seventeen donors are now complaining of hypertension or problems either in kidney, heart or urinary tract. Two donors had history of admission due to pyelonephritis and decreased of urine volume. Twelve donors are now on different medications. No donor had psychological evaluation.

**Conclusions:** Iranian model of transplantation as a main solution to overcome shortage of donors need major revision regarding transplant regulations, donors’ health and health professionals’ education.

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**O128**

**THE BENEFITS OF TRANSPLANT PROCUREMENT MANAGEMENT (TPM) TRAINING ON PROFESSIONAL COMPETENCE DEVELOPMENT AND CAREER EVOLUTIONS OF DONATION AND TRANSPLANT RELATED HEALTH CARE WORKERS**

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**Introduction:** Organ and tissue donor shortage has been analyzed thoroughly in the search for solutions to overcome the gap between demand and supply. Training of healthcare professionals involved in organ donation is identified as a key to success to improve skills, competences and awareness. Designed on a model of the Continuous Improvement Program (CIP) method, TPM is one of the largest and most international training programs. It was launched in 1991 under the auspice of University of Barcelona (UB), Spain, and with the support of the Spanish National Transplant Organization (ONT). It gained the recognition of the Transplant Committee of the Council of Europe in 1994 and was awarded by “The Transplantation Society” (TTS) in 2008. From 1991 it trained about 10,000 professionals from 101 countries throughout the world. With such a large number of professionals participating in its courses, the effect of TPM training programs needs to be evaluated. This study aimed at investigating the perceived benefits of TPM specialized training programs on professional competence development and career evolutions of donation and transplantation (D&T) related health care workers.

**Materials and Methods:** The study was approved by the Institutional review boards of the University of Barcelona, Spain and Purdue University, USA. A survey was developed in five languages (Spanish, English, Italian, French, and Portuguese). A total of 6839 subjects were emailed the link to the online survey. They were asked to forward it to other individuals active in D&T. Links were posted on Facebook and handed out at organ donation events. Two research questions (RQ1 and RQ2) on the perceived influence of specialized training programs were identified. Two main research questions were identified for the current study:

- **Research Question 1 (RQ1):** “What is the perceived influence of specialized training programs on career, collaboration, and skills and ability in D&T?”
- **Research question 2 (RQ2):** “Do the different types of training programs (online, face to face, local/national/international etc.) and individual characteristics (gender, position at time of training) have different perceived
influences on competences (career, collaboration, skills and ability) in D&T?

Respondents were asked to rate the influence of trainings on 12 different items, including "respect from peers", "advantages in promotions", "technical skills", "knowledge", "networking ability", "motivation to work in transplantation", "collaborative opportunities", "ability to change policies", "ability to change practices", "desire to innovate", and "communication skills related to D&T".

**Results:** 1102 (16.11%) agreed to take the survey, 87% reported participating in a TPM course, out of which 95% selected TPM courses as most influential. For RQ1, 98% reported influence on knowledge [score 4.5/5], 93% on technical [4.2] and communication [4.1] skills, 89% on attitude toward D&T [4.1], 92% on motivation to work [4.2], 91% on desire to innovate [4.0], 87% and 79% on ability to change D&T practices [3.9] and policies [3.5]. As for RQ2, main significant effects and interaction effects for position at time of training and type of training were reported.

**Conclusions:** TPM specialized training programs in D&T had positive perceived effects on professional competence development and career evolutions.

**O129**

**IS INTENTION TO TREAT FOR HCC A RISK FACTOR OF LIVER-TRANSPLANT OUTCOME?**

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**Introduction:** Seventy-four cases of recipients with HCC out of 245 adult LDLTs up to Dec. 2012 in our institute were enrolled.

**Materials and Methods:** HCCs derived from HCV, HBV and others occupied 60%, 30% and 20%, respectively. The mean Child-Pugh and MELD score were 9.8 and 14.8, respectively. About stage migration between preTx staging and postTx pathological diagnosis, patients with stage progression and reduction were found in 14 and 7 cases. Factors of progression reduction were portal thrombus/tumor number and tumor necrosis by intention to treat. The term "salvage transplantation" means pre-transplant hepatic resection for HCC before LTx. When radio frequency ablation (RFA) was added in "salvage " procedure, a half of recipients were received salvage Tx. Therefore, recipients with no therapy or with anti-cancer therapy within 1 year before transplantation (n=37) were defined as primary Tx group, and with therapy before 1 year (n=37) were also defines as salvage Tx group.

**Results:** In salvage group, 50% of recipients who had lower pre-Tx stage than initial stage got successful intention to treat. There were no significant differences in intraoperative blood loss and operation time between two groups. But pre-Tx MELD score of salvage Tx was significantly lower than that of primary Tx group (14.7±0.67 vs. 16.6±0.8, p=0.033). Overall survival of 74 cases in 3 and 5 years were 83.2 and 77.8%, respectively. But there was no significant difference in survival between two groups. After exclusion of 6 over Milan recipients, survival of salvage Tx had better survival (93.3 vs. 75.2, p=0.059).

**Conclusions:** Intention to treat for HCC is not a risk factor of liver-transplant outcome. Preoperative fine medical control for HCC and maintenance of systemic condition may surpass surgical complexity or demerits of intention to treat.

**O130**

**WHICH SCORING SYSTEM CAN BE BETTER PREDICTOR OF OUTCOMES AFTER LIVING DONOR LIVER TRANSPLANTATION**

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**Introduction:** Many scoring systems have been made aiming to predict outcomes of living donor liver transplantation (LDLT). In this study we compare APACHEII (as a physiological assessment specific score) to MELD (as a disease specific score) among patients who underwent LDLT seeking to evaluate the best system in predicting outcomes

**Materials and Methods:** this study retrospectively reviewed the medical records of 50 patients who underwent LDLT from Jan 2005 to Dec 2010. Both scoring systems were calculated at day 0 (preoperative) and days 1 and 7 (postoperative).

**Results:** The overall 3 months mortality was 64%. At day 0 preoperative MELD score shows higher statistical significance (P=0.003, AUR=0.624±0.07) than APACHEII which shows no significance (P=0.179, AUR=0.579±0.08). At day 1 postoperative MELD score still better (P=0.0008, AUR=0.76±0.07) compared to APACHEII (P=0.007, AUR=0.68±0.08). At day 7 postoperative the statistical significance of APACHEII score is higher (P=0.00008, AUR= 0.87±0.08) than MELD (P=0.00016, AUR=0.86±0.06).

**Conclusions:** in preoperative period the upper hand is for disease specific score (MELD), while in postoperative period during ICU admission physiological assessment scores shows higher significance.
**O131**

**COMPARISON OF DIFFERENT SCORING SYSTEMS IN PREDICTING SHORT TERM MORTALITY AFTER LIVER TRANSPLANTATION**

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**Introduction:** Many scoring systems have been suggested to predict the outcomes of liver transplantations. The aim of this study was to compare between 4 scoring systems: sequential organ failure assessment (SOFA), Model for End-Stage Liver Disease (MELD), Acute physiology and chronic health evaluation II (APACHEII), and Child Turcotte-Pugh (CTP) among patients who underwent living donor liver transplantation (LDLT) seeking to evaluate the best system to correlate with postoperative outcomes.

**Materials and Methods:** This study retrospectively reviewed the medical records of 53 patients who had received LDLT in a tertiary care hospital from Jan 2005 to Dec 2010. Demographic, clinical and laboratory data were recorded. Each patient was assessed by 4 scoring systems before transplantation and on post-operative days 1 - 7 and at 3 months.

**Results:** The overall 3 months survival rate was 64%. The pre-transplant SOFA score had the best discriminatory power, moreover, the SOFA score on post-operative day 7 had the best Youden index (0.875). The survival rate at 3 months follow up after liver transplantation differed significantly (p=0.00023, AUR=0.952) between patients who had SOFA scores < 8 and those had sofa >8 on post liver transplant day 7. This study also demonstrated that respiratory rate (P=0.017) and serum bilirubin level (P=0.048) and duration of ICU stay (P=0.04) are significant risk factors related to early mortality after LDLT.

**Conclusions:** The pre-transplant SOFA score was statistically significant predictor of 3 months mortality, SOFA score on post liver transplant day 7 had the best discriminative power for predicting 3 months mortality.

**O132**

**OPTIMAL CENTRAL VENOUS PRESSURE DURING NEOHEPATIC PHASE TO DECREASE PEAK PORTAL VEIN FLOW VELOCITY FOR PREVENTING PORTAL HYPERPERFUSION IN THE PATIENTS UNDERGOING LIVING DONOR LIVER TRANSPLANTATION**

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**Introduction:** A decrease in peak portal vein flow velocity (PVV), which increases after the reperfusion of hepatic allograft, seems important for preventing portal hyperperfusion that induces shear stress on sinusoidal endothelial cells of small-for-size grafts and consequently results in poor graft function in live-donor recipients without vascular complications. However, to date, there is no convincing evidence with regard to intraoperative systemic hemodynamic status associated with the portal hyperperfusion. The aim of this study was to evaluate the effects of systemic hemodynamic parameters during neohepatic phase on the change in hepatic hemodynamic parameters between neohepatic phase and 1st postoperative day.

**Materials and Methods:** Thirty eight patients undergoing living donor liver transplantation (LDLT) were enrolled in this study. The hepatic hemodynamic parameters (flow velocities of portal vein and hepatic artery) were measured using spectral Doppler ultrasonography immediately after hepatic artery anastomosis and bile duct reconstruction were completed and on the 1st postoperative day. The systemic hemodynamic parameters (mean arterial pressure, central venous pressure (CVP), cardiac index, stroke volume variation, stroke volume index, systemic vascular resistance index, and central venous oxygen saturation) were recorded and averaged for 5 minutes after the intraoperative ultrasonography. The relationship between the systemic and hepatic hemodynamic parameters was assessed using linear or quadratic regression analysis.

**Results:** The PVV decreased on the 1st postoperative day in 24 patients (63%). There was an inverted-U relationship between CVP and a percent change in the PVV (r² = 0.241, p = 0.008). According to the quadratic regression model, the PVV decreased up to CVP of 7.8 mmHg at which the decrease turned to an increase (Fig. 1). No significant correlations were found between the other systemic and hepatic hemodynamic parameters.

**Conclusions:** Maintaining an optimal level of CVP (around 8 mmHg) during neohepatic phase is clinically beneficial in decreasing PVV for the prevention of portal hyperperfusion in the early postoperative period of LDLT.
O133
EVALUATION OF TRANSPLANTED KIDNEYS WITH DIFFUSION-WEIGHTED MR IMAGING: INITIAL EXPERIENCE

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Introduction: The aim of this study is to evaluate feasibility of diffusion-weighted (DW) magnetic resonance (MR) imaging in renal allograft recipients for functional assessment of transplanted kidneys as compared with these features in healthy volunteers with native kidneys.

Materials and Methods: Twenty nine renal transplant recipients with a stable graft function and 18 healthy volunteers were underwent DW MR imaging. Relationships between ADC and allograft function, determined by the estimated glomerular filtration rate (group A1; eGFR>70 mL/min/1.73 m² and group A2; eGFR<70 mL/min/1.73 m²) investigated in renal transplant recipients and ADC values of renal transplant recipients (group A) and healthy volunteers (group B) were compared by student t test.

Results: Group A was included 29 patients whose mean eGFR was 74.2±25 (38.8-134.3) mL/min/1.73 m². Mean ADC values for UC, UM, LC and LM were 1780±183, 1712±143, 1696±143 and 1605±170 respectively. Group A2 was included 14 patients whose mean eGFR was 55.5±9.1 (38.8-69.7) mL/min/1.73 m². Mean ADC values for UC, UM, LC and LM were 1659±200, 1581±189, 1641±134 and 1550±133 respectively. ADC values were statistically higher in group A compared with the group B (p<0.05) whereas there were no significant differences between A1 and A2 groups (p>0.05).

Conclusions: In our study we observed that ADC values of transplanted kidneys were higher than native kidneys.

References

Figure 1: DW-MRI ADC map image in coronary plain.

Figure 2: DW-MRI b800 image in coronary plain.
OUTCOME OF LIVING RELATED RENAL GRAFTS WITH MULTIPLE ARTERIES: A SINGLE CENTER EXPERIENCE FROM A DEVELOPING COUNTRY

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Introduction: This study report the outcome of renal allograft with multiple arteries and the complication encountered in a developing country setting.

Materials and Methods: Between 1995 and 2012, 3442 live related transplant were performed at our center. Of these, 256 had multiple arteries. Implantation was by double barrel with side to side anastomosis using 7/0 non absorbable running sutures. In some cases end to side anastomosis was performed. Most of the graft renal arteries were anastomised with external iliac artery in end to side fashion using 6/0 non-absorbable running sutures. Ureter was anastomised with urinary bladder in extravesical Lich-Gregoir Technique. DJ stents were placed in some cases. All patients received a cyclosporine based triple during regimen. The outcome of recipients with multiple arteries grafts were compared with age, gender and transplant period matched controls with single vessels transplanted in the same period.

Results: Of the 3442 live related transplants, 256 (7.5%) graft had multiple arteries. The mean age of the recipient was 29.6 + 9.7 with a M:F ratio of 3.4:1. Of the 256 grafts 241 (94%) had double, 14 (5.4%) triple and 1 (0.4%) five vessels. Delayed graft function was observed in 35 (13.6%). Complications were encountered in 6 (2.3%). Re-exploration in 2, re-implantation of ureter in 2, re-implantation in 1 and primary nonfunction in 1. Acute rejection rates were 13% in multiple artery cased vs 11% in controls. One and five year graft survival in multiple artery cases was 96% and 85% vs 96% and 83% respectively in controls.

Conclusions: The outcome of graft with multiple arteries was similar to the control group with single artery. The presence of multiple renal arteries in kidney grafts should not be considered a risk factor for graft outcomes.

COMPARISON OF GRAFT SURVIVAL BETWEEN FIRST AND SECOND KIDNEY TRANSPLANTATION

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Introduction: The goal of this study is to compare kidney graft survival after first and second transplantation.

Materials and Methods: This retrospective cohort study was done in Nemazi Hospiatal (Shiraz) between February 1992 and February 2010. Survival of 68 second transplantation was compared with a 200 first transplant patients who were randomly selected from 2175 patients. Some parameters where also considered. A questionnaire containing demographic and para-clinical items was collected and statistical analysis was done by SPSS 16 software.

Results: Second transplant patients contained 22 female and 46 male which age average of 35.57 years (18-70). In this group 48.5% of transplantation was from Deceased-Donor, 33.8% from living unrelated and 12.0% from living related. Survival after 1,3,5 and 7 years in second transplant was 91.9%, 87.2%, 86.3% and 86.3% respectively in compare to 98.3% , 95.4%, 90.2%, and 88.7% in first transplantation (p-value: 0.13). Following parameters have significant impact on survival of transplanted graft: 1- duration of hospital stay after transplantation 2- transplant rejection in hospital 3- Hemodialysis in first week after transplantation 4 creatinine level after discharge.

Conclusions: It seems that second transplantation have valuable results and could be a method choice for patients who first transplantations was failed.

OUTCOMES OF RENAL TRANSPLANTATION AFTER END-STAGE RENAL DISEASE DUE TO DIABETIC NEPHROPATHY: A SINGLE-CENTER EXPERIENCE

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Introduction: Compared with non-diabetic subjects, patients with type 2 diabetes and end-stage renal disease (ESRD) have seldom been selected for renal transplantation. It was the aim of this study to compare the long-term prognoses of the two groups of patients after transplantation.
and to identify factors associated with allograft rejection.

**Materials and Methods:** We retrospectively studied 354 patients who underwent kidney transplantation between 1979 and 2013, including 84 with diabetic ESRD (DM group) (type 1, n=8; type 2, n=76) and 270 with non-diabetic ESRD (NDM group). Mean follow-up in 338 out of 354 patients (93.1%) was 92±9 (0.1–386) months.

**Results:** Mean age was higher in the DM group (51.8 vs 44.6 years; P < .0001), and there was no significant difference in recipient gender, donor age or donor source. There was no significant difference as regards pre-transplant hypertension or duration of dialysis. At the end of follow-up also, there were no differences between the groups with respect to blood pressure control (patients with diabetes 139.3±16.7/81.7±7.6mmHg vs patients without diabetes 138.3±19.7/82.1±8.1mmHg, P = 0.83/0.80) and renal function (creatinine, 115.4±47.1 vs 133.4±80.2µmol/L, P = 0.18; calculated creatinine clearance, 69±24 vs 68.4±24mL/min/1.73m², respectively, P = 0.9). In total, 26 patients had acute transplant rejections [eight patients with diabetes (prevalence 16.3%) vs 18 patients without diabetes (prevalence 7.1%), P = 0.11]. There was no significant difference in post transplant surgical complications as wound dehiscence or infections. The incidence of rejection did not differ between the DM and NDM groups. There was a significant high incidence of the urinary tract infection rate in DM group (17 vs 32 patients; P = .012). Four out of 22 patients died (18.2%) in the DM group and 10 out of 47 patients died (21.3%) in the NDM group died from cardiovascular disease during the follow-up period (P = 0.17). The 1-, 5-, and 10-year patient survival rates in the DM group were 97.5% vs 99% (ns), 74.4% vs 77.9% (ns), and 56.8% vs 58.8% (ns), respectively. The 1-, 5-, and 10-year graft survival rates were 97.5% vs 70.7% (ns), 77.2% vs 95.2% (P = 0.04), and 58.9% vs 66.1% (ns), respectively.

**Conclusions:** Renal transplantation in diabetic ESRD patients yields good results in terms of patient survival and complications, suggesting that renal transplantation can be performed in these patients and should become a more established treatment option.

**O138**

**POLYOMAVIRUS NEPHROPATHY: PROGNOSTIC IMPORTANCE OF HISTOPATHOLOGICAL FINDINGS AND RECENT GRADING SCHEMA THAT WAS PROPOSED BY POLYOMAVIRUS WORKING GROUP IN 10TH BANFF CONFERENCE**

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**Introduction:** Polyomavirus nephropathy (PVN) is one of the important and leading causes of renal allograft failure. The diagnosis of PVN requires an allograft biopsy. Nevertheless the impacts of the histological findings on graft outcome are incompletely understood.

**Materials and Methods:** Renal biopsies of 22 patients (M/F: 18/4) with a mean age of 38.1±17 years (range, 2-66 years)
were included in the study. Viral cytopathic changes were noted and interstitial fibrosis (IF), tubular atrophy (TA) and inflammation were scored. All biopsies were staged and polyomavirus viral load (pvl) was scored according to recent Banff classification.

Results: The mean interval between the diagnosis of PVN and transplantation was 9.2±8 months (range, 3–27 months). Tacrolimus (72.7%) was the most common immunosuppressive among our patients. Of 22 patients allograft biopsy was revealed stage A PVN in 3 (13.6%), stage B PVN in 17 (77.3%) and stage C PVN in 2 (9.1%) patients. Total 14 (63.6%) patients had pvl3, while 5 (22.7%) showed pvl2 and 3 showed pvl1. PVN lesions were noted both in cortex and medulla sometimes in a patchy pattern. Especially in cases with multiple tissue cores, areas of unaffected parenchyma was also noted as PVN positive and negative cores. Among our patients 18.1% had acute humoral rejection and 27.2% had acute cellular rejection at the same time with PVN. The risk of graft loss was found to be increased with increasing PVN stage and pvl (p<0.05 and p<0.01 respectively). Additionally graft loss was found to be increased with increasing degree of lymphocyte and plasma cell infiltration (p<0.05 for both). Interstitial fibrosis, tubular atrophy, and positive glomerular SV-40 have also shown a great influence on graft lost (p<0.05 for all).

Conclusions: PVN had a tendency of patchy involvement in biopsies. Due to this nature of PVN multiple tissue cores both from cortex and medulla should be taken in consideration. Histological findings were found to be correlated well with graft outcome. In addition we showed that recent staging schema of the PVN and pvl are good prognostic markers for the allograft survival.

O139
MANAGEMENT OF BK POLYOMA VIRUS IN KIDNEY TRANSPLANT RECIPIENTS AT THE ROYAL HOSPITAL – OMAN

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Introduction: Nephropathy from BK virus (BKV) infection is a growing challenge in kidney transplant recipients globally. It is the result of contemporary potent immunosuppressives aimed at reducing acute rejection and improving allograft survival. Untreated BKV infections lead to kidney allograft dysfunction or loss. Decreased immunosuppression is the principle treatment but predisposes to acute and chronic rejection. Screening for early detection and prevention of symptomatic BKV nephropathy may improve outcomes. Although no approved antiviral drug is available, leflunomide, cidofovir, quinolones, and IVIG have been used. Since the introduction of the new immunosuppressive agents in the transplant regimen at the Royal Hospital, few cases of BKV have been detected, and the challenge was to decide upon the best treatment option

The nephrology consultant and the clinical pharmacist reviewed all the BK cases and the royal hospital. Extensive literature review carried out by the pharmacist to look into the prevalence, prognosis and treatment of BK nephropathy. A treatment protocol was prepared by the clinical pharmacist through guidance of the consultant and was peer reviewed by team of clinical pharmacists and nephrology doctors and approved by the consultant. The treatment options were applied stepwise in all the patients with BK nephropathy. From 2008, in our centre we prospectively screened all kidney transplant recipients for BKV. The biographic data of all patients were filled in a designed spreadsheet. All the results were filled in the excel data sheet and simple analytical method was used to generate the results.

Results: Nineteen (6.3%) patients out of 300 kidney transplant recipients were diagnosed with BKV. Seventeen (89.5%) patients were completely treated from BKVN with good renal functions except four (21%) patients, who were having their creatinine clearance less then 50ml/min/1.73m2

Conclusion: BKVN is an emerging complication of kidney transplantation. The prevalence is alarming and requires increasing awareness. The use of cidofovir, leflunomide ciprofloxacin and immunoglobulins are still questionable. Our audit confirms that reducing immunosuppression appears to be the best approach for the treatment of BKVN until a safe antiviral agent becomes available to treat this condition.

O140
PROGRESSION OF HEPATIC HISTOPATHOLOGY IN RENAL TRANSPLANT RECIPIENTS WITH CHRONIC HCV INFECTION AND EFFECT OF IMMUNOSUPPRESSION ON THE COURSE OF HCV INFECTION

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Introduction: Chronic HCV infection in hemodialysis patients and kidney transplant recipients is associated with an increased mortality and morbidity due to liver disease. In this study we investigated the progression of hepatic histopathology in renal transplant recipients with chronic HCV infection. We searched for whether pretransplant chronic HCV treatment do play a role in progression of hepatic inflammation or fibrosis and also investigated how immunosuppressive therapy influences post transplant course of viral replication and hepatic histology.

Materials and Methods: Our study group included 83
renal transplant recipient with chronic HCV infection. All demographic data and laboratory test results were obtained from patients’ files who were followed up during 1993-2013 at Gastroenterology and Hepatology department, Baskent University Ankara Hospital.

Results: Thirty of 83 patients had pretransplant HCV treatment with interferon and 14 of 28 patients with long term data had sustained viral response rates. Seventy-five and 8 patients were genotype 1 and 4 respectively. Forty-five of them (45%) had pretransplant liver biopsies which showed hepatocellular injury in 23 patients, mild chronic hepatitis in 17 patients and moderate chronic hepatitis in 6 patients. Sixteen of 45 patients also had postransplant liver biopsies. Eight of 16 patients progressed from hepatocellular injury to mild hepatitis, 3 of 16 patients regressed from mild hepatitis to hepatocellular injury and 5 of 16 showed no difference in control biopsies. Patients were on combined immunsuppressive therapy consisting mainly Cyclosporine, Tacrolimus, Mycophenolate Mofetilium, Azathiopurine or Sirolimus. Thirty nine of 83 patients were HCV RNA negative during renal transplantation. Eleven of 39 patients remained as HCV RNA negative after renal transplantation, however serum HCV RNA levels tested as positive in 28 of 39 patients. Higher viral load (> 600000IU/L) was associated with significantly lower levels of patient survival and higher probability of dying from sepsis. The development of seropositivity for HBVDNA was significantly lower in patients who were on Tacrolimus treatment.

Conclusions: We think that even with worse genotype profiles chronic HCV infection has an indolent progression in patients with end stage renal disease and renal transplant recipients. Posttransplant reactivation of chronic HCV infection is high however the course of infection is probably worse in only highly viremic patients. Tacrolimus has favorable impact on outcome of patients with HCV infection than other commonly used immunsuppressive drugs.

O141
RISK FACTORS FOR INVASIVE FUNGAL INFECTION AFTER LIVING DONOR LIVER TRANSPLANTATION: IMPACT OF MELD SCORE AND ACUTE RENAL INJURY

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Introduction: Fungal infection is associated with high mortality rate for liver transplantation. Understanding the risk factors associated with fungal infection may facilitate identification of high risk patients and guide appropriate initiation of antifungal therapy. The aim of the study was to retrospectively assess the risk factor for fungal infection and mortality in living donor liver transplantation (LDLT).

Materials and Methods: Patient records for 153 patients undergoing LDLT from January 2005 to April 2012 were retrospectively evaluated. Fungal infection was defined as proposed by the European Organization for Research and Treatment of Cancer/Mycoses Study Group. Patients with definite or probable infection were diagnosed as having specific invasive fungal infection in this study. Multivariate analyses were performed to identify risk factors for fungal infection.

Results: Sixteen patients (10.4%) developed fungal infection, involving Candida spp, Aspergillus spp and Tricosporon (n=2). MELD score and diabetes mellitus were significantly related to fungal infection (P<0.05). On multivariate analysis, independent risk factors associated with fungal infection were MELD<26 (Odds ratio 16.0, p=0.0012) and acute renal injury (RIFLE criteria I-or F-class) (Odds ratio 4.87, p=0.047). Eight of these patients died of mainly graft failure or sepsis. The survival rate were significantly lower in patients with fungal infection than in those without (1-, 3- and 5-yr survival rate: 62.5/55.6/36.7% vs 90.4/85.7/81.8%, p=0.002)

Conclusions: Fungal infection was associated with increased mortality. Risk factors for fungal infection were High-MELD and acute renal injury. Treatment strategies involving antifungal prophylaxis for high-risk patients and earlier initiation of antifungal therapy were warranted.

O142
IS THERE ANY RELATIONSHIP BETWEEN PRETRANSPLANT IRON LOAD AND EARLY POST OP INFECTIONS

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Introduction: This study was designed to survey the extent of iron overload and its effect on the infections during the first 6 months after liver transplantation. In a similar study that was conducted to prove that the amount of iron storage is independently related to the post transplant infections and mortality rate. In another study, the incidence of invasive fungal infections and the amount of deposited iron in the extracted liver was proved to be an independent and significant factor.

Materials and Methods: The study was preformed on 582 patients in period of 21.1.2012 till 21.6.2013 in Namazi transplant center that went under liver transplant procedure. these patients were followed for 6 months after transplantation and 140 of them during this period who had
infection with complete data needed were included in the study.

Results: This study done at this Centre showed no significant relation between the amount of iron storage (serum Iron/TIBC/Ferretin) and infection during the first post transplant 6 months, but There were significant relationship between the rate of infection and MELD score of patients and length of hospitalization. In this study, the incidence of infection and other parameters, including massive transfusion of pack cell/platelet/FFP and long operation time (> 5 h) and the child score were not significantly related.

Conclusions: Although in some studies the relationship between infection and elevated iron storage has been proven, in the present study, this matter was not proved. But it is still suggested that the iron storage should be evaluated in patients before liver transplantation.

O143
SIGNIFICANCE OF NUTRITIONAL ASSESSMENT AND NUTRITIONAL SCREENING TOOLS IN PREDICTING COMPLICATIONS OF LIVER CIRRHOSIS

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Introduction: Protein energy malnutrition (PEM) is a common complication of liver cirrhosis, it has been found to increase morbidity and mortality in these patients. In patients with liver cirrhosis PEM is prevalent among 65%–90% of decompensated and 20% of compensated liver cirrhosis. In liver transplantation PEM has been reported in 100%of patients prior to transplantation. Malnourishment was found to be an independent risk factor for morbidity and mortality in patients following liver transplantation. Our objectives were to correlate PEM to the incidence of complications in patients with liver cirrhosis. Also correlate PEM assessment tools with the incidence of complications of liver cirrhosis.

Materials and Methods: This study was conducted on 45 cirrhotic patients child C with or without complications. The patients were divided into two groups; group I included 30 patients with moderate to severe degree of malnutrition and group II which included 15 patients with mild degree of malnutrition.

Results: The rate of various complications is higher in patients with severe malnutrition, TSFT and MAC has the highest sensitivity 85.71%, 100% & specificity 90%, 60% respectively to rate of complications (p < 0.0001 & area under the ROC curve= 0.879).

Conclusions: Complications of liver cirrhosis are highly correlated to degree of malnutrition. Anthropometric measures as TSFT &MAC in comparison to other assessment tools showed higher sensitivity & specificity to the rate of complications. Also TSFT showed high sensitivity and specificity with the body fat %.

O144
GRAFT VERSUS HOST DISEASE AFTER LIVER TRANSPLANTATION: SINGLE CENTER EXPERIENCE

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Introduction: Graft versus host disease (GVHD) is a rare post liver transplantation complication with high mortality. Since 1988, about 80 cases had been reported with mortality rate of 80-100%. We describe our single center experience with four cases of GVHD diagnosed over a period of 13 years in a total of 529 Liver transplant recipients (255 deceased donor liver transplant (DDLT) and 276 living-related liver transplant (LDLT).

Case reports: We are reporting a case series of 5 patients with acute GVHD post liver transplantation from May 2001 till June 2013. Three of them had been transplanted in our center, and the other one in USA. Four cases were males; age 51-67 (average 59). The indication for liver transplantation was HBV related cirrhosis in two, one with hepatocellular carcinoma, HCV in 2 cases, and AIH. The MELD Score at the time of transplantation ranged from 14-20, with an average of 18. The duration from transplantation until clinical presentation ranged from 8 to 12 weeks. Four cases had diarrhea and pancytopenia, three out of five presented with erythematous skin rashes and one had cytomegalovirus colitis. GVHD was confirmed through skin biopsies, engraftment profile from bone marrow biopsy and sigmoid colon biopsy. Treatment strategies included use of corticosteroids in four cases, and stopping immunosuppression in one case. Four cases died 27 to 96 days from clinical presentation (average 52 days) and one patient with mild form of GVHD still alive 180 days after clinical presentation.

Conclusions: GVHD is a rare complication after liver transplantation that needs a high index of suspicion in patients who develop rash, diarrhea or severe cytopenia, there is no consensus on the best treatment regimen; and mortality remains high.
O145
REGIONAL ANESTHESIA AND RENAL ALLOGRAFT REJECTION AFTER RENAL TRANSPLANTATION

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Introduction: General anesthesia and perioperative neuroendocrine response are associated with a state of immunosuppression, which may be attenuated by regional anesthesia. Although this effect of regional anesthesia has the potential advantage to decrease infectious complications and cancer metastases, the role of this technique in transplant surgery, where perioperative immunosuppression is desired, is not clear. We therefore undertook this retrospective study to determine whether regional anesthesia is associated with an increased risk of renal allograft rejection in a cohort of renal transplant recipients.

Materials and Methods: We used our database to do a retrospective cohort study of 446 patients, who underwent renal transplantation under general or regional (epidural or combined spinal-epidural) anesthesia between May 1998 and January 2008, in Baskent University Hospital. Patients with multiple renal transplants (n=31) or multiple organ transplants (n=2), and those with failed or inadequate regional anesthesia (n=64) were excluded from the study population. Setting anesthesia technique as the comparing factor logrank test was used to compare the graft rejection and survival rates. We used clinical and statistical significance to develop a multivariate logistic regression model to determine the independent risk factors for graft rejection and survival rates.

Results: Of the 349 patients, who were included in the final analyses, 220 (59%) received regional anesthesia. Patients who received regional anesthesia were not significantly different from those who received general anesthesia in terms of demographic features, systemic disease, donor characteristics, surgical complications, and immunosuppressive protocols (P >.05 for all). Regional anesthesia was associated with an increase in 1-year graft rejection rate after the transplantation (42% vs 31%, logrank P =.045, (figure 1) odds ratio 2.1, 95% CI 1.2-3.5, multivariate logistic regression P =.006). [figure1] The rates of 1-year graft loss after transplantation for regional and general anesthesia were 8% and 5%, respectively (logrank P =.301).

Conclusions: Regional anesthesia was associated with an increased risk of 1-year renal allograft rejection after renal transplantation in our series. This finding suggests that anesthesia technique may have an important immunomodulatory role in transplant surgery.

O146
Efficacy of Tandem Hemodialysis and Immunoadsorption to Desensitize Kidney-Transplant Candidates

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Introduction: We have implemented a desensitization program in our center to enable transplantation in end-stage renal disease patients that have a living donor who is either ABO incompatible (ABOi) and/or HLA incompatible (HLAi).

Materials and Methods: A pre-transplant desensitization program relies on immunosuppressants and apheresis to remove detrimental antibodies. We have chosen immunoadsorption (IA) as the apheresis technique, and decided to couple this with hemodialysis (HD) in a tandem procedure.

Results: We report on the efficacy of this new method in 120 procedures performed in 20 patients (10 ABOi, 3 ABOi/HLAi, 7 HLAi). The tandem procedure was well tolerated and less time-consuming than IA and then HD (6 h vs. 10 h). The tandem procedure was associated with significantly decreased isoagglutinin titers and donor-specific alloantibodies (mean fluorescence intensity). With regards to the course at post-transplantation i) one ABOi/HLAi patient presented with vein thrombosis and lost his kidney, ii) two patients presented with steroid-sensitive cellular acute rejection and iii) two patients presented with acute antibody-mediated rejection successfully treated with apheresis, and steroid pulses, plus rituximab in one and eculizumab in the other one.

Conclusions: We conclude that the tandem IA/HD procedure is efficient at desensitizing ABOi and/or HLAi end-stage renal patients who are candidates for living donor-kidney transplantation.
O147
EARLY DIAGNOSIS AND SUCCESSFUL MANAGEMENT OF ACUTE HUMORAL REJECTION VIA REGIONAL TISSUE OXYGEN SATURATION PROBE

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Introduction: Clinical presentations of early vascular complications and acute rejections in kidney transplantation are severe and usually cause graft failure. Early diagnosis of these complications is very important in order to start immediate treatment. Near-infrared spectroscopy (NIRS) is a noninvasive, portable technology similar to pulse oximetry, which monitors oxygenation in the brain, muscle, and other organs to detect tissue hypoxia-ischemia in real-time. Here we present early diagnosis of an acute humoral rejection detected via regional tissue oxygen saturation (SctO2) probe which was associated with a decrease in urinary output and confirmed by renal transplant Doppler ultrasonography (USG) scan and renal biopsy.

Case Report: A 52-year-old male patient underwent a second renal transplantation from a living donor. His preoperative panel reactive antibody (PRA) levels were 14% and 80% for class I/II respectively. There were two donor specific antibodies (MFI values were 2465 and 2814) but lymphocyte cross match tests (complement dependent cytotoxicity, flow cytometry and luminex) were negative and no desensitization protocol was used. 100 mg antithymocyte globulin (ATG) was used for induction therapy and 1000 mg methylprednisolone was given during the operation. An intraoperative bleeding occurred from renal vein anastomosis and 2 units of erythrocyte suspension were infused however during the anesthesia course the patient’s hemodynamic parameters were stable. Cold ischemia time was 2 hours and 5 minutes. With the end of the surgery renal graft’s oxygen saturation was monitored with a SctO2 probe as a part of a prospective study designed by the anesthesiology department. At the postoperative 10th hour a sharp decline in PRA level (<10%) and 10 of them showed negative crossmatch. Development of interstitial fibrosis (IF) in renal allografts was compared between study group (Group 1, patients under Simvastatin therapy, n: 30 cases) and control group (Group 2, n: 32 cases). CD34 (microvessel density, MVD), CD68 (macrophage) and VEGF antibodies were stained immunohistochemically on 1st year biopsies of all cases.

Results: The rate of acute rejection (AR) was very low in Group 1 cases compared to group 2 cases (p<0.001). Group 1 patients showed lower incidence of IF development when compared to Group 2 patients (p<0.01). MVD was found significantly higher in Group 2 (114±9.3) than Group 1(79±4.4) renal allografts (p=0.001). In addition the expression of tubular VEGF in Group 2 was found higher than Group 1 cases (p<0.01). A significant positive relationship was found between IF and MVD (p<0.01). The overall 1-, 2- and 3- year graft survival rates for Group 1 were 96%, 96% and 93% respectively. The corresponding graft survival rates were 90%, 72% and 72% for group 2 recipients. Significant difference was noted (p<0.05).

Conclusion: We consider that regional SctO2 can be an indicator for early complications of renal transplantation. Further prospective studies are needed to support our hypothesis.

Reference

O148
INFLUENCE OF SIMVASTATIN ON ANGIogenesis AND INTERSTITIAL FIBROSIS IN RENAL ALLOGRAFTS THAT WERE UNDER SIMVASTATIN THERAPY PRE AND POST TRANSPLANTATION FOR THE TREATMENT OF SENSITIZATION

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Introduction: We previously reported that Simvastatin had a significant immunosuppressive effect in PRA-positive and/or crossmatch-positive patients. We aimed to show the influence of Simvastatin on renal allografts of these patients during 36-month follow-up.

Materials and Methods: Our study group includes 30 patients and after Simvastatin therapy 20 of them had showed sharp decline in PRA level (<10%) and 10 of them showed negative crossmatch. Development of interstitial fibrosis (IF) in renal allografts was compared between study group (Group 1, patients under Simvastatin therapy, n: 30 cases) and control group (Group 2, n: 32 cases). CD34 (microvessel density, MVD), CD68 (macrophage) and VEGF antibodies were stained immunohistochemically on 1st year biopsies of all cases.

Results: The rate of acute rejection (AR) was very low in Group 1 cases compared to group 2 cases (p<0.001). Group 1 patient’s showed lower incidence of IF development when compared to Group 2 patients (p<0.01). MVD was found significantly higher in Group 2 (114±9.3) than Group 1(79±4.4) renal allografts (p=0.001). In addition the expression of tubular VEGF in Group 2 was found higher than Group 1 cases (p<0.01). A significant positive relationship was found between IF and MVD (p<0.01). The overall 1-, 2- and 3- year graft survival rates for Group 1 were 96%, 96% and 93% respectively. The corresponding graft survival rates were 90%, 72% and 72% for group 2 recipients. Significant difference was noted (p<0.05).
Conclusions: Simvastatin treated patients showed lower incidence of AR, IF and graft loss. The possible reason of this may be explained by the immunosuppressive and anti-angiogenic effect of Simvastatin, which prevents AR development and angiogenesis. By preventing these processes the density of cells that were secreting factors predisposing to fibrosis will be decline.

O149
T REGULATORY CELLS IN CHRONIC RENAL REJECTION VERSUS STABLE ALLOGRAFT

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Introduction: Studying regulatory T cells in kidney allograft acceptance versus chronic rejection may help in understanding more mechanisms of immune tolerance, hoping in the future to be able to induce it and thus decrease the immunosuppressive drugs. The aim of the current study is to evaluate regulatory T cells in kidney transplanted patients with stable graft versus transplanted patients with biopsy proven chronic rejection.

Materials and Methods: Three groups were studied: kidney transplanted patients with no rejection episodes [n = 43]; transplanted patients with biopsy-proven renal rejection [n = 27]; healthy age-matched non transplanted individuals as controls [n = 42]. Percentage of Treg (CD4+CD25+ FOxP3+) cells in blood was done by Flow cytometry technique.

Results: Treg percentage was significantly lower in chronic rejection patients compared to control as well as graft stable groups. No significant difference was found between graft stable Treg percentage and control group. In graft stable group, patients on Rapamune (Sirolimus) had a significantly higher Treg percentage compared to patients on cyclosporine. No effect of donor type, infection or duration post-transplant, on Treg percentage was found.

Conclusions: The results of the current study are consistent with previous studies addressing the role Treg cells in inducing immunotolerance post kidney transplantation. Considering the established role of Treg cells in graft maintenance and our observation of high Treg percentage in patients receiving Rapamune (Sirolimus) compared to cyclosporine, we recommend to include it when possible in the immunosuppressive protocols. The findings from the current study on the chronic rejection group, supports the ongoing research of having a treatment with Treg cells, which may constitute in the future a novel efficient anti-graft rejection therapy.

O150
USING LNA-ARRAY FOR DETECTING THE REGULATORY MICRO RNAS IN LIVER TRANSPLANT PATIENTS

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Introduction: MicroRNAs (miRNAs), a class of conserved noncoding RNA molecules produced by a multi-step biogenesis pathway, have been shown to be a fundamental mechanism of gene expression regulation, targeting the 3’ untranslated region (UTR) of specific target messengerRNAs (mRNAs) for endonucleolytic cleavage or translational repression. One of the first clues of the existence of miRNAs in mammals came from studies on genetic alterations in liver tumors. The molecular mechanisms underlying transcriptional regulation of miRNA genes in the liver remain largely unknown. For a comprehensive understanding of miRNA function and potential therapeutic use in liver physiology and disease, identification and validation of miRNAs and their targets are of fundamental importance.

Liver transplantation has developed from a risky, experimental procedure to a lifesaving and effective treatment of end-stage liver failure. However, despite this success, transplant recipients can suffer from serious side effects of long-term immunosuppression and remain at risk for de novo malignancies, and they can lose their allografts because of rejection, recurrent disease, or biliary complications. Therefore, there is an urgent need for better biomarkers that can provide earlier and more sensitive signs of rejection or liver graft dysfunction in a noninvasive fashion. Because of their cell type-specific distribution, biological stability, and detection sensitivity, miRs could be promising candidates for this. Using LNA microarray, in this study we tried to find the most important panel of up- or down-regulated microRNAs in liver transplant rejected patients.

Materials and Methods: Biopsies from 13 (5 female and 8 male) liver transplanted patients which were divided into 2 groups of rejected (8 liver transplanted patients) and non-rejected (5 liver transplanted patients) were used for extraction of miRNAs and used for LNA-array analysis. The result of array will be tested in more biopsies of liver graft dysfunction in a noninvasive fashion. Because of their cell type-specific distribution, biological stability, and detection sensitivity, miRs could be promising candidates for this. Using LNA-microarray, in this study we tried to find the most important panel of up- or down-regulated microRNAs in liver transplant rejected patients.

Results: The result of microarray showed that in 7 miRNAs the absolute value of the fold changes were larger than 1. Four up-regulated (has-miR-122-3p, -4284, -548as-3p and 194-5p) and Four down-regulated miRNAs (has-miR-4511, -3158-5p, -4633-5p and -4449) chose for checking in more patients.
Conclusions: The results showed that although more studies are needed for choosing miRNAs as markers for rejection but they have an outstanding potential to announce the rejection very earlier than any method in liver transplanted patients.

O151
BORDERLINE CHANGES ON DYSFUNCTIONAL RENAL ALLOGRAFT BIOPSIES: CLINICAL RELEVANCE IN A LIVE RELATED RENAL TRANSPLANT SETTING

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Introduction: To determine the clinical significance of borderline lymphocytic infiltrates on indicated renal allograft biopsies in a live related renal transplant setting.

Materials and Methods: The study was conducted at the histopathology department of Sindh Institute of Urology and Transplantation (SIUT). A retrospective review of case files of 421 renal transplant patients was carried out from October 2007 to September 2008 to identify patients in whom a histological diagnosis of borderline changes was made on dysfunctional renal allograft biopsies. The data items of demographic, clinical, laboratory data, biopsy findings, treatment given and the response to treatment were collected and analyzed. Standard biopsy indications were used for performing graft biopsies. The biopsies were reported according to the Banff criteria.

Results: The mean age of recipients was 26.92 ± 9.14 years (range: 10-45 years) and of donors 38.46 ± 9.16 years (range: 19-50 years). The males were predominant among the recipients (84.6 vs. 15.4%), and females among the donors (57.7 vs. 42.3%). The best serum creatinine levels were 1.79±1.15 mg/dl (range: 0.83-6.12 mg/dl). These were achieved after a median of 3 days (IQR:2-7.25 days). The dysfunctional biopsies exhibiting borderline infiltrates were done at a median duration of 5.5 days (IQR: 3-14.25 days). The mean serum creatinine at the time of biopsies was 2.34±1.43 mg/dl (range: 1.25-86.25 mg/dl). The biopsies showed borderline cellular infiltrates (i1 and t1 lesions). All except one received antirejection treatment (five received ATG, one escalation of prograf dosage and rest pulse steroids) and all responded with a decline in serum creatinine toward baseline level, with the mean serum creatinine of 1.31±0.42 mg/dl (range: 0.40-2.71 mg/dl). This was achieved at a median duration of 9.73±5.32 days (range: 1-23 days) after starting treatment.

Conclusions: The borderline cellular infiltrates on dysfunctional renal allograft biopsies signify evolving phases of acute cellular rejection and respond favorably to antirejection treatment in our setting.

O152
MHCII+ REGULATORY CD8+ T CELLS INDUCED BY TROGOCYTOSIS, A CHIMERIC SUBSET AND A BRIDGE TO IMMUNE TOLERANCE

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Introduction: Exchanges of membrane patches and cytoplasm (Trogocytosis) split theoretical and actual functions of immune cells. Through Trogocytosis, intercellular transfer of histocompatibility complexes class II (MHC II) molecules has been thoroughly observed in T lymphocytes, the function of transferred MHC II antigens in T lymphocytes is still a subject of much debate, and especially its relevance with transplant tolerance and regulatory T cells (Tregs) generation remain unknown.

Materials and Methods: By using a model of transplant tolerance mediated through CD8+ Tregs in rats, here, we showed that the increased expression of MHC II molecules on CD8+ Tregs was not only a marker to identify tolerogenic CD8+ Tregs, also functional mediated the tolerance induction after adoptive transfer.

Results: Trogocytosis occurred between CD8+ Tregs and autogenic or allogenic pDCs and was observed in vivo in spleen and allograft section and in vitro coculture experiment, by which induced the higher expression of MHC II antigens in CD8+ Tregs. The intercellular exchanges between CD8+ Tregs and pDCs were bidirectional and included not only the membrane anchored proteins, but also cytoplasmic protein, hence induced the generation of chimeric donor specific tolerogenic CD8+ Tregs.

Conclusions: In conclusion, here, we explored a novel mechanism of the generation of donor specific CD8+ Tregs by Trogocytosis, chimeric tolerogenic CD8+ Tregs were generated by capturing the MHC II molecules from pDCs, and then mediated the tolerance induction.
O153
SPECTRUM OF HISTOPATHOLOGIC DIAGNOSIS OF LYMPH NODE BIOPSIES AFTER LIVER AND KIDNEY TRANSPLANTATION

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Introduction: Our aim was to review our single center experience regarding histopathological features arising from enlarged lymph nodes following solid organ transplantation.

Materials and Methods: In 2148 people who had solid organ transplant from 1985 to 2013, there were 36 patients (1.67%) who developed lymphadenopathy. A retrospective review is performed to evaluate demographic, clinical, and histopathological features of medical and pathological records.

Results: Non-neoplastic lesions were more common, comprising 72.2% (n=26) of all the cases which included non-specific reactive lymphoid hyperplasia in 10 patients (27.7%), tuberculous lymphadenitis in 6 patients (16.6%), amyloidosis in 5 patients (13.8%), dermatopathic lymphadenopathy in 2 patients (5.5%), Kikuchi-Fujimoto disease in 1 patient (2.7%), hemangioma in 1 patient (2.7%) and sea blue histiocyte 1 patient (2.7%). The neoplastic lesions comprised 27.7% (n=10) of the cases which included non-Hodgkin lymphoma in 6 patients (16.6%), kaposi sarcoma in 2 patients (5.5%), metastatic carcinoma in 1 patient (2.7%) and plasmacytic form of Castleman's disease 1 patient (2.7%).

Conclusions: Detecting enlarged lymph nodes in solid organ transplant recipients is of infrequent occurrence. Lymph node biopsy plays an important role in establishing the cause of lymphadenopathy. Enlarged lymph nodes in transplant recipients will mostly be related to posttransplant lymphoproliferative disorder or tumoral recurrence compared with normal population. Infectious diseases should be taken into consideration as well as PTLD and malignities related to transplantation in differential diagnosis, when encountered with enlarged lymph nodes in solid organ transplant recipients.

O154
BONE MARROW INVOLVEMENT BY LYMPHOPROLIFERATIVE DISORDERS AFTER SOLID ORGAN TRANSPLANTATION

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Introduction: Posttransplant lymphoproliferative disorders (PTLD) are classified as monomorphic, polymorphic, early lesions, or Hodgkin lymphoma type. Bone marrow staging examination is recommended in PTLD patients; however, information regarding bone marrow involvement in these disorders is scarce. We evaluated 20 transplant patients with PTLD to investigate incidence of bone marrow involvement and associated morphologic changes as well as prognosis.

Materials and Methods: We retrospectively assessed bone marrow findings of 20 transplant patients including 19 patients with PTLD who had undergone bone marrow staging and one patient who had undergone bone marrow biopsy due to cytopenia diagnosed with PTLD at Baskent University from 1985 to 2013. Clinical and pathologic data were reviewed from the medical records of patients who had PTLD. Follow-up information was obtained from medical records or by direct communication with patients or families. Data collected included age, sex, Epstein-Barr virus status before and after transplant, immunosuppressive therapy, elapsed time from transplant to diagnosis of PTLD, B symptoms, number of extranodal sites, involvement of different organ, Ann Arbor clinical staging, various hematologic parameters and serum lactate dehydrogenase (LDH) levels.

Results: Six (30%) of them showed bone marrow PTLD involvement, of these six patients two of them diagnosed with PTLD by lymph node biopsy, one of them diagnosed by liver biopsy, one of them diagnosed by nasopharynx biopsy, one of them diagnosed by graft liver biopsy and last one diagnosed by bone marrow examination. Four of the patients showed monomorphic PTLD subtype and two of them showed early lesion PTLD subtype. Four of the patients who showed bone marrow PTLD involvement are liver recipients (2 pediatric, 2 adult), and two of them is kidney recipient (2 adult). In 10 of 19 (52%) patients Epstein–Barr virus (EBV) detected with in situ hybridization method including three patients with BM involvement which are respectively diagnosed with Burkitt lymphoma, DLBCL and early lesion. EBV infection was observed in seven of 19 patients (36.8%) without BM involvement or morphologic abnormalities. Epstein–Barr virus (EBV) detected at one patient who was diagnosed with PTLD of bone marrow.

Conclusions: High incidence of BM involvement in patients with PTLD and high mortality rates of these patients suggest BM examination study may be important in diagnosis and staging work-up of PTLD.
**O155**

**BONE MINERAL DENSITOMETRY AND EFFECTING FACTORS IN PATIENTS WITH THE SUCCESSFUL RENAL TRANSPLANTATION OUTCOME**

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**Introduction:** Successful renal transplantation corrects many disorders of bone and mineral metabolism due to the normalization of serum levels of calcium, phosphorus and restoration of calcitriol production. However, successful transplantation does not guarantee complete resolution of the pretransplant osteopathy. The development of posttransplant osteopathy is also related to abnormal renal function and long-term immunosuppressive therapy.

**Materials and Methods:** This study evaluated 100 patients who underwent successful renal transplantation and who had normal graft functions, without active inflammation, diabetes mellitus and malnutrition. In our study, we determined the possible risk factors for osteoporosis among 72 male and 28 female renal transplant patients of mean age 32.3±10.0 years with 81% recipients of living-related grafts. Bone mineral densitometry (BMD) was performed in all patients before and at least 1 year after transplantation. Pre- and posttransplant data included gender, age at dialysis onset, age at transplantation, pretransplantation dialysis duration and modality, BMI, albumin, serum calcium, phosphorus, parathyroid hormone, ALP, lipid profile, smoking, menopausal status, and immunosuppressive treatment protocols.

**Results:** At the time of transplantation, 76% of the patients had osteoporosis or osteopenia and only 24% of them had normal BMD in four regions: femur-neck, lumber, radius, and ultradistal. After the transplantation, 70% of them performed osteoporosis or osteopenia while 30% was normal. Bone mineral densitometry (BMD) scores increased (p<0.05) while the diagnosis of the bone disease did not change (p<0.05) after renal transplantation. The relation was not found between the improving of BMD and gender, age at dialysis onset, age at transplantation, pretransplantation dialysis duration and modality, BMI, albumin, serum calcium, phosphorus, parathyroid hormone, ALP, lipid profile, smoking, menopausal status, and immunosuppressive treatment protocols. Only pre-existing osteodystrophy and smoking was found as the most important risk factor of posttransplantation osteoporosis.

**Conclusions:** Bone mineral densitometry (BMD) scores increased while the diagnosis of the bone disease did not change statistically after renal transplantation. We found that medical management of osteopenia-osteoporosis before transplantation and smoking habit is the main point to prevent posttransplantation osteoporosis. Further long-term studies may be more helpful for evaluating the risk factors of posttransplantation osteoporosis risk factors.

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**O156**

**THE VISUAL AND REFRACTIVE OUTCOME OF COMBINED PENETRATING KERATOPLASTY, CATARACT EXTRACTION, AND INTRAOCULAR LENS INSERTION**

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**Introduction:** The aim of this study was to investigate the visual and refractive outcome of combined penetrating keratoplasty, cataract extraction, and intraocular lens implantation (triple procedure).

**Materials and Methods:** The records of 116 patients who had undergone a triple procedure between January 2010 and March 2013 were analyzed retrospectively. All patients had a minimum follow-up duration of one year. Graft survival, best-corrected visual acuity (BCVA), spherical equivalent, and cylindrical error at the postoperative sixth month and first year were recorded.

**Results:** The mean age of the patients was 54±13 years and the female/male ratio was 1.45/1. At 6 months after triple procedure surgery, 72% of eyes achieved BCVA of greater than or equal to 5/10, with 39% of eyes within±2D of emmetropia. At the first year, 69% achieved BCVA of greater than or equal to 5/10 with 42% of eyes within±2D of emmetropia. Mean refractive cylinder after 6 months and one year were +4.75 D (±4.61) and +3.86 D (±3.29), respectively. 36% of all patients had an astigmatic error greater than or equal to 5.0 D after 6 months which increased to 38%, by the first year. Mean spherical equivalent (MSE) at 6 months and 1 year after surgery were +1.85 D (±4.45) and +0.95 D (±3.28), respectively. The graft survival rate was 88% at 6 months and 82% at one year.

**Conclusions:** Although visual outcome, graft survival rates and mean postoperative spherical equivalent results are favorable in triple procedure surgery, the mean refractive cylinder appears to be high. Possible improvements in postoperative astigmatic error and refraction might be achieved with lamellar keratoplasty procedures.
O157
THE IMPACT OF PRETRANSPLANTATION CHRONIC HCV INFECTION TREATMENT ON GRAFT AND PATIENT SURVIVAL IN KIDNEY RECIPIENTS

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Introduction: Chronic HCV infection and end-stage renal failure are major health problems worldwide. The prevalence of Anti HCV positivity in patients on hemodialysis is between 10–49\%. The prevalence of chronic HCV infection in renal transplant recipients is also high (11-49\%). Chronic HCV infection in hemodialysis patients and kidney transplant recipients is associated with an increased mortality and morbidity due to liver disease. In this study we investigated whether pretransplant HCV infection treatment has an effect on graft and patient survival and also searched for the impact contributing other factors to these outcomes.

Material and Methods: Eighty-three kidney transplant recipients who had chronic HCV infection and followed up during 1982-2013 at Baskent University Ankara Hospital were enrolled the study. All demographic data and laboratory test results were obtained from patients' files.

Results: Thirty of 83 patients treated with either pegylated or standart interferon before transplantation and 14 of 28 patients who had long term follow up data had sustained viral response rates. Only one patient with sustained viral response had relaps after transplantation. Graft and patients survival rates and co-factors which could effect these parameters were invastigated. Interestingly graft survival rates were significantly lower at patients who were treated with interferon than patients who did not have HCV treatment (p: 0.003). Treatment arm patients were younger (p:0.01) and average hemodialysis treatment period before transplantation of these patients was longer(p:0.001) than nontreated patients. Newly diagnosed DM patients after transplantation were same between two groups. Mortality of patients with higher viral replication rates were higher (p:0.008) and especially sepsis was the main risk factor for mortality among highly viremic patients.

Conclusions: We think that pretransplant HCV infection treatment in kidney recipients does not have always good outcomes. Pretransplant dialysis treatment period, age of recipient, post transplant higher viral replication rates may be contributing factors related with graft and patient survival.

O158
NATURAL HISTORY OF LIVER DISEASE POST KIDNEY TRANSPLANTATION IN PATIENTS WITH HEPATITIS C VIRUS, BIOPSY-BASED, PROSPECTIVE COHORT STUDY

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Departments of \textsuperscript{1}Kidney and Pancreas Transplantation, \textsuperscript{2}Kidney Transplantation, \textsuperscript{3}Pathology, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia

Introduction: Kidney transplantation outcome is affected by liver disease in patients with HCV infection. Factors associated with progression of liver disease were not studied before with sequential liver biopsy. The aim of this research is to study the natural history of liver disease post kidney transplantation in patients infected with HCV supported by sequential liver biopsy.

Materials and Methods: This is a prospective longitudinal study of all kidney transplantation patients infected with HCV, study started January 2007. Patients were planned for liver biopsy at year 1, 5, 10 and 15 post kidney transplantation. All patients had liver biopsy before kidney transplantation. Viral genotype, titer load and liver enzymes were done with each biopsy. Metavir scoring system was used to grade inflammation and stage fibrosis. Patients who crossed one grade of inflammation or one stage of fibrosis in comparison to baseline biopsy were classified as progressors.

Results: 1951 kidney recipients were screened, 285 had HCV, 136 patients underwent liver biopsy. Mean age was 43± 15 years. Males were 55\%. Tacrolimus was used in 70% of patients. Majority (> 90%) of patients were also on prednisone and Mycophenolic acid. Viral genotype 1, 4 and 2 were found in 82 (60\%), 44 (32\%) and 10 (7\%) of the patients. 20\% of patients had persistent elevation of liver enzymes and 50 % had transient elevation. Safety data showed 2 patients had in adequate tissue, 13 had mild pain responding to oral pain killer. No patients had bleeding, required admission or blood transfusion. Metavir inflammation grading and fibrosis staging is shown in table 1. Inflammation progression was seen in 49 (36.6 \%) patients, while fibrosis progression was seen in 46 (34.2\%). Patients who had progression in their fibrosis stage had worse patient and graft survival.

Conclusions: Around one third of patients had progression in liver biopsy inflammation and or fibrosis post kidney transplantation. 20 \% had persistent and 50% had transient transaminitis. Progression was associated with worse patient outcomes.

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HEPATIC DISEASES IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS

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Introduction: Hepatic dysfunction may occur common in kidney transplant recipients. We aimed to evaluate associated risk factors that affect liver functions in children who underwent kidney transplantation.

Materials and Methods: Eighty-nine renal transplant recipients (F/M:44/45) aged 3-20 years (median: 13) were enrolled the study. Patients with hepatic dysfunctions after the first month of the renal transplantation were evaluated retrospectively. Information about age at transplantation, number of transplant, graft survival, deceased or living donor transplantation, immunosuppressive drugs, and causes of renal failure, systemic diseases were recorded. Serum electrolytes, creatinin, AST, ALT, GGT, protombin time, PTT, INR levels and viral markers (hepatitis A, B, C, EBV, CMV, parovirus) were evaluated. Abnormalities of liver function tests were recorded.

Results: Abnormal liver function tests were detected in 38 patients (%42.6). Eighteen of these patients were female and 20 were male. Median age was found as 11 (3-17). Four of these patients had chronic liver disease secondary to hepatic fibrosis, one patient had cystinosis, two patients had glycogen storage disease. When viral markers were evaluated, one patient had positive HBsAg after the transplantation. That patient underwent liver and kidney transplantation because of oxalosis. One patient admitted to hospital because of weakness and vomiting after the fourth year of transplantation and AntiHBcIgM was found positive. Thirty three of 38 patients had positive AntiHBs and 5 had negative AntiHBs. These patients were not able to generate antibodies despite being vaccinated. There was no positive AntiHAV IgM and AntiHCV result. Seven patients had positive EBV-PCR and 4 of them had positive EBV IgM. Eight patients had positive CMV-PCR and 5 of them had positive CMV IgM. Parovirus hepatitis was detected 2 of the patients during the follow up. Seven patients had drug related hepatic toxicity.

Conclusions: Consequently hepatic dysfunctions in patients who underwent kidney transplantation is a common situation. We found that the causes of the hepatic dysfunctions in these patients are associated with viral infections and drug toxicity. Thus viral markers should be assessed frequently and regularly and these patients need close follow up.

PANEL-REACTIVE ANTIBODIES CAN PREDICT HCV TREATMENT OUTCOME IN A PATIENT POPULATION WITH RENAL TRASPLANTATION

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Introduction: Chronic HCV infection compromises hemodialysis patients and increases liver related mortality. Interferon (IFN) treatment is associated with improved sustained viral response (SVR) rates. IFN also increases risk of graft loss in kidney transplantation. This phenomenon may be related with the development of anti-HLA antibodies. On the other hand, development of anti-HLA antibodies may be used as a surrogate marker of potent immune response. In this study, we evaluated the use of panel reactive antigen (PRA1 for HLA class I and PRA2 for class II) levels for prediction of SVR in patients with renal transplantation.

Materials and Methods: In this retrospective cohort study, we reviewed the data from HCV-infected patients who received IFN treatment undergoing renal transplantation. Any PRA value higher than 20% was considered positive. SVR rates were calculated and compared with PRA1 and PRA2 values.

Results: There were 40 patients (female/male: 16/24) with a mean age of 41.5 (18-65) years. The average duration of dialysis therapy was 11.2 (4-21) years and the average duration of interferon treatment was 37.5 (12-52) months. In this cohort, SVR rate was 18/40 (45%). There were a total of 31 patients with negative PRA1 (11 with SVR, 18 with no SVR) and 9 patients with positive PRA2 (4 with SVR, 7 with no SVR). The SVR ratio was not correlated with PRA1 positivity (Fishers exact test, p>0.05). There were a total of 31 patients with negative PRA2 (11 with SVR, 20 with no SVR) and 9 patients with positive PRA2 (7 with SVR, 2 with no SVR). The SVR ratio was significantly correlated with PRA2 positivity (Fishers exact test, p<0.05).

Conclusions: In this study we showed a correlation between PRA2 positivity and SVR rates. This correlation can be interpreted as a predictive tool for evaluation of HCV treatment response. In patients with other complications to compromise HCV treatment, PRA2 can be utilized as a surrogate marker for SVR prediction in this specific patient population. Most plausible explanation is the induction of cellular immunity which results in clearance HCV infection and formation of high PRA2 levels.
O161
PARENTS FUNCTION AND BEHAVIORAL DISORDERS IN CHILDREN WITH AND WITHOUT RENAL TRANSPLANT RECIPIENTS: A COMPARATIVE STUDY

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Introduction: Kidney transplantation is recognized as the optimal therapy for children with end-stage renal disease. Children and adolescence with ESRD have special needs that differ from adults, including the need to achieve normal growth and cognitive development. Successful transplantation leads to improvement in their linear growth, allows them to attend school and be free of dietary restrictions. We lunch this study to compare the parents’ function and children’s behavior problem in pediatric patients with renal transplant recipients (RTR) referring Amir Kabir Hospital, Arak, Iran.

Materials and Methods: To perform this case-control study, we recruit 29 children with RTR and compared them with other 29 children non-affected children aged between 5 to 18 years old. The child behavior checklist (CBCL4/18) for children behavior assessment and Global Assessment of Functioning (GAF) for the evaluation of their parent’s behavior was completed by the parents. Data was analyzed using ANOVA, qualitative variables and χ2 formula.

Results: Among 29 patient with RTR, 19 case (%) showed Isolate/depression problems while this figure was 3 case (%) in the control group, denoting a significant difference (p=0.011). Moreover 16 children (%) in the case group and 1 children (%) in the control group had somatic complaints (p=0.002). Fifteen children (%) with RTR and 2 children (%) in the healthy group had social problems which was also a significant difference (p=0.006). As a significant difference (0.04), the parents average stress and behavior scores in case and control group were 2.42 and 3.11, respectively.

Conclusions: The higher prevalence of some CBCL4/18 parameter in children and adolescence with RTR and their parent’s functional impairment highlights the importance of earlier parent’s intervention for early treatment and subsequently presentation of future behavioral problem in their sibling.

O162
INTRACELLULAR ADHESION MOLECULE-1 (ICAM1) GENE POLYMORPHISM ALLOGRAFT OUTCOME IN PEDIATRIC RENAL TRANSPLANT PATIENTS

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Introduction: Chronic renal disease is an important health problem across world. Patients usually have a normal life after renal transplantation. Intracellular adhesion molecule-1 (ICAM-1) is secreted from vascular endothelium and plays an important role in the leukocyte transendothelial migration. ICAM-1 is a cell surface glycoprotein and belongs to immunoglobulin family and has function as a ligand for β-2 integrin (LFA-1 and Mac-1) in leukocytes. Chronic renal allograft dysfunction is one of the most important reasons for organ loss. In a recent study it has been suggested that the K469E polymorphism in exon 4 of the ICAM-1 gene might be related to chronic allograft dysfunction. In this study, we aimed to analyze the relationship between ICAM-1 K469E polymorphism and allograft outcome in pediatric renal transplant patients.

Materials and Methods: Sixty-nine pediatric renal transplant patients and fifty-seven healthy children were enrolled to the study. Genomic DNA was extracted from peripheral blood samples of all individuals. K469E polymorphism in exon 4 of the ICAM-1 gene was analyzed by PCR-RFLP method. Allelic prevalence was compared with reference values of control group with chi-square test and Fisher’s exact test.

Results: Mean age of the patients was 15.5±5.53 years. Allele distributions in the patient and healthy control groups were as follows: KK (24, %28,06), KE (40, %31,88), EE (5, %9,06), and KK (14, %19,11), KE (38, %27,79), EE (5, %10,11), respectively. There was not a statistically significant difference between the patient and control groups (p=0.7027). Twenty two (35%) patients developed acute rejection. Eight patients (13%) have lost their grafts. Any association between K469E polymorphism in exon 4 of the ICAM-1 gene and acute rejection or graft loss has not been shown.

Conclusions: As far as we know, this is the first study on renal transplant pediatric patients in Turkish population. Although, there is not a statistically significant difference between the patient and control groups, the larger cohort for both patients and controls might provide us more meaningful results.
O163
RELATION BETWEEN TOLL-LIKE RECEPTOR-4 GENE T399I POLYMORPHISM AND INFECTIONS IN PEDIATRIC PATIENTS WITH RENAL TRANSPLANTATION
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Introduction: Infections in the post-transplant immunosuppressive period are one of the most important factors of graft loss. As a transmembrane receptor, Toll-Like receptors play an important role in the recognition of microbial pathogens and the initiation of the immune response. Previous studies in different pathologies showed that Thr399Ile polymorphism in Toll-Like Receptor-4 (TLR-4) gene might be related to the strength of response to infections. We aimed to analyze the relationship between TLR-4 gene polymorphism T399I and infections in children with renal transplant.

Materials and Methods: Ninety-one pediatric patients with renal transplant and fifty-nine healthy children were included in the study. Genomic DNA was extracted from peripheral blood samples of all individuals. Thr399Ile polymorphism of the TLR-4 gene was analyzed by PCR-RFLP method. Allelic prevalence was compared with reference values of control group with chi-square test and Fisher's exact test.

Results: Mean age of the patients was 15.55±5.53 years. Allele distributions in the patient and control groups were as follows: TT (86, %84,13), TC (3, %6,73), TT (2, %0,13), and TT (53, %53,15), TC (6, %5,69), CC (0, %0,15), respectively. Analyses showed that there was not a statistically significant difference in allele distributions between patient and control groups (p=0.7728). After a median follow-up of 2.00 years (min-max: 1.00-3.00) the incidence of serious infection after transplantation was 38%. Hospitalization rate of the patients were 22%. Infection related hospitalization causes were life or graft function threatening infections such as bacterial sepsis, tuberculosis, cytomegalovirus infection, varicella zoster virus infection, polyoma virus associated nephropathy and acute pyelonephritis. One patient died as a result of severe bacterial sepsis and chronic hepatic failure and one patient has lost his graft related to polyoma virus nephropathy. Any association between TLR-4 gene polymorphism T399I and infections in transplanted children has not been shown.

Conclusions: Knowledge on the genetic background of patients can provide information to the clinicians for being proactive, and prevent possible infections. As a conclusion, as far as we know, this is the first study on Turkish renal transplant pediatric patients, and the data from this study might help to understand the tendency to infection in pediatric renal transplant patients.

O164
HEAT SHOCK PROTEIN-72 A(1267) GENE POLYMORPHISM AND ALLOGRAFT OUTCOMES
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Introduction: Inflammation has critical role in the development of chronic renal disease. Chemokines are a superfamily of chemoattractant cytokines that play an essential role in leukocyte recruitment in acute and chronic inflammation. Heat Shock Protein-72 (HSP-72) is synthesized after renal injury; it plays an important role in renal cell survival and matrix remodeling. We have investigated the association of genetic polymorphisms of fractalkine receptor encoding genes with the outcomes after pediatric renal transplantation.

Materials and Methods: Sixty-two children with renal transplant and 96 healthy children were enrolled in the study. HSP-72 A(1267)G gene polymorphism was analyzed by polymerase chain reaction and restriction length fragment polymorphism. Allelic prevalence was compared with reference values of control group and Hardy-Weinberg equilibrium was tested.

Results: Mean age of the patients was 15.55±5.53 years. Urological problems were the leading causes of chronic renal disease in our study. The frequency of HSP-72 (1267) AG allele which is associated with inflammation was found significantly higher in patient and control groups. Twenty-two (35%) patients developed acute rejection. In patients with rejection HSP-72 (1267)AG allele was occurred higher when compared with HSP-72(1267)AA allele. Eight patients (13%) have lost their grafts. Frequency of HSP-72 (1267)AG allele was higher in patients with graft loss when compared with patients without graft loss.

Conclusions: These results suggest that HSP-72 A(1267) G gene polymorphism is associated with the risk of acute rejection and graft loss. Different approach of treatment such as HSP-72 stimulation strategies could reduce or finish renal damage in acute and chronic rejection.
O165
SAFETY AND COST-EFFECTIVENESS OF TANDEM HEMODIALYSIS AND IMMUNOADSORPTION TO DESENSITIZE KIDNEY-TRANSPLANT CANDIDATES

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Introduction: Desensitization programs are mandatory to achieve good results in kidney-transplant patients that have a potential living donor to which they have donor-specific alloantibodies (DSA).

Materials and Methods: Desensitization at pretransplant is based on immunosuppressants (such as rituximab, tacrolimus, and mycophenolic acid) and apheresis to retrieve potentially detrimental DSAs from blood. In our center, in 2011, we implemented immunoadsorption (IA) instead of plasmapheresis as part of the desensitization protocol. Because IA is very tedious and time-consuming we decided to perform IA and hemodialysis (HD) in tandem instead of performing these methods sequentially. Herein, we report on 120 of these tandem procedures.

Results: The tandem process resulted in nursing time being cut by half: i.e. from almost 10 h/patient to 5 h/patient. Body-weight gain during the tandem session was -3 (0-4.3) kg compared with +1 ± 0.2 kg when IA is performed alone. In addition, there are no negative side-effects when IA and HD are performed simultaneously, with regards to natremia, bicarbonates, calcemia, protidemia, and hematological parameters. Ionic dialysance was good, i.e. 185 (102-238).

Conclusions: Tandem IA plus HD is a safe and cost-effective procedure.

O166
HIGH PREVALENCE OF POST TRANSPLANT DONOR SPECIFIC HLA-DQ ANTIBODY IN LIVE RELATED RENAL TRANSPLANTATION: IS IT TIME TO EXTEND TYPING TO HLA-DQ IN RENAL TRANSPLANTATION

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Introduction: The aim of this study was to determine the HLA classes of post transplant donor specific antibody (DSA) in live related renal transplant recipient.

Materials and Methods: HLA antibodies were analyzed in 212 renal transplant recipient 1-24 month post transplant. Samples were collected in routine follow-up in out patient. All recipients were HLA antibody negative by flow cross match and Luminex pre-transplant. All rejections were confirmed by biopsy. Antibody screen and single antigen screen was undertaken by Luminex. Outcomes were compared between recipient with DSA and No DSA for rejection, HLA match, Serum Creatinine and Graft Survival.

Results: of the 212 recipient screened for HLA antibodies 20 (9.4%) were positive for Class I and 34 (16%) for Class II. DSA were found in 31 (14.6%). DSA developed in 2 (7%) of the recipient within 3 months, in 4 (14%) within 6 and 25 (79%) after 6 months. DSA against Class I in 10 (4.7%) and Class II in 27 (13%). Within Class I, against HLA A in 9 (90%) and HLA B 1 (10%), while within Class II, HLA-DR in 11 (41%), HLA-DQ in 15 (55%) and HLA-DR + HLA-DQ in 1 (3.7%). Rejections were diagnosed in 16 (52%) of DSA group vs 48 (26%) in No DSA group (p< 0.05). The mean HLA match was 3.39 ± 0.9 in DSA vs 3.67 ± 1.2 in Non DSA (p 0.231). The mean S. Creatinine was 2.42 ± 1.4 mg/dl in DSA vs 1.6 ± 0.8 in Non DSA (p 0.001). Graft survival in DSA group at 1, 3, 5 years was 97%, 90% and 57% vs 93%, 92% and 78% in the No DSA group.

Conclusions: In OPD follow-up 14.6% of the recipient had DSA mainly against Class II HLA-DQ antigens. Although rejection episode were higher in patients with DSA but the short term survival at 1, 3 years was similar to non DSA group. High frequency of HLA-DQ antibodies warrants typing for HLA-DQ as routine, especially in live related transplant, to determine the long term consequences of DSA against HLA-DQ antigens.

O167
A STUDY OF POLYMORPHISM OF CYP3A5 GENE AND ITS EFFECT ON TACROLIMUS BLOOD LEVEL

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Introduction: Our objectives were:
To identify the proportion of CYP3A5 gene polymorphisms in South Indian renal transplant patients.
To determine the impact of CYP3A5 gene polymorphisms on the kinetics of tacrolimus in renal transplant recipients by comparing Tacrolimus trough blood levels in CYP3A5 expressors and non expressors.

Materials and Methods: Study Design – Cross-sectional study: 25 consecutive adult patients who underwent renal transplantation in Government Medical College, Trivandrum, Kerala, India was included in the study. All of them received Tacrolimus in a dose of 0.1 mg/kg body weight daily. Patients younger than 18 years of age and/ or taking
other medications that may interact with tacrolimus were excluded. Tacrolimus trough blood levels were determined on sixth post operative day. Genetic analyses of these patients were performed to determine CYP3A5 genotype. Patients were divided in to two groups based on their allelic status for CYP3A5 - CYP3A5*3/*3 (Homozygotes, Non expressors) and CYP3A5*1/*3 (Heterozygotes, Expressors). Tacrolimus trough blood levels were compared between two groups by means of independent t- test using SPSS software.

Results: 17 out of 25 patients (68 %) were non expressors in the sample studied. In the non expressor group 17.65 % had tacrolimus trough level more than 10 ng/ml, 76.5 % had level between 5 and 10 ng/ml and only 5.88 % had level less than 5 ng/ml. While in the expressor group, 50 % had tacrolimus level less than 5 ng/ml, 50 % had levels between 5 and 10 ng/ml and none had tacrolimus level more than 10 ng/ml. Average tacrolimus level in non expressor group was 9.51 ng/ml while in the expressor group was 5.4 ng/ml.

Conclusions: There is a high prevalence of CYP3A5 polymorphism in south Indian population. Majority of the population are CYP3A5*3/*3 (homozygotes, non expressors) who require lower doses of tacrolimus to reach target blood level. While in expressor group higher doses than conventionally recommended is required for preventing graft rejection. Hence determining the CYP3A5 genotype prior to transplantation will prevent tacrolimus toxicity as well as graft rejection and helps to attain target drug level earlier.

Materials and Methods: De novo kidney transplant recipients (KTR; n=543) were enrolled in this phase 3, study treated for a 12 month study period followed by a 12 month, blinded extension treatment period. Pts were randomly assigned to receive either LCP-Tacro (n=268) once-daily or Prograf twice-daily (n=275). 517 pts (95%) completed 1 year study period. Primary efficacy outcome was a composite treatment failure defined as acute rejection, graft or patients loss versus a prespecified non-inferiority margin of 10%.

Results: Mean age for KTR was 56 years. 65% were male, 77% were white and 5% black. Grads obtained from deceased donors were used in 51% of cases. Patients treated with LCP-Tacro achieved targeted trough levels within 1 day of first dose, while Prograf treated pts needed 4 to 7 days. Short term efficacy was evaluated at 3 months, showing numerically better outcomes for patients treated with LCP-Tacro (10% vs. 14% Prograf; Figure 1a). From Week 3 onwards, patients receiving LCP-Tacro required lower daily doses vs. Prograf with similar trough levels, confirming LCP-Tacro improved bioavailability. Primary endpoint was non-inferiority at 12 months versus Prograf and was confirmed based on the composite treatment failure (LCP-Tacro 18%, Prograf 20%; Figure 1b), well within pre-specified margin. No statistical difference was seen for adverse events after 1 year of treatment. For the two-year period, only 12 (2%) pts were lost to follow-up. Estimated glomerular filtration rate of KTRs receiving either LCP-Tacro or Prograf at two years evaluation a steady improvement in renal function (Figure 2). Database lock was in March 2014 and full two year efficacy and safety data on all pts started in April 2014. Pending the imminent completion of the analysis, the full two-year follow-up efficacy and safety results will be available for presentation.

Conclusions: Twelve months data showed non-inferiority of LCP-Tacro vs. Prograf. Data analyzed for the two years results thus far show excellent efficacy and safety with both tacrolimus formulations, with gradual improvement in renal function over the course of two years.

Figure 1. Efficacy at Three (a) and Twelve Months (b)
O169
EFFICACY OF IMMUNOADSORPTION TO REDUCE DONOR-SPECIFIC ALLOANTIBODIES (DSA) IN KIDNEY-TRANSPLANT (KT) CANDIDATES

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Introduction: We have implemented a desensitization program in our center to enable transplantation in KT candidates that have a living HLA incompatible (HLAi) donor.

Materials and Methods: To analyze i) the decrease in DSA across a pre-transplant desensitization program that relies on immunosuppressants and apheresis to remove detrimental antibodies, and ii) the posttransplant outcomes. We have chosen immunoadsorption (IA) as the apheresis technique, which is coupled with hemodialysis.

Results: 6 highly sensitized KT (5 females), waiting for their first (n=1) or second (n=5) KT with a living donor were enrolled in a desensitization program. They had one (2), two (1), three (2), or four (1) DSAs with mean fluorescence intensity (MFI) predensitization ranging between 1200 to 19000. They underwent between 8 to 16 IA sessions. In 5 cases (B44, A24, DR3, DR11, DQ3) DSAs became negative; in 3 cases (DR3, DQ3 twice) DSAs decreased by > 50%; finally in 6 cases (DQ5, DQ8, B50, Cw6, DR53, A11) DSAs remained unchanged, i.e. MFI between 5000 and 19000. Outcome: 3 patients had no rejection (1 with DSA elimination, 1 with DSA decrease 50%, and 1 with stable DSA at around 15000). One patient presented with acute antibody-mediated rejection (AMR) which required IA sessions and eculizumab therapy (DSAs between 5000 and 19000), and 2 patients presented with subacute AMR which was treated by plasmapheresis/rituximab therapy (DSAs between 6000 and 14000).

Conclusions: We conclude that HLA desensitization by IA procedure is efficient at reducing/eliminating DSAs in 57% of cases.

O170
INDUCTION OF CHEMOKINES WITH EXOGENOUS OXIDATIVE STRESS IN HUMAN PROXIMAL TUBULAR CELLS

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Introduction: During transplantation, restoration of circulation with oxygen rich blood, leads to production of free radicals resulting in ischemia-reperfusion injury. Free radicals are the key mediators causing direct cell damage and also lead to inflammation by inducing chemokines. Severe reperfusion injury results in delayed graft function. The adverse outcome is not only short term but long term function of the graft is also affected. Our aim was to measure the oxidative stress response in a cell culture system in response to simulated pathological condition of ischemia-reperfusion injury. We also aimed to determine the ability of these cells to produce chemokines in a similar setting.

Materials and Methods: Oxidative stress was induced by incubating immortalised human renal tubular cells (HK-2) with hydrogen peroxide in varying concentrations. Antioxidant enzymes Glutathione peroxidase and Catalase were measured following the incubation at varying time intervals. The chemokines Interleukin-8 (IL-8; CXCL8) and Monocyte Chemoattractant Protein-1 (MCP-1; CCL2) were also measured using an ELISA technique in a similar setting.

Results: Incubation of HK-2 cells with 0.5mM of hydrogen peroxide resulted in a significant increase in the activity of antioxidant enzyme Glutathione Peroxidase. Chemokines Interleukin-8 (IL-8; CXCL8) and MCP-1 (CCL2) were also induced after incubation with hydrogen peroxide. A dose related response was also observed. The cytokine Interleukin-1β (IL-1β) at 1ng/ml significantly potentiated the expression of both IL-8 (CXCL8) and MCP-1 (CCL2). Pre-incubation with an anti-oxidant N-acetyl cysteine (NAC) strongly suppressed the induction of both hydrogen peroxide and IL-1β as shown in Figure1.

Conclusions: The human renal tubular cells in a cell culture system responded to exogenous oxidative stress. Antioxidant enzyme Glutathione peroxidase activity increased significantly while pro-inflammatory chemokines IL-8(CXCL8) and MCP-1(CCL2) could be induced with hydrogen peroxide and with cytokine IL-1β. Pre-incubation with NAC suppressed both hydrogen peroxide and IL-1β mediated induction. This study identifies the role of oxidant injury in ischemia reperfusion injury and shows the underlying mechanisms of chemokine induction and suppression in oxidative stress. It also opens a new therapeutic window for anti-oxidants like NAC in ameliorating this injury. These findings can have potential
implications for clinical use to prevent ischemia reperfusion injury in renal transplantation.

Figure 1: NAC Pre-Incubation Suppressing the Induction Effect of H2O2 and IL-1β on IL-8

O171
ACUTE ANTIBODY-MEDIATED REJECTION IN PAEDIATRIC RENAL TRANSPLANT RECIPIENTS: KUWAIT EXPERIENCE

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Introduction: Acute antibody-mediated rejections (aAMR) after renal transplantation are defined as rapidly deteriorating graft function, detection of donor-specific antibodies (DSA) and characteristic histological features. In adults, anti-rejection strategies comprise steroid pulses, intravenous immunoglobulin (IVIG), plasmapheresis and rituximab. Data of children with aAMR are lacking. Our aim was to evaluate paediatric renal transplant recipients who experienced at least one episode of antibody mediated rejection and received different modalities of treatment protocols

Materials and Methods: Out of 105 paediatric renal transplants performed in Hamed Al-Essa Organ Transplant Centre, 21 (20%) experienced at least one episode of biopsy proven antibody mediated rejection. Most of these episodes occurred within 1 st two years after their 1 st renal transplantation (20±26 months). Pre-transplant complement-dependent cytotoxicity and flow cytometry cross matches were negative. Basic immunosuppression comprised Tacrolimus, MMF and steroids. The diagnosis was made according to Banff classification 2007 and cases were subdivided into 2 groups: aAMR (n=10) and mixed rejection (n=10).

Results: Mean patients age was 12.5±4.9 and 13.5±2.3 in both groups respectively and both were matched regarding donor source and age, original kidney disease, HLA mismatches, type of immunosuppression, basal graft function and hemogram. The majority of our patients received PE, IVIG and rituximab, however we found that graft outcome was significantly better only in those who received rituximab (p=0.002). On the other hand, graft survival was significantly worse in those who received lymphocyte depleting agents (p=0.036). Graft function at last follow up in both groups were comparable as measured by serum creatinine (132±33 vs. 143±65, p=0.88 respectively). Patients with mixed rejection received significantly more steroid pulses but without significant impact on graft survival. Patient survival was comparable. Conclusions: Combined therapy of IVIG, plasmapheresis and rituximab is effective in the treatment of aAMR in pediatric renal transplants.
P1
INTELLECTUALITY OF RELIGIOUS OFFICERS ABOUT ORGAN DONATION IN TURKEY: META-ANALYSIS OF OBSERVATIONAL STUDIES

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Introduction: In Turkey, donation rates remained low despite the efforts of Religious Affairs Supreme Council. We wished to determine theological perspectives and behaviours of religious officers and theology students towards organ donation.

Materials and Methods: We conducted a systematic review and meta-analysis of observational studies.

Results: There were 2154 participants. 81.6% stated Islam allows organ donation. Nineteen had organ donation card (0.9%). 54% were reluctant to donate self- organs. 56% were lacking sufficient knowledge. 20% referred school education and periodicals as the source of information. 69% act as opinion leader for organ donation. In curriculums of the Faculties of Theology, any separate topic on organ donation has not been found.

Conclusions: A discrepancy exists between the resolutions of the Board of Religious Affairs and attitudes of clergy towards organ donation in Turkey. Theology faculties seem not to pay specific attention to this issue.

P2
LIVER TRANSPLANT CANDIDATES’ EXPECTATIONS AND EXPERIENCED DIFFICULTIES

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Introduction: The study was conducted as a descriptive and cross-sectional study for the purpose of determining the expectations and experienced difficulties of liver transplant candidates (LTC).

Materials and Methods: The study was applied to 170 LTC monitored at the Transplant Polyclinic of the Turkish High Specialty Hospital between December 29, 2011 and March 29, 2012. The data of the study was collected with face-to-face interviews through the questionnaire developed by the investigators for determining the LTC socio-demographic characteristics, expectations, and experienced difficulties. In the evaluation of data, frequencies, percentage calculation, mean, Chi-square, Fisher Exact Chi-Square Tests were used.

Results: The mean age of LTC was 46.18±12.33, 59.4% were males, and 77.6% were married. A proportion of 34.7% of LTC were housewives, 30% were not employed due to their current disease, and 58.8% had an inadequate level of income. A proportion of 97.1% of patient relatives lived in the same homes as LTC. The mean chronic liver disease period of the LTC was 7.57±5.95 years and liver failure developed in 62.9% of them due to viral hepatitis. A proportion of 45.9% were on the waiting list between 2-5 years, and 27.1% were on the waiting list between 6-9 years. The mean period of in waiting list was 4.10±2.81 years. In the study, it was determined that during the liver transplant waiting period, patients had the highest expectation with regards to ‘undergoing a successful transplant operation’ (70%), ‘the team being experienced/successful’ (51.2%), and ‘recovering to previous health condition’ (46.5%). Their greatest post-transplant expectations were ‘decrease of complications/problems’ (98.8%), ‘recovering to previous health condition’ (88.8%), and ‘not constantly going to the hospital’ (59.4%). In the study, it was determined that LTC encountered many physical problems in the waiting period, and the most experienced ones were fatigue (85.3%), decrease in sexual desire (64.1%), constipation (64.1%), abdominal distention/acid accumulation (64.1%), itching (61.2%), and swelling in the legs (60.6%). A large majority of patients experienced difficulties regarding activities of daily living (ADL). It was determined that 64.1% of patients experienced problems going up/down stairs, 56.5% had difficulties in complying with the diet due to liver failure, and 51.8% were determined to experience breathing problems associated to abdominal distention/acid accumulation. Experiencing uncertainty/concerns regarding the future during the period patients were on the waiting list (57.1%), a decrease in self-confidence due to the disease (51.2%), experiencing difficulties in sexual life (45.9%), and concerns regarding the failure to find a cadaver organ suiting himself/herself (45.9%) were determined to be the psychological difficulties most experienced by patients.

It was determined that families of 51.8% of LTC experienced difficulties in covering treatment costs and 44.1% of LTC experienced problems in fulfilling domestic responsibilities. In the study, it was determined that the high rate of female patients experiencing difficulties regarding ADL and unemployed patients regarding socioeconomic problems created a statistically significant difference (p<0.05). It was determined that nearly all patients with problems concerning respiratory system experienced psychological difficulties (92.3%), socioeconomic difficulties (91.2%), and difficulties concerning ADL (94.5%) (p<0.05). It was determined that patients with circulatory, gastrointestinal, and neurological problems experienced more difficulties concerning ADL and patients with skin problems experienced had more psychological difficulties (p<0.05).

Conclusions: In conclusion, it was determined that patients
waiting for liver transplants experienced many difficulties affecting ADL, psychological, and socioeconomic conditions. It is suggested that patients are provided training and consultancy services for the purpose of decreasing these experienced difficulties.

**P3**

**STRUCTURE AND ACTIVITIES OF A CENTER FOR EXPERIMENTAL SURGERY IN GREECE**

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The Center for Experimental Surgery (CES) is one of the seven Research Centers of the Biomedical Research Foundation of the Academy of Athens (BRFAA), a non-profit research Institute, dedicated to understanding, treating, and preventing of human diseases through biomedical research. Scientific interests of the CES are focused on studies on animal models of various diseases, pharmaceutical and biotechnology research and novel therapeutic interventions. The Center is consisting on three Units. The Unit of Laboratory Animal Facilities is located in the basement of the BRFAA campus, with a housing capacity of 20,000 mice, 1,000 rats, 70 rabbits and 20 swine. All animals are housed in accordance to the European Legal framework existing for the Protection of animals used for scientific purposes as well as the current guidelines of International Organizations. Surgical procedures are performed in the Unit of Surgical Suites under strict aseptic conditions, using the proper anesthetic and analgesic protocols. Four state of the art surgical suites are fully equipped with the instrumentation for hemodynamic studies as well as to allow all different kinds of surgical operations to be performed. CES is supported by the Unit of Biomechanics with main areas of interest the biomechanics of the cardiovascular system. Since November 2004, more than 11,000 major surgical procedures and manipulations were performed in different kind of animal models, 78 educational courses on different topics of biomedical sciences have been tough and 3,782 scientists have been trained. More than 50 papers were published in peer-review international scientific journals.

**P4**

**LONG TERM RESULTS OF COMBINED LIVER AND KIDNEY TRANSPLANTATION**

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**Introduction:** Liver transplantation (LT) and kidney transplantation (KT) are the most favored treatment options to maintain standard life in patients with liver or kidney failure. Between February 1997 and February 2014, 500 LT in 494 patients (21 [42.6%] deceased donor LT [DDLT], 281 [56.2%] living donor LT [LDLT] and 6 [1.2%] retransplantation) were performed in our institution. Mean age was 43.5. 344 (74.1%) patients were male and 150(30.3%) were female.

**Materials and Methods:** Combined LT and KT was performed in 8(1.6%) of these patients. Seven (87.5%) patients were male and 1 (12.5%) patient was female. Etiology was primary hyperoxaluria in 5 (62.5%) patients, cirrhosis due to chronic ethilism and chronic glomerulonephritis in 2 (25%) patients and cirrhosis due to chronic Hepatitis B infection with chronic glomerulonephritis in 1 (12.5%) patient. Five (62.5%) patients underwent simultaneous combined LT and KT from single living donors and 1(12.5%) patient underwent LT 2 months after KT from the same living donor. One (12.5%) patient underwent living donor LT and 33 months later, KT from a different living donor was performed due to kidney failure. Simultaneous combined LT and KT from single cadaveric donor was performed in 1 (12.5%) patient. The mean follow up time was 56.8 months (range 4-134).

**Results:** The patient who had simultaneous LT and KT from single living donor for chronic glomerulonephritis and chronic Hepatitis B infection died in postoperative 36th month due to pulmonary thromboembolism. Other 7 patients did not have any morbidity or mortality during follow up.

**Conclusions:** Our long term results with low mortality and morbidity rates suggest that simultaneous or metachronous combined LT and KT is the optimum treatment option for patients with combined liver and kidney failure.
THE OUTCOMES OF DONOR OPERATIONS IN 184 LIVING DONOR ORGAN TRANSPLANTATION AT THE FIRST ORGAN TRANSPLANTATION CENTER IN AZERBAIJAN REPUBLIC

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Materials and Methods: 184 living organ donors at the Hospital of Oil Workers from 2008-2014 are selected for study.

Results: Our Transplantation team carried out 184 living donor organ transplantation operations at the Central Hospital of Oil Worker’s from 2008-2014. From these 184 organ Transplantation operations 56 were liver and 128 were kidney transplants in our centre. Because of the program of cadaveric organ transplantation is not exist in our Republic all organ transplantation operations are performed on living donors.

Religion and Organ Donation

Religion plays a vital role in the lives of Indians. Endorsement of organ donation by religious leaders is one of the ways by which organ donation can be augmented.
**P7**

**OXIDATIVE STRESS IN RENAL TRANSPLANT BIOPSIES**

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**Introduction:** Renal allograft biopsies are performed routinely after renal transplantation to determine graft dysfunction and predict outcome. Our aim was to define and measure the oxidative stress occurring in these biopsies at this time. Donor pre-implantation biopsies also provided a unique opportunity to detect oxidative stress occurring during ischemia and preservation.

**Materials and Methods:** 47 allograft biopsies were analysed. Common indications for biopsy were acute or chronic graft dysfunction, delayed graft function (DGF), acute cellular rejection (ACR), and calcineurin inhibitor toxicity. The biopsy procedure was performed according to the unit protocol. An extra core was taken for the study with informed consent only if it was safe enough to proceed. 17 pre-implantation biopsies were procured from deceased donor kidneys. Biopsy specimens were snap frozen immediately in liquid nitrogen and stored at -70°C for western blot analysis. Band intensities were quantified by densitometry in comparison to β-actin.

**Results:** A total of 61 biopsies were analysed and the following oxidative stress enzymes were detected by western blot: Catalase, Manganese superoxide dismutase (MnSOD), Copper zinc superoxide dismutase (CuZnSOD), Thioredoxin reductase and Thioredoxin. Figure 1 shows results from one gel with increased expression in MnSOD, CuZnSOD and Catalase in acute rejection and donor biopsies. CAN represents samples from chronic allograft nephropathy, N were normal, acr from acute rejection and D from donor kidney. There was an upregulation of most antioxidant enzymes in pre-implantation biopsies. Increased expression of MnSOD was seen in donor kidney biopsies, acute rejection and calcineurin inhibitor toxicity. CuZnSOD was also elevated in donor kidney biopsies and acute rejection. Catalase was also elevated in donor kidney biopsies and acute rejection biopsy. Thioredoxin reductase was elevated in donor biopsies, acute rejection and calcineurin inhibitor toxicity while Thioredoxin was elevated in donor biopsies. Combined data shown in Figure 2.

**Conclusions:** Renal allograft biopsies showed that oxidative stress levels were generally elevated in all biopsies irrespective of diagnosis, though not significantly. The levels were also elevated in pre-implantation biopsies. This study shows that oxidative stress is involved during acute allograft dysfunction.

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**P8**

**PRINCIPLES OF TISSUE PROCESSING ACCORDING TO QUALITY CONTROL & QUALITY ASSURANCE**

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**Introduction:** Tissue Transplantation is very strategic treatment for regeneration and repair goals. It contains small or large part of organ for example the heart valves from the heart and iliac Crestal bone or cartilages from gross bones and the tissue pericardium.

**Materials and Methods:** This guide includes safety and quality assurance standards for procurement, preservation, processing and distribution for tissues of human origin (allogenic and autologous) used for transplantation purposes. The following is examples of what is covered in the guide: The tissues such as bone, tendons, skin, corneas, cardiovascular tissues, membranes and Cartilages used for transplantation purposes, including surgical and regeneration.

Quality control and Assurance policy are the main part of each tissue Bank, because the tissue bank should be reducing risk of contamination and failure of tissue graft and failure of tissue transplantation.
Results: AATB and EATB have the guideline for safety and quality both of organs and tissues as well as cells. But the special knowledge for procurement and preparation with best quality of tissues which will be used for graft and transplantation is key for best result in clinic.

Conclusions: The purpose of this document is to provide guidance for all those involved in the transplantation of tissues to maximize their quality (and thereby the rate of success of transplants) and minimize the risks of this complex procedure.

P9
EXTRACTION, PACKAGING AND TRANSPORT PROBLEMS OF CADAVERIC DONOR ORGANS INCLUDING COMPOSITE TISSUES

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Introduction: Number of transplantation centers increased 3 times at all regions of our country since 2002. Due to this, there has been an arising cooperation of organ extraction between centers and teams. At this study, we examined results of cadaveric donor organs that extracted and transported to our center by our team or other transplantation center teams between 2008-2014.

Materials and Methods: National Organ Sharing System started at May 2008. From May 2008 to present day, 490 organ/tissue extracted from cadaver at our center or transported to our center by other centers and transplantation were performed at Akdeniz University. These extracted organ/tissues were studied. Organ extraction by our team or other surgical teams, perfusion and packaging techniques and problems during transportation to our center were evaluated separately.

Results: Totally 490 tissue/organs are extracted by our and other surgical teams, the numbers and centres were given here; 321 kidneys (175/146), 96 livers (68/28), 39 heart (38/1), 26 pancreas (18/8) and 8 composite tissues (8/0). Vascular injury (12/38), organ capsule-parenchymal injury (2/9), perfusion defects (0/13) and packaging and transport failure (0/15) were detected. And also samples (spleen, blood, lymph tissue and vascular graft) that should be transported by organs were missing. These problems may increase the duration before surgery, surgical techniques to become more complex and early graft disfunction. And these problems caused 2 kidneys, 3 livers and 5 pancreases unable to use for transplantation.

Conclusions: Package and transport of organs are at least as important as extraction. In our country organ donation is not enough numbers, so cadaveric organ extraction, packaging and transportation should be done by experienced surgical teams for not to cause patient and organ loss.

P10
ATTITUDES OF ADULTS FROM THE NORTH-EASTERN OF ROMANIA TOWARDS ORGAN DONATION AND TRANSPLANTATION

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Introduction: There is an insufficient supply of donor organs to meet the demand for organ transplantations worldwide. Romania has one of the lowest rates of organ donation in Europe, with only 3.6 donors in every million population in 2011. In Romania over 4000 patients are currently on the waiting list for a solid organ transplant.

Materials and Methods: The aim of our study is to determine the knowledge, attitudes and the factors that influence the organ donation and transplantation (ODT) of healthy persons and patients who live in the North-Eastern region of Romania. We applied a questionnaire, which contained 22 questions, to 436 people separated in two groups: patients (207) and apparently healthy persons (229). The questions were divided into three parts: the first one refers to the basic information regarding organ donation and transplantation; the second part emphasizes the mentality considering living and deceased organ donors, while the last one contains general information such as gender, age, residence.

Results: Of those who completed the questionnaire 41.7% were men and 71.3% were living in an urban area. Most of the surveyed persons were between 41-65 years of age (58.3%), 27.5% were between 18-40, and only 14.2% were over 65 years. 51.8% of the responders had only medium education. Most of them are active (49.3%), 31.7% were retired, 8.7% were students and only 10.3% were unemployed. The main source of information about ODT in our population is the television in 86.6% of cases. The GPs represent the second (20% of cases), while the medical literature represents the least (11.5%) used source of information. 78.6% of the apparently healthy persons consider that there is an insufficient supply of donor organs, while only 59.9% of the patients have this opinion (p<0.001 for the between group comparison). The persons in the patients group are more willing to donate than the apparently healthy, both during lifetime (51.7% vs. 23.6%, p<0.001) and also after death (75.8% vs. 61.1%,
Women are more likely to donate than men during lifetime (64.6% vs. 51.1%, p<0.01), but not after death (79.9% vs. 79.7%, p=0.95). The lack of trust in the medical staff, age, place of residence or education didn’t interfere with the will to donate during lifetime or after death. In multiple logistic regression, women (OR 1.86, 95%CI 1.23-2.83, p<0.01) and unemployed (OR 2.81, 95%CI 1.06-7.86, p=0.04) are more reserved in donating after death, only persons with a low-middle income (OR 2.81, 95%CI 1.06-7.86, p=0.04) are more likely to donate during lifetime. Performing the same analysis for establishing the factors that influence the will to donate after death, only persons with a low-middle income (OR 2.86, 95%CI 1.22-6.69, p=0.02) persons are more likely to donate during lifetime. Performing the same analysis for establishing the factors that influence the will to donate after death, only persons with a low-middle income (OR 2.81, 95%CI 1.06-7.86, p=0.04) are more reserved in donating after death.

Conclusions: This is the first study that evaluates the knowledge, attitudes and the factors that influence the ODT in Romania. We show that there is an increased need for improving awareness in the Romanian population for the legal and moral issues that surround ODT.

**P11**

**INTERNATIONAL TELEPHONIC CONSULTATION FOR DECEASED DONATION: AN ETHICAL REVIEW OF STRATEGIC CONSIDERATIONS**

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Introduction: In this paper we seek to identify and describe the ethical challenges involved in international consultation of potential deceased donor families via telephone. Telephonic consultation for consent to donation is an issue for many countries with large migrant, refugee or temporary resident populations, or those in which geographical barriers may impede timely travel of family members to the bedside of critical ill patients. In this setting, customary practical and ethical challenges in seeking consent for deceased donation may be exacerbated by a range of factors which must addressed in order to avoid unethical practices, compromised quality of care for patients and families and missed opportunities for donation.

Materials and Methods: We reviewed current practices, policy, experience and outcomes of international telephonic consultation of potential donor families in Doha, Qatar through consultation with staff at the Qatar Organ Donation Centre. An ethical analysis of these practices was performed and potential ethical hazards identified. A set of draft recommendations for ethical management of these issues was developed.

Results: International telephonic consultation for consent to deceased donation appears to exacerbate the risk of familial distress and is associated with lower rates of consent for donation. In addition to the increased risk of harm to potential donor families, there is a risk of compromising the autonomy of potential donors whose previously registered consent to donation may be overridden by family members in this context. A number of practical strategies may be employed to minimize distress and improve the quality of communication in telephonic consultation, enabling opportunities for donation. These include prompt notification of critical illness or injury to families by treating teams prior to death determination and/or discussion of donation opportunities, use of culturally and linguistically skilled communicators, and efforts to improve awareness and understanding of deceased among relevant communities. Ethical guidelines for managing the consultation process should include measures to optimize trust in the donation program and healthcare institution with prioritization of concern for the wellbeing of patients and their families.

Conclusions: International telephonic consultation of potential deceased donor families is a complex, practically and ethically challenging process of increasing importance in the setting of globalization. Attention to practical strategies to facilitate communication and foster trust in the consultation process should be framed by ethical guidelines and regularly reviewed to improve quality of care and respect for all participants.

**P12**

**SHIRAZ GUIDELINE FOR THE MANAGEMENT OF PATIENTS WITH BRAIN DEATH**

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Introduction: The first kidney, liver and pancreas transplantations were carried out in Iran in Shiraz University of Medical Sciences in 1968, 1992 and 2006, respectively. In the course of time, the need for transplanting organs from brain dead cases has increased in a way that transplantation section of Shiraz University of Medical Sciences is currently practicing more than 400 liver, 40 pancreas and 250 kidney transplantations annually. The fact that a large number of patients waiting in the list for transplantation expire before receiving organs reveals the significance of the process of managing and maintaining brain dead cases. Proper implementation of maintenance procedures in cases of brain death increases the chance of successful transplantation.

Materials and Methods: Accordingly the first guideline for managing brain death cases in Iran has been developed in Shiraz University of Medical Sciences and can be applied in
other centers. In the course of preparing this guideline, we precisely reviewed the latest guidelines presented by pioneer countries in this domain such as Spain, the United States, the United Kingdom, Australia and Belgium, and used precious experiences of team of specialists of anesthesia in organ transplant center of Shiraz University of Medical Sciences in order to make the guideline sound more native. This guideline has gone through final validation in a joint meeting attended by specialists of anesthesia section of transplantation sector and provision team of transplantation sector of Shiraz University of Medical Sciences.

Results: The purpose of this guideline is to assess the principles of maintaining brain death cases after diagnosis in the ICU until organ removal in the surgery. The most important medical interventions practiced in brain death cases include:
1. Respiratory aids and ventilator settings.
2. Hemodynamic interventions.
3. Interventions to control body fluids and electrolytes.
4. Cardiovascular aids.
5. Hormonal treatments.
6. Regulation of the body temperature.
7. Monitoring.

Conclusions: The fact that a large number of patients waiting in the list for transplantation expire before receiving organs reveals the significance of the process of managing and maintaining brain dead cases. Proper implementation of maintenance procedures in cases of brain death increases the chance of successful transplantation. Preparing a guideline for managing brain death cases can serve as a great step toward standardization of the process of providing proper medical services for brain death cases and as a result for receivers of organs.

P13
PRA OR LSA: WHICH ONE DO WE CHOOSE?

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Introduction: Sensitization to HLA has a major impact on patient mortality and morbidity due to prolonged waiting time. LUMINEX method has shown sensitivity to detect panel reactive antibodies. Single antigen beads (SAB; LSA) combined with LUMINEX technology is a major advance in the detection and characterization of HLA specific antibodies. In the screening PRA assays, beads are coated with HLA molecules isolated from human cell lines but in the single antigen beads are coated with recombinant antigens. In this study we compare the PRA detection results and the LSA results. The aim of the study was to investigate if there is a correlation between PRA and LSA

Materials and Methods: In this study we investigated the if there is an association between PRA and LSA. For this purpose, all sera samples were analysed by LUMINEX bead technology for calculated PRA and LSA. We investigated 41 PRA positive patients. PRA class-I and class-II results compared with LSA class-I and class-II results. 15 patients transplanted successfully 2 of them (one of them class-I+ and the other is class-II+) 52% ve 56% positive, 5 of them (2 of them PRA class-I+ and 3of them PRA class-II) PRA ≥%75 were found. Reliability analysis of congruence between PRA and LSA to be tested, assessed by Intraclass Correlation Coefficient. Correlation coefficients were interpreted as either excellent relationship r £ 0.91; good 0.90 £ r £ 0.71; fair 0.70 £ r £ 0.51; weak 0.50 £ r £ 0.31; little or none r £ 0.3 (ref). A p value of 0.01 was taken as the level of significance. Values of p < 0.05 were considered statistically.

Results: Intraclass correlation coefficient for Class-I PRA and class-I LSA results is: 0.38 (weak) (95% CI 0.02-0.66). (correlation graphic 1) . Class-II PRA and class-II LSA correlation results is: 0.45 (weak) (95% CI 0.13-0.67) (correlation graphic 2).

Conclusions: Our study show that renal transplantation successfully performed in immunological high risk patients. Sensitized kidney transplant candidates have an increased risk for antibody mediated rejection. Because of this risk they may wait too long in the waiting list. LSA is not cost effective but it gives a change to sensitized patients.

Figure 1: PRA Class-I and LSA Class-I Correlation Graph
Figure 2: PRA Class-II and LSA Class-II Correlation Graph

**P14**

**BACTEREMIA AMONG IMMUNCOMPROMISED PATIENTS**

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**Introduction:** To evaluate the epidemiology and etiology of bacteremia among immunocompromised patients followed up at Baskent University Ankara Hospital from January 1, 2012 to July 30, 2013.

**Materials and Methods:** The immunocompromised patients who had ‘significant’ positive blood cultures which were isolated by automatic blood culture system BACTEC 9240 (Becton Dickinson®) at the Microbiology Laboratory of Başkent University Ankara Hospital were taken to the study. The definition of “immunocompromised patients” consisted of solid organ transplant recipients (kidney, liver) and hemato-oncologic malignancy patients with a history of chemotherapy in the last month before bacteremia. Every bacteremia and the patient were saved on a form with its demographic datas, laboratory results, kind of bacteremia, the source of bacteremia, name and the antibiotic susceptibility of bacteria. Two classifications were used for the bacteremias. First classification was made according to source of bacteremia: as primary and secondary bacteremia. Primary bacteremias were divided into two groups; as catheter-related and catheter-unrelated. Second classification was made according to occurence of bacteremia: first bacteremia episode, concomitant, persistant and polymicrobial. The etiologic agents of bacteremia episodes were compared regarding the immunocompromised patient groups. SPSS version 11.0 was used for statistical analysis and p<0.05 was considered to be statistically significant. Pearson chi-square test was used as appropriate.

**Results:** This prospective study comprised of 167 bacteremia episodes in 130 consecutive immunocompromised patients. Fourty-nine of the episodes were seen in solid organ recipients and 118 episodes were seen in patients with malignancy. Twenty-nine patients had more than one bacteremia episodes. The distribution of 167 bacteremia episodes were: 145 (86.8%) first bacteremia episode, nine (5.4%) concomitant, eight (4.8%) persistant, five (3%) polymicrobial bacteremia. There were 87 primary (30% cathether-related, 70% cathether-unrelated) and 80 secondary bacteremias according to the source of bacteremias. The primary cathether-unrelated bacteremia was the most common type of bacteremia in patients with hematological malignancy but in all of the other immunsuppressive groups (renal-liver transplantation, solid organ malignancy) secondary bacteremia was the most common type of bacteremia (p:0.016). Gram negative microorganisms were more commonly seen in secondary than primary bacteremias (p:0.000). Also gram negative bacteria were the most common agents in both transplant and malignancy groups. Escherichia coli was the most commonly isolated (46.1%) bacteria in this study. Fifty percent of the E.coli isolates were ESBL positive. Acinetobacter baumannii was the second most common gram negative agent and the ratio of XDR isolates among Acinetobacter isolates was 73%.

**Conclusions:** Gram negative bacteria are the most common causative agents of bacteremia in immunocompromised patients in our hospital. The rising ratio of XDR Acinetobacter baumannii is a striking problem which causes difficult-to-treat infections.

**P15**

**EXPERIENCE OF INVASIVE FUNGAL DISEASES IN 2013 AT BASKENT UNIVERSITY**

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**Introduction:** The aim of this study is to determine the distribution of invasive fungal diseases (IFD) types, risk factors and applied treatments at our hospital in the previous year.

**Materials and Methods:** Thirty-nine invasive fungal disease patients were enrolled in our study between 1st December 2012 to 15th November 2013. Examination and classification of each case was defined by the consensus guideline of European Organization for Research and Treatment of Cancer / Mycoses Study Group (EORTC/MSG). All patients were observed during hospitalization and if necessary after discharged.
**Results:** Two-thirds of patients were female. The mean age of patients (ranging from 22 to 88 years) were 62 years. Twenty-eight (72.7%) were proven, nine (23%) were probable, two (5.1%) were possible. Underlying diseases, in order of frequency, were as follows: Twenty of the 39 patients (51.2%) had malignancy (eight gynecological, seven hematologic, four solid organ, one mesenchymal), eight patients (20.5%) were solid organ transplant recipients (three kidney, three liver, two heart), three were three (7.6%) chronic renal failure patients, two patients (5.1%) had rheumatoid arthritis, six patients (15.3%) had other kinds of underlying diseases. Candidemia was the most common and pulmonary aspergillosis was the second common types of infection. All types were shown in Figure 1. Out of 23 candidemia 14 (60.8%) case were non-albicans spp. With a predominance of 9 (39.1%) C. glabrata. All the patients had history of prior hospitalization with a mean of 30.6 days. Twenty patients (51.2%) have stayed in intensive care with a mean of 19 days. Twenty-eight patients (71.7%) have received immunosuppressive or chemotherapeutic drugs, 35 patients (89.7%) have received antibiotic treatment before IFD. Galactomannan antigen positivity was determined in 8 of 11 pulmonary aspergillosis patient and 3 of them were not neutropenic. Caspofungin was the most commonly used antifungal drug to treat candidemia episodes and voriconazole was the most commonly used antifungal drug to treat pulmonary aspergillosis. Overall mortality rate of 39 patients was 43.5%.

**Conclusions:** This study has shown risk factors to be significantly associated with the development of IFD in adults. Candidemia and pulmonary aspergillosis was the second common types of infection. All types were shown in Figure 1. Out of 23 candidemia 14 (60.8%) case were non-albicans spp. With a predominance of 9 (39.1%) C. glabrata. All the patients had history of prior hospitalization with a mean of 30.6 days. Twenty patients (51.2%) have stayed in intensive care with a mean of 19 days. Twenty-eight patients (71.7%) have received immunosuppressive or chemotherapeutic drugs, 35 patients (89.7%) have received antibiotic treatment before IFD. Galactomannan antigen positivity was determined in 8 of 11 pulmonary aspergillosis patient and 3 of them were not neutropenic. Caspofungin was the most commonly used antifungal drug to treat candidemia episodes and voriconazole was the most commonly used antifungal drug to treat pulmonary aspergillosis. Overall mortality rate of 39 patients was 43.5%.

**Introduction:** Tuberculosis (TB) still remains an important problem in solid organ transplantation (SOT) patients due to their immunocompromised state. The objective of the present study was to demonstrate the incidence of TB in SOT patients. We also aimed to identify demographic characteristics and various presentation of TB in SOT patients.

**Materials and Methods:** With these purposes we evaluated a total of 999 patients (M/F= 665/334; 661 renal and 338 liver transplantation) who underwent SOT between 2003 and 2013. Medical records of all patients were retrospectively reviewed. Patients’ demographics, type of transplantation, primary site of tuberculosis, specimen culture and pathology results, chest X-ray and thoracic computed tomography findings, total blood count and chemistry were all recorded. Results: 19 of the 999 (0.1%) patients (5 were cadaveric and 14 from living donor, M/F:15/4; mean± SD age: 42 ± 18.5 years) were diagnosed as TB. 85% of the patients had TB 6 months after transplantation and 15% had within first 3 months after transplantation. Diagnosis was mainly based on histopathological examination or biopsy of specimen(n=10), M. tuberculosis culture (n=4), and clinical suspicion of TB (n=5). Nontuberculosis mycobacteria infection was detected in 3 of the patients. Of these patients 9 were diagnosed pulmonary TB while 8 of them had extrapulmonary and 2 had both. The most common affected sites of extrapulmonary TB were lymph nodes (15%) and bone (15%). All patients had a history of TB exposure. 3 (15%) of the patients had scars on chest x-ray suggesting as old TB.

**Conclusions:** Extrapulmonary tuberculosis is more common (30-49%) in solid organ transplant patients than in the general population (65% pulmonary and 10-15% extrapulmonary TB), with a predominants of lymph nodes, pleura, genitourinary tract, bones and joints, meninges, peritoneum and pericardium. In our study population the ratio of extrapulmonary TB was 52 % and in accordance to the literature. We believe that clinicians should be aware of findings of extrapulmonary TB in SOT patients. Incidence rates of TB in solid organ transplant recipients depends on factors such as prevalence in the general population, type of transplantation, immunosuppression, underlying condition.
Frequency and incidence of TB in SOT patients is 0.2-6.4% in developed countries; in countries with high endemicity, prevalence may reach 15%. In our study population, TB rate was 0.1% which is lower than the literature even from Turkey. This result could be attributed to our preoperative pulmonary evaluation strategies for excluding risk of reactivation TB in these patients. We believe that, postoperative risk of TB reactivation should be suspected in all patients awaiting solid organ transplantation list in endemic regions.

**P17**

**SUCCESSFUL KIDNEY AND LIVER TRANSPLANTATION IN A CASE WITH PRIMARY HYPOXALURIA**

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**Introduction:** Primary hyperoxaluria (PH) is a rare inborn error of glyoxylate metabolism which is characterized by the overproduction of oxalate. In this disease calcium oxalate is deposited in various organs. The kidney is the primary target for oxalate deposition, which leads to end-stage renal disease in a significant number of cases. Here we report a case of PH who was diagnosed after first transplant (Tx) and received liver and kidney Tx successfully.

**Case Presentation:** A 31 yrs old man with ESRD referred to our ward for continuation of peritoneal dialysis in May 2011. He complained of recurrent kidney stone from 7 years old which was ended to kidney failure on 2004. The parent were cousins. He was on hemodialysis for 4 years and received a living kidney Tx on 2008 which failed one month later. The renal biopsy showed calcium oxalate deposition. After graft failure, PD began and patient referred to our center. He was cachectic, depressed, complaining of arthralgia in knees and ankles. There were no teeth in his mouth. Hypothyroidism, pancytopenia was detected in his lab tests. Bone marrow showed severe calcium oxalate deposition. Since the patient was anuric and we didn’t have the facility to check blood oxalate, we confirmed our diagnosis by measurement of oxalate in PD fluid. Due to high level oxalate level we started hybrid therapy (HD+PD) to decrease oxalate load. He received cadaveric liver transplant on February 2013 and second kidney transplant was done on November 2013. Pancytopenia recovered. His last serum creatinine is 1.2 mg/dl with unremarkable Tx kidney sonography.

**Conclusions:** In cases with recurrent kidney stone, PH should be rule out before any decision for kidney Tx. Liver Tx followed by kidney Tx was a successful option in our case with severe HP.

**P18**

**PAP SMEAR FINDINGS IN SOLID ORGAN TRANSPLANT RECIPIENTS COMPARED WITH THE NORMAL POPULATION ACCORDING TO THE BETHESDA 2001**

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**Introduction:** Solid organ transplant recipients are at an increased risk of developing cancer including cervical cancer compared with the woman in general population, mostly due to long-term immunosuppressive therapy. The Papanicolaou (Pap) smear remains the gold standard for screening cervical pathologies including preinvasive and invasive lesions. The objective of this study was to evaluate the Pap smear findings in solid organ transplant recipients, determine the prevalence of abnormal smears and compare them with the general population.

**Materials and Methods:** A retrospective analysis was made of 603 women patients including children and adolescents who received liver or kidney transplant between January 1990 to December 2012 at Başkent University Ankara Hospital, Ankara, Turkey. Cervical Pap smear that were performed in 111 women after transplantation included in this study. Demographic and clinical findings of these patients, including age, primary disease, type of immunosuppressive therapy, cigarette and oral contraceptive usage, and the time between transplantation until the Pap smear were recorded in all patients. Pap smear findings were compared with the normal population matched for age and technical procedure of cervical cytology which have been selected randomly with propensity score matching program. All of the Pap smear were re-examined according to Bethesda 2001 criteria.

**Results:** Among 111 patients, 89 were received kidney transplantation and 22 were received liver transplantation. The mean age of the patients was 36.71 years (range, 18-59 years). The mean interval to Pap smear after transplantation was 52.14±43.35 months (range, 1-192 months). Of 111 patients, 2 (1.8%) had atypical squamous cells of undetermined significance (ASCUS), 8 (7.2%) had low grade squamous intraepithelial lesion (LSIL), 15 (13.5%) had candida infection, 2 (1.8%) had trichomonas vaginalis, 1 (0.9%) had herpes simplex infection, 13 (11.7%) had bacterial vaginosis, 15 (13.5%) had reactive changes due to inflammation and 18 (16.2%) had atrophy. When we compared our results with the control group, there were statistically significant differences (p<0.05) between the two group regarding epithelial cell abnormalities (LSIL), candida infection, bacterial vaginosis and atrophy.

**Conclusions:** Pap smear screening has the potential role of recognizing cervical preinvasive and invasive lesions.
Patients with a Pap smear suggestive of LSIL or ASCUS should be followed up and Pap smear should be repeated at regular intervals. Patients with a Pap smear suggestive of high grade squamous intraepithelial lesion (HSIL) should undergo colposcopy and biopsy. The risk of developing cervical intraepithelial neoplasia is greater in transplant recipients, because of immunosuppression therapy. Our study also mentioned that the incidence of LSIL increased significantly compared to the normal population. It seems that intensive follow-up with Pap smear in transplant recipients is important in the early detection of these lesions.

**P19**

**LONG-TERM RISK OF PULMONARY EMBOLISM IN SOLID ORGAN TRANSPLANT RECIPIENTS**

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**Introduction:** Solid organ transplant recipients (SOTR) manifest a chronic hypercoagulable state contributing to an increased incidence of thromboembolic (TE) complications. The prothrombotic changes, especially in renal transplant recipients (RTR), may present without any additional disease, suggesting RTR per se is associated with a state of hypercoagulability. This situation appears to persist throughout life, but the risk is found to be at its greatest during the first 6 months. Our aim was to evaluate the frequency of pulmonary embolism (PE) in SOTR in 10 years of period and to evaluate the impact of anticoagulant prophylaxis as well as the immunosuppressive therapies in the development of PE.

**Materials and Methods:** Medical records of a total of 999 patients who underwent SOT at our institution between 2003 and 2013 were retrospectively reviewed. Data on patients’ demographics, the type of transplantation, comorbidities, degree and the onset time of PE, venous thromboembolism prophylaxis all recorded.

**Results:** Twelve patients (1.2%) (M/F=9/3, mean age:49.5±7, 11 renal, 1 liver transplantation) had been diagnosed with PTE in 999 solid organ transplant recipients (M/F=665/334; 661 renal and 338 liver transplantation). Nine patients had nonmassive, 2 patients had massive and 1 had submassive PE. In 10 patients PE developed 1 year after the transplantation, whereas one had it in the first 3 months and the others between the 3rd and the 6th months of the surgery. None of the patients had prior deep venous thrombosis or PE. Preoperative venous thromboembolism (VTE) prophylaxis was not administered in any of the patients. Two patients received postoperative VTE prophylaxis. Five patients had some comorbidities such as diabetes (n:2), chronic obstructive pulmonary disease (n:1), atherosclerotic heart disease (n:2) and hypertension (n:1). All patients were receiving various immunosuppressive agents including tacrolimus (n:5), sirolimus (n:7), cyclosporine (n:1), deltacortil (n:10) and mycophenolate mofetil (n:8). Two patients received low molecular weight heparin, the rest were on warfarin during the treatment. Eight patients has treated for 6 months, whereas 4 patients were treated more than 6 months due to either their genetic mutations or persisting residual thrombosis. In 42% of the patient (n:5) genetic tests for done to evaluate the etiology of PTE and decide the duration of the treatment. All patients were homozygous normal for Factor V Leiden and prothrombin (PT G20210A) genes. One patient was homozygous mutant and one patient was heterozygous mutant for methylenetetrahydrofolate reductase (MTHFR C677T) gene. No death was occurred because of PE during the 10 years of follow-up.

**Conclusions:** In RTR, the incidence of PE has been reported as 2-14% in the literature. In our group this rate was 1.2% which is lower than the earlier report. However this could be as a result of the retrospective nature of the study. In our series, PE was highest within the first 4 months and PE was found to be the fourth cause of death during the study period. The increased risk factor of thromboembolic events occurring in very early state after transplantation may be related to local surgical factors, those presenting later are to be explained by a number of medical factors causing hypercoagulable state. While these patients may present with the known risk factors such as diabetes, cancer, inherited thrombophilia, they may also suffer from other situations which may be exclusive to their own. Immunosuppressive drugs seem to play a major role in patients who develop PE after SOT. As a well-known factor bed ridden state always plays a critical role in our transplant recipients. Early mobilization is a very critical issue to prevent venous thromboembolism in the post-operative period. Transplant physicians ought to search for all factors both in pre-and-post-transplant period in order to detect high risk patients and apply the suitable prophylactic measures.

**P20**

**SCREENING FOR DETECTION OF CKD**

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**Introduction:** Chronic kidney disease (CKD) has impacts on quality of life, use of health services, health expenditure and mortality. It is also a global public health problem, with a greater burden and prohibitive cost of care particularly in developing countries. It has been found that identification of risk factors like HTN, DM, heart attack or stroke and therapeutic strategies can reduce the risk of CKD and its...
complication. Thus the early recognition is very important and beneficial for which this study was done.

Materials and Methods: It was a multi-staged prospective study done in a village named Mollargaon in Sylhet, Bangladesh over 27410 people where 11016 people were found to be eligible (age 18 years) for the study. The screening program for detection of HTN, DM, cardiovascular diseases & proteinuria in accordance with the ISN program was done using a structured questioner.

Results: Among the total respondents (11016) about 52 % were female and rests (48 %) were male with a ratio of 1:1.10. Age group 25-35 was found as most vulnerable group. Mean age of the respondents was 36 year. Participants low educational status, insufficient physical activity, poor intake of fruits & vegetables and smoking were found as significant risk factors for developing CKD. The family history of CKD, HTN, DM, heart attack or stroke of the respondents were not significantly associated with developing CKD while present history of these showed significant association. Out of 10956 respondents 48 (0.4%) respondents found with present history of kidney disease, followed by 223 (2%), 1519 (13.8%) and 41 (0.4%) participants got current presence of diabetes, HTN and heart attack or stroke respectively. Total 1518 (14%) patients were found as vulnerable people for developing CKD. Among them 150 (0.55%) respondents have established CKD which also means 13.62 per thousand populations. Considering the whole countries population the size of the vulnerable group for CKD will be about 21 million and the size of the groups who are presently suffering from CKD will be about 2 lacs.

Conclusions: Screening for CKD in general population could be used to identify the people with risk of CKD which will ultimately save more expenses and reduce the burden of disease.

P21
INFLUENCE OF DIFFERENT TRENDS ON THE DEVELOPMENT AND OUTCOME OF EARLY KIDNEY ALLOGRAFT DYSFUNCTION

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Introduction: Last years, more and more patients who were not considered as transplant candidates earlier, have been referred to kidney transplantation. We have reviewed the influence of these trends on development and outcome of early kidney allograft dysfunction.

Materials and Methods: The study involves 231 kidney transplantations. Recipients were divided into two groups: I group: 125 patients operated in 1999-2004; II group: 106 patients operated in 2008-2013. Patients in both groups had the following significant differences: their age in the first group ranged from 12 to 62 years, in the second group from 7 to 71 years. In the first group, more transplantations from deceased donors (76.8% of cases) took place, in the second group living donors dominated (68.8% of cases). In the first group, transplantation was performed for patients with glomerulonephritis. In the second group, 18 patients had the additional risk factors such as diabetes (11), systemic lupus erythematosus (5), amyloidosis (1), replacement of the aortic and mitral valves due to bacterial endocarditis 4 months before transplantation (1). In the first group, immunosuppression after transplantation consisted of CsA, MMF, and steroids was used. In the second group, in all cases at the stage of induction anti-CD-25 monoclonal antibodies were used; immunosuppression maintenance was the same.

Results: The primary function of a renal transplant occurred in 89 (71.2 %) patients of the first group and in 83 (78.3 %) patients of the second group. Immediately after kidney transplantation four different alternatives of clinical course of delayed renal graft function were defined: 1) anuria, 2) oliguria, 3) normuria and 4) secondary delayed function when after several days of polyuria urine output decreased (up to anuria). We have established a leading role of ischemia in the development of initially delayed renal graft function. So, anuria at kidney transplant from a living donor is very likely a sign of vascular thrombosis. In case of secondary delayed graft function the rejection was the main reason, and this clinical form of dysfunction occurred only in the first group. One-year survival of patients with delayed function in the first group was 80% and in the second group mainly due to the absence of septic complications 100%.

Conclusions: Our data showed that in spite of extension of indications, the number of primary functioning kidney transplant and patient survival increased. It makes the best start for long-term rehabilitation of recipients and allows expanding criteria for kidney transplantation.

P22
URINARY TRACT INFECTION IN RENAL TRANSPLANT PATIENTS IN SINAA UNIVERSITY HOSPITAL

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Introduction: Renal transplantation is the treatment of choice in patients with end-stage renal disease. Urinary tract infection (UTI) is one of the most common complications after renal transplantation and it has serious consequences. The aim of this study was assessing UTIs in renal transplanted patients and evaluation of risk factors associated with post-transplant UTI.
Materials and Methods: In this prospective study, 173 patients (48 hospitalized patients and 125 outpatients) were enrolled in this study. These renal transplant recipients evaluated for bacterial urinary tract infection in urology research center at Sina Hospital. After collecting urine samples from symptomatic and asymptomatic patients, urinalysis and colony count were performed. Identification of bacteria was performed by routine microbiological tests in the Department of Pathobiology, School of Public Health, Tehran, Iran, in 2011.

Results: UTI was observed in 47 patients and the most prevalent microorganism was Escherichia coli (E.coli) 18(38.2%). Nearly 71% of UTI cases were diagnosed during the first three months post transplantation. Risk factors for post transplant UTI were female gender, age, length of hospitalization and diabetes mellitus. Female patients were more susceptible than males (OR=0.50 and P=0.047) to infection. There were no significant difference between diabetes mellitus and UTI. Most of the isolated bacteria were susceptible to imipenem and resistant to tetracycline and trimethoprim sulfamethoxazole.

Conclusions: Our study confirmed that bacterial infections remain as the most common infectious complication in the early post-transplant period, and antibiogram rather than empirical treatment is needed to find the best effective antibiotics. Moreover, risk factors such as female gender, increased age and length of hospitalization are predisposing factors to increased urinary tract infection in renal transplantation.

P23
CORRELATION OF REDUCTION OF BONE MINERAL DENSITY (BMD) WITH CALCIUM, VITAMIN D AND PTH LEVELS IN RENAL TRANSPLANT RECIPIENTS

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Introduction: Reduction in BMD at the vertebral column and at the femoral neck usually occurs in renal transplant recipients during the first months after kidney transplantation. Sometimes it can be persistent in the long term in some cases. The etiology is multifactorial and persistent hyperparathyroidism, pre-existing renal osteodystrophy, immunosuppressive treatment and vitamin D deficiency are the etiological factors. The aim of this study is to investigate the role of PTH, vitamin D and Ca levels in BMD reduction in renal transplant recipients.

Materials and Methods: 27 patients (17 male and 10 female) who underwent renal transplantation in our hospital included in this study. Mean age was 42±12.7 (18-64). The patients with higher creatinine levels more than 2 mg/dL were excluded. Mean follow up was 9±9.5 (1-38 months). Mean pre-transplant hemodialysis duration was 20±32.1 (0-121). There were no parathyroid surgery in patients but two of them had a previous total thyroidectomy. The immunosuppressive treatment was based upon induction therapy with anti-thymocyte globulin (ATG), steroids, calcineurin inhibitors and mycophenolate mofetil. Osteopenia was defined for T score between -1 and -2.5. Osteoporosis was defined for T score more than -2.5. PTH level higher than 150 pg/mL was considered to define hyperparathyroidism. Calcium (Ca) levels more than 10.5 mg/dL is considered as hypercalcemia and Vitamin D levels lesser than 8.8 ng/mL is considered as vitamin D deficiency.

Results: Mean T score was -1.35 ± 1.03 (range between 0 and -5.1) at the femur neck and -1.23 ± 1.3 (range between 1.6 and -3) at the vertebral column. Mean calcium level was 9.65 ± 0.7 mg/dL (8.2-11.9), mean PTH level was 144.41 ± 188.51 pg/mL (48-1065) and mean vitamin D level was 13.39 ± 6.06 ng/mL (4.4-25.8) respectively. Only three (11.1%) patients had higher calcium levels. Only four (14.8%) patients had lesser vitamin D levels. Osteoporosis and osteopenia were respectively found at the femur neck in 3.7% and 70.37% of patients. 25.92% of patients had normal BMD at the femur neck. 30% of patients with osteoporosis/osteopenia at the femur neck had PTH>150 pg/ml and 14.28% of patients with normal BMD had PTH>150 pg/ml (p>0.05). Osteoporosis and osteopenia were respectively found at the vertebral column in 22.22% and 40.74% of patients. 37.03% of patients had normal BMD at the vertebral column. 35.29% of patients with osteoporosis/osteopenia at the vertebral column had PTH>150 pg/mL and 10% of patients with normal BMD had PTH>150 pg/ml (p>0.05). 75% of patients with vitamin D deficiency had osteoporosis/osteopenia. 15% of patients with osteoporosis/osteopenia at the femur neck and 17.64% of patients with osteoporosis/osteopenia at the vertebral column had vitamin D deficiency.

Conclusions: Higher PTH levels were seen in the osteoporosis/osteopenia group but there were no significant differences in the levels of PTH between patients with osteopenia/osteoporosis and patients with normal BMD. Not only hyperparathyroidism but also low levels of PTH are associated with reduced BMD.

References
P24

PREDICTIVE VALUES OF PRE AND POST-TRANSPLANT IGA ANTI-FAB OF IGG ANTIBODIES FOR KIDNEY ALLOGRAFT OUTCOME AND SURVIVAL

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Introduction: Immunological factors are reliable markers for allograft monitoring, because of their seminal role in rejection process. One of these factors is IgA anti-Fab of IgG antibody and this study aimed to evaluate the predictive value of pre and post-transplant levels of this marker for kidney allograft function and survival.

Materials and Methods: Sera samples of 59 living unrelated donor kidney recipients were collected before and after transplant (days 7, 14 and 28) and investigated for IgA anti-Fab of IgG antibody levels with ELISA method.

Results: During a meanly four- year follow up of all patients, 15 out of 59 recipients experienced rejection episodes [10 with acute rejection (AR) and 5 with chronic rejection]. Low levels of IgA anti-Fab antibodies one month post-transplant was observed in 52.9% of patients with AR compared to 13.5% of patients stable graft function (P<0.001). None of patients with rejection episodes showed high level of IgA anti-Fab of IgG antibody levels with ELISA method.

Conclusions: Our findings indicate the protective effect of higher levels of IgA anti-Fab antibodies regarding to kidney allograft outcomes and long-term graft survival.

P25

RESULTS OF LOWER URINARY TRACT DYSFUNCTION IN PEDIATRIC RENAL TRANSPLANT PATIENTS

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Introduction: 20 % of pediatric End-Stage Renal Disease (ESRD) patients have lower urinary tract dysfunction (LUTD) due to posterior urethral valves (PUV), prune belly syndrome and neurogenic bladder. At the past; it was assumed that pediatric ESRD patients characterized with LUTD were not suitable for renal transplantation. We aimed to investigate the result of renal transplantation performed on pediatric ESRD patient with LUTD.

Materials and Methods: We included 42 pediatric renal transplantation characterized with LUTD out of 211 renal transplantation patients. 27 renal transplantations have PUV and 15 patients have neurogen bladder. Demographic data are shown in table. We examined post-operative complications, graft and patient survival.

Results: Median age was 12.5 and 13 years of age respectively. There were no post-operative surgical complications. BK virus nephropathy (n: 3) and chronic allograft nephropathy (n: 1) were the cause of graft loss. One and three year patient survival was 100 % in both groups.

Conclusions: In pediatric patients is not a contraindication for kidney transplantation dysfunctional bladder. Our results showed renal transplantation may also good option for the ESRD pediatric patients with lower urinary tract dysfunction.

Table: Demographic Data

<table>
<thead>
<tr>
<th></th>
<th>PUV (n=27)</th>
<th>Neurogen bladder (n=15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median age (years)</td>
<td>12.5 (4-17)</td>
<td>13 (9-17)</td>
</tr>
<tr>
<td>Gender (M/F)</td>
<td>27/0</td>
<td>10/5</td>
</tr>
<tr>
<td>HLA matches</td>
<td>3,2</td>
<td>3,1</td>
</tr>
<tr>
<td>Living- related</td>
<td>24</td>
<td>10</td>
</tr>
<tr>
<td>Postoperative complication</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Creatinin 1 year</td>
<td>0.95</td>
<td>1.13</td>
</tr>
<tr>
<td>Patient survival</td>
<td>%100</td>
<td>%100</td>
</tr>
</tbody>
</table>
USE OF BIOLOGICAL PROSTHESIS IN KIDNEY/PANCREAS TRANSPLANT PATIENT WITH A GIANT INCISIONAL HERNIA: CASE REPORT

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Introduction: The use of synthetic mesh in transplant patients is still controversial. Recent studies showed that biological prostheses compared to synthetic ones showed a greater ability to integrate into tissues, to resist bacterial colonization and to reduce cytotoxic or allergic reactions, providing similar functional results. Also biological prostheses did not require any reduction or suspension of immunosuppressive therapy. In this case report we present you a kidney/pancreas recipient with giant incisional hernia which was successfully treated with a biological prosthesis as our preliminary experience.

Case Report: A 40-year-old male kidney/pancreas recipient was admitted to our hospital with a giant incisional hernia two years after the transplantation. The defect on the abdominal wall was 40x30 cm approximately. Two biological prostheses; 40x20 cm and 30x20 cm in dimension, was used for the closure of the abdominal wall. The patient was discharged at the 5th postoperative day without complications. An abdominal magnetic resonance imaging was showed the complete integrity of the biological prostheses one year after the operation.

Discussion: Transplant recipients are having higher risks for use of synthetic prostheses because of being immunosuppressed compared with the regular patients. Recent studies showed that biological prostheses provided similar functional results without complications compared to synthetic prostheses. Moreover they are versatile and not require any changes in immunosuppressive therapy. Because of these features they seem to be a better option than synthetic ones.

Conclusion: In our opinion, biological prostheses are safe, effective and reliable than the synthetic prostheses and because of their features they seem to outweigh the synthetic ones in transplant recipients. We think that further larger series can support our foresight.

References

ASSOCIATION BETWEEN ANTITHYMOCYTE GLOBULIN INDUCTION AFTER RENAL TRANSPLANTATION AND OUTCOMES, COMPLICATIONS AND LONG TERM PROGNOSTIC FACTORS OF ALLOGRAFT FUNCTION: A PROSPECTIVE STUDY

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Introduction: Antithymocyte globulin (ATG) is an effective induction therapy after renal transplantation, reducing the rates of allograft acute rejection and improving the success rate of early steroid withdrawal protocols. However, ATG long term effectiveness and safety still needs further investigation. In this article a prospective study is designed to investigate the effectiveness and complications of ATG use compared with those who received steroid after transplantation.

Materials and Methods: All kidney allograft recipients who underwent transplantation from June 2009 till June
2012 were enrolled for the study (n=167) of the recipients, those who experienced kidney rejection during the first 24 hours after operation were excluded (n=15). The remaining recipients allocated to the high risk group for rejection received ATG (n=54) and while low risk group received steroid therapy (n=98). The final efficacy end point consisting of acute rejection, graft loss, death and treatment side effects including thrombocytopenia, leukopenia and cytomegalovirus infection (CMV) were studied for 12 months after transplantation. Serum parameters with high significance for prognostic study including Blood Urea Nitrogen (BUN) and Creatinine (Cr) at 1 week, 1, 6 and 12 months of transplantation were followed and compared between the groups.

Results: Here, it is shown that the use of ATG was accompanied by lower incidence of acute rejection (3.7% vs. 21.4%), graft loss (11.1% vs. 17.3%) and post transplantation complications including cytomegalovirus infection (12.9% vs. 14.2%), leukopenia (12.9% vs. 24.4%) and thrombocytopenia (14.8% vs. 24.4%) in the high risk recipients receiving ATG. However, it is also shown that death rate of kidney transplant recipients is slightly higher in the ATG received group compared with those who received steroid therapy (20.3% vs. 12.2%). Furthermore, it is demonstrated that indicators of long term renal function including BUN and Cr are less reduced in the high risk population (2.98 and 3.74 vs. 2.22 and 1.89 for Cr; P-value: 0.002 and 0.17; 56.88 and 39.11 vs. 36.66 and 28.41 for BUN; P-value < 0.05). The use of ATG improved these parameters before the first year of transplantation (1.75 and 1.54 vs. 1.61 and 1.43 for Cr; P-value: 0.65, 0.72; 23.20 and 18.59 vs. 22.30 and 18.90 for BUN; P-value: 0.74, 0.90).

Conclusions: High risk renal allograft recipients are more prone to worse renal function tests indicating poorer long-term allograft function. The use of ATG improved these indices before the first year of transplantation. ATG was also accompanied by lower rates of leukopenia, thrombocytopenia, CMV infection and acute graft rejection compared to those who received steroid therapy for induction of immunosuppression. Therefore it is concluded that the ATG induction therapy is a reasonable approach, especially in high risk recipients for the prevention of rejection, improving long term prognosis with similar side effects as with steroid therapy, all of which indicate ATG effectiveness, especially in the recipients with high risk of graft rejection.

P28
DO DIALYSIS PATIENTS HAVE ACCURATE INFORMATION ABOUT CADAVERIC KIDNEY TRANSPLANTATION: A KAP STUDY

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Introduction: End stage renal disease (ESRD) is one of the chronic diseases with high prevalence in Iran (253 per million population). Kidney transplantation is the standard care for many patients with ESRD, and has been found to be more effective in improving patient’s quality-of-life, physical and psychosocial function. Among 2418 kidney transplantsations from 23598 dialysis patients from March 2012 to March 2013 in Iran, only 914 transplantsations were from deceased donors and 1504 from living donors. Although 20% of the all dialysis patients would receive transplantation per year, it’s just only 9.7% in our country. Patients with ESRD are confirmed officially by nephrologists and referred to dialysis departments and kidney transplant teams but the reason behind this may be a defect in information system for these patients. The aim of this study was to assess patient’s information level about kidney transplantation options and how they could register to waiting list.

Materials and Methods: We designed a multicenter KAP study on patients with ESRD in Tehran and evaluated their awareness, knowledge and attitude about kidney transplant from brain dead and living donors.

Results: Out of 103 patients, 55 (53.4%) were male. The mean age of the patients was 54 years (ranged from 20 to 85 years). Diabetes mellitus (60%), hypertension (56%), and glomerulonephritis (40%) were the most common causes of ESRD in our study population. The mean period of dialysis was 70.4 months (5.8 years), with a range of 0–216 months. 28.2% of the dialysis patients did not have any knowledge and 43.8% had poor information about transplantation. 51% of the patients didn’t like to receive kidney transplant from brain dead donors, and they believed that living kidney transplantation would have better outcome than cadaveric transplantation. We found that majority of the patients (86.4%) were worried about transplant outcome and post-transplant costs. 60% of the dialysis patients preferred to receive transplanted organ but only 38.8 % of them had been registered in waiting list and finally16.5% were placed on the waiting list for kidney transplant from deceased donors. Among 103 dialysis patients, 15.5% of cases had been transplanted, from whom 5 (31.3%) had received kidneys from deceased donors and 11(68.7%) from living donors.

Conclusions: Majority of dialysis patients were ESRD cases who can possibly get transplanted organ, don’t have enough and correct information about kidney transplant.
The patients with awareness of transplantation prefer to receive kidneys from living donors instead of deceased ones. It should be a concerted effort to expand the cadaveric transplantation program, as well as peritoneal and hemodialysis centers. So we recommend health care workers to inform patients accurately and promote cultural activity towards cadaveric transplantation.

P29
POLYOMAVIRUS BK AND CYTOMEGALOVIRUS INFECTIONS IN RENAL TRANSPLANT PATIENTS
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Introduction: The immunosuppressive treatments administered to solid organ transplant recipients have reduced the rejection rates. However, it poses a risk for infections. The most common infections are BK virus and cytomegalovirus (CMV). These can lead to rejection and serious diseases. In this study, it’s aimed to investigate the incidence of BK-DNA and CMV DNA after renal transplantations and their effects on the graft.

Materials and Methods: One hundred and eighteen renal transplant recipients are enrolled in the study. Patients were followed-up three month periods and demographic features, biochemical data, and BK-DNA and CMV DNA polymerase chain reaction (PCR) results were investigated.

Results: A total of 118 renal transplant recipients, 61 female (52%) were included in the study. BK viremia was detected in 12 (10.2%) patients, BK DNA level >10^4 copies/mL was found 5 patients. In 3 (2.5%) among five patients, renal biopsy findings were considered as BKV nephropathy. Upon decreasing the immunosuppressive treatment dose and ciprofloxacin treatment viremia became negative in all patients, and their creatinine levels returned to normal level. CMV DNA was found positive in 23 patients (19.5%), compared to >500 copies/mL in 4 (3.4%) patients. These 4 patients were treated with ganciclovir and their viremia was remitted. No CMV disease related clinical or laboratory findings were detected in any of the patients.

Conclusions: The incidence of BK and CMV viremia is high in renal transplant recipients. Organ damage and rejection rates are low with appropriate follow-up, early diagnosis and treatment.

P30
DO WE HAVE A REAL GOLD STANDARD FOR ESTIMATION OF THE DONATED KIDNEY FUNCTION IN LIVING DONOR KIDNEY TRANSPLANTATION – A PILOT STUDY?
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Introduction: The quality of the donated kidney estimated through the glomerular filtration rate (GFR) is a crucial parameter for long-term graft function in the kidney transplant recipient. The value of the glomerular function of the single donated kidney in living donor kidney transplantation (LDKTx) may be assessed only after technetium-99m diethylene triamine penta acetic acid (DTPA) injection as gold standard. We sought to analyse the relationship between the GFR of the donated kidney and the graft function at 3 months using the equation by Cockcroft and Gault (C & G), and factors that might be influencing their association.

Materials and Methods: We analysed 24 LDKTx recipients (4 unrelated), on standard induction (basiliximab/ATG) and triple maintenance immunosuppression, 9 males (37.5%) and 15 (62.5%) females with a mean age of 39.4 +/- 10.7 years and weight of 74.5 +/- 18.4 kg.

Results: The graft function at 3 months estimated by Cockcroft and Gault equation was 89.1 +/-28.3 mL/min and mean serum creatinine (sCr) level was 101.4 +/- 26.6 mcmol/L, but none correlated with the GFR of the donated kidney measured by DTPA scan (49.3 +/- 13.1 mL/min), r = 0.07 and r = -0.22, respectively (p>0.05). Expectedly, there was a weak but significantly negative correlation between the estimated graft GFR (C&G) and sCr levels in patients at 3 months after transplantation, r = -0.47, P<0.05.

Conclusions: DTPA kidney scan evaluation of the donated kidney in LDKTx does not correlate with either estimated graft function by (C&G) or with the single serum creatinine values at 3 months after transplantation. Hence, it could not represent a gold standard for pretransplant donor kidney evaluation in LDKTx, although this observation should be confirmed on larger LDKTx population in the future.
P31
EVALUATION OF GRAFT REJECTION RISK OF RENAL TRANSPLANT RECIPIENTS AT THE POSTOPERATIVE FIRST YEAR IN OUR INSTITUTION

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Introduction: The aim of this study is to evaluate the graft rejection risk of renal transplant recipients one year after the operation who were undergone kidney transplantation between January 2011 and March 2012.

Materials and Methods: Seventeen patients (14 men, 3 women, mean age 42.5±14.7) were undergone kidney transplantation in this period. One of them was transplanted from cadaveric donor and other 16 were transplanted from living donors (9 living-related, 7 non-related). Mean pre-transplant hemodialysis duration was 18.2±17.1 months. Mean HLA mismatch ratio and mean body mass index were 3.76±1.94 and 23.6±5.2 respectively. Anti-HLA Class I and Class II antibodies (panel reactive antibody screening test-Luminex method), C1q binding protein (enzyme immunoassay method), C reactive protein (CRP) and serum creatinine levels were analysed before and one year after the transplantation. Also lymphocyte cross-match (Luminex method) tests were studied at the first year after transplantation between patients’ samples and donors lymphocyte lysate samples (stored in the deepfreeze at -80 °C).

Results: Mean pre-transplant serum creatinine levels were 4.8±0.9 and 0.98±0.3 mg/dL at the postoperative first year. Mean CRP levels were 15.8±1.4 and 13.2±1.1 mg/L respectively. PRA tests were negative both in the preoperative and postoperative period. Luminex lymphocyte cross-match tests were all negative before and one year after the transplantation. Also lymphocyte cross-match (Luminex method) tests were studied at the first year after transplantation between patients’ samples and donors lymphocyte lysate samples (stored in the deepfreeze at -80 °C).

Conclusions: We considered that there were no patients with graft rejection risk according to our laboratory results. We thought that positive pre and postoperative C1q binding tests was not related with anti-HLA antibodies in our patient. Patients follow up are supporting our opinion. Further studies with more patient number and follow up time needed to support our idea.

References


P32
AUTOPSY-DETERMINED CAUSES OF DEATH FOLLOWING KIDNEY TRANSPLANTATION

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Introduction: We review the pathological findings as determined by autopsy of the kidney allografts.

Materials and Methods: We retrospectively analyzed 1748 patients who had a kidney transplant between January 1990 and December 2013. One hundred eighty-three cases died during this period. Seven of the 183 patients underwent postmortem examination. Clinicopathologic findings including the age at death, causes of death, and main pathological findings were evaluated.

Results: The study group of 7 patients who underwent a kidney transplant had a mean age of 29 years at the time of death. Mean survival was 39 ± 3 months (range, 4-108 mo). Two of 7 patients (28.5%) died in a year after the kidney transplant. Two of remaining 5 patients died 2 years after transplant while 2 cases died after 4 years and 1 case died after 9 years after transplant. Causes of the deaths were infection (4 cases), respiratory distress (2 cases) and multiorgan failure (1 cases). The causes of the infection were bacterial infection in 2 cases (28.5%) and mixed bacterial and invasive fungal (candidiasis) infection in other 2 cases (28.5%). The main pathological finding was acute tubular necrosis in 5 cases (55.5%) and acute T cell-mediated rejection in 4 cases (44%). Recurrent renal amyloidosis were obtained in 2 cases.

Conclusions: Our results emphasize that infections are the main cause of death and acute tubular necrosis and acute T cell-mediated rejection is the main histopathologic findings among these 7 patients. We consider postmortem examination to have important role in determining the primary graft failure and other causes that increased mortality in kidney transplant recipients. An autopsy can provide understanding of the main causes and cause of death.

References

P33

ADULT DUAL KIDNEY TRANSPLANTATION FROM VERY OLD MARGINAL DONOR

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Introduction: Organ shortage has led us to use grafts from expanded criteria donors (ECD). Dual kidney transplantation (DKT) using organs from an ECD, which are not acceptable for single kidney transplantation (KT), may overcome the insufficient functioning nephron mass. We performed a DKT from very old donor.

Case: The 74-year-old male donor with a history of hypertension had a normal creatinine. The cause of his brain death was intracranial hemorrhage. A graft biopsy immediately after organ procurement revealed mild interstitial fibrosis and tubular atrophy, as well as moderate arteriolar narrowing without glomerular sclerosis. The histological scores were 4, respectively, according to Remuzzi et al. The recipient candidate was a 45-year-old man with end-stage renal disease (ESRD) of unknown cause, who had been on the waiting list for 4 years. He underwent DKT rather than waiting longer for a standard criteria donor. The cold ischemic time of the first graft was 260 minutes, and of the second, 300 minutes. There was no delayed graft function in the early posttransplantation period. The patient was treated with a tacrolimus-based immunosuppressive regimen with anti-interleukin (IL)-2 receptor antibody induction. During the 6-month follow-up, there was no rejection or complications; his last serum creatinine level was 1.0 mg/dL.

Conclusions: DKT with very old kidney graft seemed to be a successful to avoid poor graft outcomes and overcome the donor organ shortage.

P34

DE NOVO HLA ANTIBODIES IN A HISPANIC RENAL TRANSPLANTATION POPULATION

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Introduction: Antibody mediated rejection (AMR) and the presence of anti-HLA antibodies has become an increasing cause for concern for caregivers of kidney transplant recipients. Protocols for anti b-cell therapies have become widespread albeit with mixed results. Given that our transplant program has acquired the capabilities to precisely monitor and detect antibodies, we wished to examine the prevalence of de novo donor specific antibodies and its relationship to our general graft survival and antibody mediated rejection.

Materials and Methods: A retrospective chart review of patients transplanted between 2010 and 2012 was performed with permission of our insititution review board. Single antigen analysis of transplant recipients was performed within 1 year of transplantation using solid phase assay (Luminex). All immunosuppression was with T-cell depleting agent Thymoglobulin and triple drug maintenance with prednisone, tacrolimus and mycophenolic acid. Treatment of antibody mediated rejection, as diagnosed with C4d fixation on peritubular capillaries, consisted of plasmapheresis, Ivig and Rituximab. Death censored graft survival and incidence of antibody mediated rejection was examined.

Results: A total of 244 patients were transplanted during the study period. Post-transplant data could not be conclusively determined in 23 patients. Based on 221 recipients, 46.2% of patients developed de novo post-transplant donor specific antibodies. Of these, 6.9% of grafts were lost to antibody-mediated rejection. A different cohort of 19.5% of patients were previously highly sensitized and remained so after transplant, of these, 4.7% of grafts were lost to rejection. Patients that had no pre- and post- transplant anti-HLA antibodies did not present AMR episodes. Cumulative graft survival for the study period was 90%, with graft loss occurring for other reasons such as t-cell mediated recalcitrant rejection, systemic infection with end-organ damage and patient death.

Conclusions: The presence of antibodies must be systematically monitored in kidney transplant recipients in a prospective and anticipatory manner in order to identify and manage patients at risk for antibody-mediated rejection.

P35

OUTCOME AFTER RENAL TRANSPLANTATION IN CHILDREN WITH CONGENITAL AND DEVELOPMENTAL ABNORMALITIES OF THE URINARY TRACTS

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Introduction: Congenital and obstructive abnormalities are the most common cause of chronic kidney disease
(CKD) that present between birth and 10 years of age. The optimal treatment of end-stage renal failure (ESRD) is renal transplantation. The aim of this study was to investigate outcome after renal transplantation in children with congenital and developmental abnormalities of the urinary tracts.

**Materials and Methods:** In this cross-sectional study, in Amir-kabir Hospital, Arak, Iran we identified 23 children and adolescence (18 (78.2%) boys and 5 (21.7%) girls with mean age 12.3 years) with renal transplantation (from living donors) under 18 years due to different congenital and developmental abnormalities of the urinary tracts. Subjects are affected by the following urinary tract malformations: Vesicoureteral Reflux (VUR) and Reflux Nephropathy (n=13 (56.5%)), Bladder outlet obstruction cause of posterior urethral valves (PUV) (n=4 (17.3%)), Autosomal recessive polycystic kidney diseases (ARPCKD) (n=3 (13%)), Bilateral Uretero-pelvic junction obstruction (n=1 (4.3%)), Renal dysplasia (n=1(4.3%)) and Bilateral Uretero-vesico junction obstruction (n=1(4.3%)). Data collected included the demographic profile of patients, timing of transplantation, details of immunosuppression, graft and patient survival (graft rejection, renal function (GFR and Cr) and alive).

**Results:** Mean follow-up period was 29.31-/+12.4 months. The mean age at transplantation was 11.4-/+4.1 years old (5-14 years).The median follow-up after transplantation was 21 months (16-48 months). The immunosuppression consisted of Cyclosporine, Mycophenolate mofetil and Prednisolone. In this follow-up period normal GFR and Cr, and lack of graft rejection was seen in all subjects with any form of urinary tract malformation. Also, all recipients are alive with functional allografts.

**Conclusions:** based on our study, outcome of renal transplantation under 18 years and by using of Cyclosporine, Mycophenolate mofetil and Prednisolone as immunosuppressive drugs in children and adolescence with congenital and developmental abnormalities of the urinary tracts is favorable.

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**P36**

**LATENT TUBERCULOSIS IN LIVING RENAL TRANSPLANT—THE EVIDENCE FOR PROPHYLAXIS**

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**Introduction:** The uses of prophylaxis in case of positive latent TB donor and negative PPD test Recipients still controversial. INH Prophylaxis remains the best therapeutic approach, but it is still hindered by the difficulty of identifying proper candidates for treatment and by the potential toxicity of isoniazid. Up till now there is no unified guideline worldwide and prophylactic applications are still varies from one practice to another. In this study we are demonstrating our recommendations for the prophylaxis protocol according to the Saudi General LTBI screening and treatment 2010 in our past 12 years’ experience.

**Materials and Methods:** A retrospective chart review of 271 kidney recipients and donors charts were reviewed for one year post transplantation between the year of 2001- 2012. The episodes of Tuberculosis were studied and the risk of TB in kidney recipients caused by LTBI from living donor were considered . A descriptive analysis is used to describe nature and clinical history of our sample, Fisher exact test used to study significant difference between two induction therapy populations. Cross tabulation were used to describe the relationship between the PPD skin test results (for recipients and donors), prophylaxis and TB infection.

**Results:** Among 271 cases of Kidney transplants Zero cases of TBI were reported in all 31 cases (13%) of kidney Recipients from a positive PPD donors who did not receive prophylaxis. Only 3 cases of TBI were reported (1.3%), zero cases TBI from a Positive LTBI Donors.

**Conclusions:** Considered as a high risk Area Saudi Arabia reported a total of 64,345 TB cases to the Ministry of Health during 1991-2010 however TB incidence for Saudis showed a clear variation between regions. Makkah and Gizan regions showed the highest incidence rate that reached up to 29.5/100,000. This place immune compromised recipients to jeopardy of devolving the TB infection, yet our Center practices showed remarkable results as a safe practice. LTBI Prophylaxis in case of Positive PPD Donor is not a necessity for recipients with negative PPD as well; the side effects and complications of the prophylaxis can be safely skipped.

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**Table 1:** Association between PPD Test (Donor - Recipients) and TBI in Kidney Transplant Population in KFSH&RC (2002-2012)
P37
CLINICOPATHOLOGICAL FEATURES OF RECURRENT IGA NEPHRITIS AFTER TRANSPLANTATION

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Introduction: Immunoglobulin A nephropathy (IgAN) is the most frequently diagnosed glomerulonephritis in general population. Although it was usually believed that IgAN had a benign clinical course, it is now demonstrated that end stage kidney disease develops up to 50 % of the patients, and kidney transplantation (KT) is an acceptable option for these patients. Within the first years after KT, recurrence of IgAN in transplanted kidney is rare, but data for long term outcome is limited. The aim of this study is to evaluate the clinicopathological features of recurrent IgAN after KT.

Materials and Methods: Within ten consecutive years, idiopathic recurrent IgAN was diagnosed in 21 patients in two centers. IgAN secondary to Hepatitis B or C virus infection, rheumatological disorders or other known etiologies were excluded. All patients were diagnosed with allograft biopsy including light and immunofluorescence microscopy. Demographic and clinical data were collected from medical charts retrospectively.

Results: Mean age was 30±7 years, 18 of 21 were male. Donor age was 49±15, 15 with living donor, 10 of 15 live donors were 1 haplotype matched. Pretransplant dialysis vintage was 25±25 (1-84) months. Nine patients received induction treatment with either ATG (n: 8) or basiliximab (n 1). All but one received calcineurin inhibitor based treatment combined with MMF (n:15), AZA (n:4) or sirolimus (n:1) as primary immunosuppressive regimen. MMF and sirolimus combination was used in one patient. Serum creatinine and proteinuria were 1.4±0.3 mg/dL, and 0.37 ±0.25 gm/day, respectively and there was no recurrence at the end of first year. Mean time for recurrent IgAN was 63±33 months after transplantation; serum creatinine and proteinuria at the time of recurrence were 1.76±0.37 mg/dL and 2.4±1.7 gm/day, respectively. Clinical presentations were graft dysfunction in 11 patients, proteinuria over 0.5 gm/day in 20 patients and microscopic hematuria in 15 patients. Treatment consisted of high dose IV methylprednisolone (n:20), cyclophosphamide (n:9) and conversion to MMF from AZA (n:3) or sirolimus (n:1). Twelve patients lost their graft after 31±18 months after recurrence. Nine patients still have a functioning allograft with a mean of 36±25 months after recurrence whose serum creatinine and proteinuria at last visit were 2.7±1.0 mg/dL and 1.8±1.5 gm/day, respectively. Five and 10-year graft survival were 85 and 42 % respectively with a mean total follow up of 97±32 months.

Conclusions: Recurrence of IgAN in kidney allograft is frequent and has poor prognosis. Early diagnosis and effective treatment approaches are needed.

P38
ULTRASOUND GUIDED THORACIC PARAVERTERBAL BLOCK FOR DONOR NEPHRECTOMY: THE CASE SERIES

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Introduction: Here we report four consecutive cases, who underwent donor nephrectomy with thoracic paravertebral block (TPVB) applied under ultrasound (US) guidance for intraoperative and postoperative analgesia. A flank approach could make for better dissection of the renal pelvis and pedicles, and provide the best circumstances for open nephrectomy. However, it induces more persistent pain compared with other approaches. TPVB is a simple and safe method with significant advantages over neuroaxial or intercostal blocks that results an ipsilateral somatic motor and sensory nerve block of multiple contiguous thoracic dermatomes above and below the site of injection. TPVB may reduce the anesthetic and analgesic requirement, and provides hemodynamic stability in the donor nephrectomy cases.

Materials and Methods: All TPVB were performed by a single anesthesiologist at T10-11 level and we used ultrasound guided approach to insert a paravertebral catheter at four patients that undergoes donor nephrectomy in our institute. After 10ml 0.5 % bupivakain bolus was given through the catheter, anesthesia was induced with tyopenthal sodium 3-5mg/kg, rocuronium 0.6mg/kg and remifentanil 0.5-2mcg/kg. Anesthesia was induced with tyopenthal sodium 3-5mg/kg, rocuronium 0.6mg/kg and remifentanil 0.5-2mcg/kg. Anesthesia was maintained with isoflurane in the O2/air and continuous infusion of remifentanil (0.05-2µg. kg⁻¹.min⁻¹) until the end of surgical procedures with the aim of keeping BIS (bispectral index) values within 40-60. During the operation 0.25% 6ml/hr bupivacaine infused through the catheter. Noninvasive blood pressures, heart rates (HR), BIS were monitored. Bupivacaine infusion continued for 24 hours after the surgery. Pain scores (numeric rating scale), sedation scores (ramsey score), blood pressures, additional analgesic consumption were recorded.

Results: All of the patients were male, mean age was 55±18. Mean systolic blood pressure before PVB was 141±13mmHg and at the 20th min of PVB mean SBP was 123±5mmHg; mean blood pressure values decreased % 14 compared with baseline values. The HR values decreased over %20 at 20th min of PVB compared with the baseline values. Mean operation time was 180±73min. During the operation remifentanil doses decreased %40 from baseline
values at the 10\textsuperscript{th} min and 80\% from baseline values at the 20\textsuperscript{th} min; BIS values, hemodynamic parameters were stable. At the postoperative first hour mean morfin consumption was 4±1mg and there was no morfin requirement during the next 23 hours. During the postoperative 24 hours NRS scores were below 3.

Conclusions: We performed donor nephrectomy via flank incision using paravertebral block combined with general anesthesia under anesthetic depth monitoring that allows adequate intraoperative analgesia. The method provides minimal adverse effect and rapid recovery. We believe that continuous PVB, as part of a balanced anesthetic and analgesic regime, provides effective pain relief and improves postoperative pain management significantly by reducing the postoperative pain score and opioid consumption up to 24 hours postoperatively without major complications.

P39
NO DETECTION OF HELICOBACTER PYLORI IN ATHEROSCLEROTIC PLAQUES IN END STAGE RENAL DISEASE PATIENTS UNDERGOING KIDNEY TRANSPLANTATION

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Introduction: Chronic infection known to be a predisposing factor for the development of atherosclerosis. Several studies have found a possible role of Helicobacter pylori in the pathogenesis of atherosclerosis. The aim of this study was to investigate the presence of H. pylori in atherosclerotic plaques in iliac arteries in 25 end stage renal disease (ESRD) patients undergoing kidney transplantation.

Materials and Methods: Esophagogastroduodenoscopy was performed in all patients before transplantation. Biopsy specimens obtained from gastric antrum were sent for pathologic evaluation. Gastric H. pylori infection was confirmed by microscopic assessment and rapid urease test. Arterial specimens were obtained from iliac arteries during kidney transplantation. Presence of H. pylori DNA in atherosclerotic plaques and healthy vessel samples was evaluated by the polymerase chain reaction (PCR). The mean age of patients was 44.1 ± 22.6 years. Risk factors in patients with atherosclerosis were hypertension (68\%), diabetes mellitus (20\%), hyperlipidemia (20\%), positive family history (16\%).

Results: Atherosclerotic plaques were found in 21 (84\%) patients. PCR analysis did not detect H. pylori in any case. There was a significant relationship of atherosclerosis with hypertension (P = 0.006) but not with diabetes mellitus and hyperlipidemia (P = 0.5). There was no significant relationship between atherosclerosis and gastric H. pylori infection (P = 0.6).

Conclusions: This study revealed no association between the presence of H. pylori as a pathogen of vessel walls and atherosclerosis in ESRD.

P40
ASSESSMENT OF MYOCARDIAL MECHANICS IN PATIENTS WITH END-STAGE RENAL DISEASE AND RENAL TRANSPLANT RECIPIENTS USING SPECKLE TRACKING ECHOCARDIOGRAPHY

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Introduction: Velocity Vector Imaging (VVI), has been introduced, based on feature tracking—incorporating speckle and endocardial border tracking, that allows the quantitation of myocardial strain and strain rate (SR) from 2-dimensional images. The aim of this study was to analyze the changes in myocardial strain and SR patterns in patients with end-stage renal disease (ESRD) and in renal transplant recipients (RTR).

Materials and Methods: Thirty-three patients with ESRD on hemodialysis program (19 men, mean age 36±8 years), 24 RTR with functional grafts (21 men, mean age 36±7 years) and 26 age and sex-matched control subjects were studied. None of the patients had clinical coronary artery disease. Echocardiographic images were acquired from apical 4-chamber and parasternal short axis views. Longitudinal peak systolic strain and SR values for basal, mid and apical segments of left ventricular lateral and septal walls were determined by VVI. The average longitudinal strain and SR for the left ventricle were also noted. From short-axis views at the level of papillary muscles, average circumferential and radial strain and SR were assessed.

Results: Mean heart rates, systolic and diastolic pressures during imaging were similar between the groups. Longitudinal peak systolic strain and SR at basal and mid segments of the lateral wall were significantly higher in RTR and control groups when compared with ESRD patients. Septal wall strain and SR values at basal and mid segments were significantly higher in control group; however similar between RTR and ESRD patients. Average longitudinal systolic strain values from 4-chamber view were highest in control subjects, and higher in RTR than ESRD patients (-14.5 ± 2.9 % vs -12.5 ± 3.0 % vs -10.2 ± 1.6 % respectively, p<0.001). Radial and circumferential strain and SR at the level of papillary muscle were lower in patients with ESRD when compared with other groups.
Conclusions: Differences in myocardial function in patients with ESRD, RTR and normal controls can be quantified by strain imaging. Myocardial function is improved in RTR when compared with ESRD patients.

P41
SAFETY AND EFFECTIVENESS OF EZETIMIBE IN KIDNEY TRANSPLANT RECIPIENTS WITH HYPERCHOLESTEROLEMIA
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Introduction: Cardiovascular disease is the leading cause of death in kidney transplant recipients. Hyperlipidemia as a cardiovascular risk factor is an important complication affecting these patients. In this study the efficacy and safety of a combination of Ezetimibe and low-dose Statin for dyslipidemia in renal transplant patients were evaluated prospectively.

Materials and Methods: Sixty one renal allograft recipients with post-transplantation hyperlipidemia resistant to statins were included in the study. 63% of who were males of overall mean age of 46 ± 11 years. They were prescribed Ezetimibe, with Etatin. Fasting lipid profile, kidney function, liver enzymes, creatine kinase, and immunosuppressive drug levels were obtained at baseline as well as at 3 and 6 months post-Ezetimibe initiation.

Results: Ezetimibe and low-dose Simvastatin significantly decreased the levels of total cholesterol (32.3%), triglyceride (16.3%), and low-density lipoprotein cholesterol (LDL-C) (45.6%), and 82.3% of the patients reached the target LDL-C level of <100 mg/dL. This reduction was maintained for the whole period of Ezetimibe administration. There were no significant differences in high-density lipoprotein cholesterol, renal function, proteinuria, creatine kinase, amylase, liver function, body mass index, sor drug levels. There were no adverse drug reactions that mandated treatment withdrawal.

Conclusions: Combination of Ezetimibe with Statins represents an effective and safe regimen for treatment of persistent hyperlipidemia in renal allograft recipients.

P42
CAROTID INTIMA-MEDIA THICKNESS IN PATIENTS WHO CANDIDATE FOR KIDNEY TRANSPLANTS
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Introduction: Cardiovascular disease is the leading cause of death in kidney transplant recipients. Carotid intima-media thickness (CIMT) has been introduced as a cardiovascular disease predictor. This study was aimed to determine risk factors of CIMT increase in a group of hemodialysis patients who candidate for renal transplant and compared them with control.

Materials and Methods: 50 patients between 16-65 years old candidate for renal transplant and a healthy age and sex matched control group were selected for measuring carotid intima-media thickness. All of these patients didn't have any contraindication for renal transplant. Correlation of demographic, clinical, and laboratory factors with CIMT was studied. Carotid intima-media thickness was measured by one radiologist in the bilateral common carotid artery, and the mean value of the two sides was reported.

Results: The mean duration on dialysis was 32.5 ± 28.0 months. PTH (m= 200.46±213.4 pg/mL against 34.78±6.51 pg/mL), phosphorus (m= 5.05±1.48 mg/dL against 4.3±0.71 mg/dL), cholesterol (m= 175.96±43.8 mg/dL against 154.85±32.8 mg/dL), triglyceride (m=164.18±130.12 mg/dL against 75.85±33.03 mg/dL) in patients group was significantly higher than control group. Mean of carotid IMT in patients was higher, but this difference was not significant. Duration of dialysis before transplant didn't have correlation with mean of IMT. In patients, mean of IMT correlated with mean of IMT and DBP but in control group correlated with age only. There was no correlation between sex and atherosclerotic plaque in both groups while atherosclerotic plaque in patients correlated with age and in control group correlated with LDL only. In patients mean of IMT correlated with atherosclerotic plaque and calcification in this plaque.

Conclusions: A significant statistical correlation between mean of IMT and atherosclerotic plaque also the level of calcification in it can be an important predictor for vascular changes and probably cardiovascular accident in patients who are candidates for renal transplant in future.
P43
THE VALIDITY OF EVALUATION OF PREVIOUS EXPOSURE WITH CMV VIRUS IN KIDNEY TRANSPLANT CANDIDATES AND DECEASED DONORS

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Introduction: CMV infection is one of the most important infections after kidney transplant. According to present protocols we must evaluate previous exposure with this virus by IgM & IgG anti CMV test in all of donors and recipients pre kidney transplant. Our aim in this study is the evaluation of positivity percent of these tests in our waiting list candidates and in our donors.

Materials and Methods: 200 randomly selected persons of our waiting list and randomly 200 of our deceased donors that their information was recorded in organ procurement unit (OPU) In Montaserye Hospital were enrolled in a cross-sectional study. Results of their laboratory tests extracted from their files in OPU.

Results: In 200 patients of our waiting list 198 of them (99%) had positive IgG anti CMV test and 1% of them had negative test. In our deceased donors 100% of them had positive IgG anti CMV test.

Conclusions: According to our findings almost about all potential organ recipients and organ donors(deceased donors) in our society (including northern, southern and Razavi Khorasan provinces) have been exposed with CMV virus while according to western countries reports about 33% of their people (potential kidney donors) have negative IgG anti CMV tests. One possible conclusion is that assuming all patients IgG anti CMV positive will efficiently decrease the cost imposed on National Health Organizations. Therefore, repeating the test for all people in the waiting list of the kidney transplant is not absolutely necessary.

P44
DIFFUSION-WEIGHTED MR IMAGING OF LIVING RENAL ALLOGRAFT TRANSPLANTATION: INITIAL EXPERIENCE

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Introduction: Diffusion-weighted (DW) magnetic resonance (MR) imaging is a new imaging technique for the evaluation of the renal transplantation. The purpose of this study, to determine whether DW MR imaging in living renal allograft donation allows monitoring of changes in the transplanted kidney before and after transplantation in donor and recipient, respectively, and whether DW MR parameters are correlated in the same kidney before and after transplantation.

Materials and Methods: Between September 2013 and February 2014, fourteen healthy kidney donors were prospectively included in this study. DW MR imaging sequence was performed in axial orientation by using six b values (0, 200, 400, 600, 800, 1000 sec/mm2) in donors (group 2) before donation and recipients at day 30 after donation (group 1). Total apparent diffusion coefficient (ADC) values were determined in upper cortex (a) and medulla (b). Correlations were tested within dependent t test.

Results: Group 1 was included 14 patients whose mean ADC values for upper cortex (a) and upper medulla (b) were 1707.2x10-6 mm2/sec±135.7 and 1627.7x10-6 mm2/sec±122 prospectively. Group 2 was included 14patients and their mean ADC values for a and b were 1539.7x10-6 mm2/sec±106.0 and 1445x10-6 mm2/sec±121 respectively. ADC values 30 days after donatin from cortex and medulla in allografts in recipients increased from in same kidney of donors (p < 0.01).

Conclusions: In our study we observed that ADC values kortex and medulla from transplanted kidneys were higher than same kidney of donors. This method has potential monitoring utility, although assessment of clinical relevance is needed.

References
P45
ACUTE CARDIAC TAMPOANDE: AN UNUSUAL CAUSE OF ACUTE RENAL FAILURE IN RENAL TRANSPLANT RECIPIENT

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Introduction: Pericardial effusion may appear as transudate, exudate, pyopericardium or haemopericardium. Effusions that develop slowly can be remarkably asymptomatic, while rapidly accumulating smaller effusions can present with tamponade. The present case report highlight the possible acute uremic pericardial tamponade in renal transplant recipient with compromised graft function early post-transplantation.

Case: We are reporting a case of slow graft function among recent renal transplant recipient due to uremic acute pericardial effusion with tamponade. Urgent pericardiocentesis was done with an improvement in blood pressure, immediate diuresis and quick recovery of renal function back to baseline.

Conclusions: Acute uremic pericardial tamponade should be considered as a cause of oliguric renal graft dysfunction early post-transplant. Strong clinical suspicion for the diagnosis and a low threshold for emergent pericardial drainage are necessary to prevent further graft dysfunction.

P46
INTERMEDIATE TERM OUTCOME OF BORTEZOMIB TREATED RESISTANT ACUTE ANTIBODY-MEDIATED REJECTION AMONG RENAL TRANSPLANT RECIPIENTS: SINGLE CENTER EXPERIENCE

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Hamed Al-Essa Organ Transplant Center, Kuwait

Introduction: The most vexing clinical condition caused by antibodies in organ transplants is antibody-mediated rejection. The effects of bortezomib on mature plasma cells may represent a quantum advance in antihumoral therapy.

Materials and Methods: We aimed to present our relatively long term experience with bortezomib as an anti-humoral agent in renal allograft recipients with resistant antibody mediated rejection to the standard therapies that were managed successfully with bortezomib therapy.

Results: Our experiences represent the first long term effects of bortezomib as an anti-humoral agent in renal allograft recipients with acute antibody mediated rejection in Kuwait. We present 7 cases with resistant-acute antibody-mediated rejection to the standard therapies that were managed successfully with bortezomib.

Conclusions: Bortezomib represents a rescue therapy for early resistant acute ABMR among renal transplant recipients despite the associated risk of infection. Within the limitation of our small sample, it will need to be evaluated in prospective, randomized, and well-controlled studies.

P47
RECURRENT FOCAL SEGMENTAL GLOMERULOSCLEROSIS UNRESPONSIVE TO ABATACEPT: A CASE REPORT

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Introduction: Focal segmental glomerulosclerosis (FSGS) is a common cause of end stage renal disease in children. FSGS recurrence in renal transplants is a challenging disease and can cause graft dysfunction and loss. Different therapies exist with variable responses, from complete remission to resistance to all modes of treatment. Abatacept was recently introduced as a treatment for primary FSGS in native kidneys and in a recurrent disease post transplant.

Case: Here we present a pediatric case with immunosuppressive resistant primary non-genetic FSGS...
that recurred post transplant. The standard therapy for recurrent FSGS (rituximab, plasmapheresis, high dose cyclosporin A and corticosteroids) was tried but failed in induce remission. Three doses of abatacept (10 mg/kg) were given at 0, 2, and 4 weeks with no good response.

**Conclusions:** We conclude that abatacept may work in some but not all cases of recurrent FSGS.

**P48**

**VALIDITY OF CURRENT EQUATIONS TO ESTIMATE GLOMERULAR FILTRATION RATE IN MIDDLE EASTERN KIDNEY DONORS**

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**Introduction:** Estimation of glomerular filtration rate (GFR) is crucial for selection of a potential kidney donor. Our objective was to determine accurateness of current equations to estimate GFR in Middle Eastern kidney donors versus measurement of true GFR by diethylene triamine pentaacetic acid (99mTc- DTPA).

**Materials and Methods:** The study included 160 adults who were candidates for living kidney donation. We estimated GFR using the MDRD, aMDRD, Walser, Nankivell, Cockcroft-Gault, Mayo clinic and CKD-EPI equation. They were 93 males (58%), age 36±7 years.

**Results:** All 7 eGFR correlated with 99mTc- DTPA clearance (p<0.05), but their r² was low ranging from 0.64 to 0.47. Their respective r² values were: MDRD 0.63, aMDRD 0.51, Walser 0.47, Nankivell 0.53, Cockcroft-Gault 0.64, Mayo Clinic 0.60, CKD-EPI 0.63, the Cockcroft-Gault equation showed the best performance but its accuracy was 42% within ±10% error while Walser equation showed the least performance with only 20% within ±10% error.

**Conclusions:** Performance of all 7 equations was disappointing, but Cockcroft-Gault and CKD-EPI equations showed a higher performance than all other equations in eGFR of healthy people. So, they may be applicable to candidates for kidney donation to avoid incorrect GFR estimation, which may lead to an incorrect ruling out of candidates.

**P49**

**EFFECTS OF HYPERURICEMIA ON RENAL FUNCTION IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS**

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**Introduction:** Hyperuricemia is common in pediatric renal transplant recipients and it is associated with poor allograft outcomes. Hyperuricemia occurs early after transplantation and is associated with decreased glomerular filtration rate (GFR), use of diuretics, cyclosporine therapy, and a history of hyperuricemia. We aimed to investigate causes and effects of hyperuricemia on allograft outcomes in our patients.

**Materials and Methods:** Eighty-one (F/M: 41/40) pediatric transplant patients were included to the study. Demographic characteristics and laboratory parameters were recorded. Risk factors for hyperuricemia and the effects of plasma uric acid levels at 3rd and 6th months, 1st and 3rd years on allograft outcomes were evaluated.

**Results:** Mean age was 16.9 ±5.6 years. Mean follow-up time after transplant was 3.5±0.47 years. Hyperuricemia was detected in 17.6% of patients. A significant negative correlation was found between 6th month uric acid level and 3rd year of GFR value (r = -0.33, p = 0.04 and r = -0.33, p = 0.017). A significant positive correlation between 3rd and 6th months uric acid levels and 3rd year plasma creatinine level was demonstrated (r = -0.44, p = 0.01 and r = -0.51, p = 0.00). There was no significant correlation between plasma uric acid level and body mass index, plasma lipid levels, use of diuretic and immunosuppressive treatment (tacrolimus, cyclosporin A).

**Conclusions:** Uric acid levels may have predictive value in the long term assessment of renal function. Posttransplant hyperuricemia can be used as a long term prognostic marker of poor renal outcome. Patients with hyperuricemia should be monitored closely for renal functions.
P50
INITIAL EXPERIENCE FROM IMPLEMENTATION OF HAND-ASSISTED RETROPERITONEOSCOPIC LIVE DONOR NEPHRECTOMY IN SAUDI ARABIA

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Introduction: In living Donation, the overall morbidity and mortality is a direct consequence of the invasiveness of the surgical procedure. Since the introduction of the donor nephrectomy, the flank incision has been the default method in live kidney donors at King Faisal specialist hospital and Research Centre (KFSH&RC) in Saudi Arabia. In order to minimize the surgical-related trauma, we implemented Hand-assisted retroperitoneoscopic techniques (HARS), as a further effort to increase the safety margin of live kidney donors. Here, we present our initial experience with HARS.

Materials and Methods: HARS technique was implemented at KFSH in 2010. We present our data on 102 live donors. Donor demographics, perioperative and post-operative data, complication, and recipient’s outcome have been evaluated.

Results: Between September 2012 and April 2014, 271 consecutive living donor kidney transplantation were performed at King Faisal Specialist hospital in Riyadh. HARS was performed in 102 donors. The mean age and BMI were 29 (18-56) and 24.7 (17.7 – 31.2), respectively. The mean hospitalization was 4 days (3 – 5). Data on operative characteristic and donor morbidity are summarizes in table. Intra-abdominal complications were absent. The recipient and graft survival at the current follow-up were 100% with a mean creatinine of 91 Mmol/L (24 – 339).

Conclusions: HARS increase the safety margin of live donor nephrectomy procedure and is eligible for broader implementation.

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P51
PSYCHIATRIC PROFILES OF CHILDREN AND TEENAGERS AFTER RENAL TRANSPLANTATION AND RELATED FACTORS

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Introduction: Renal transplantation is the rescue treatment for End Stage Renal Diseases in all ages. It is well known that; various factors such as difficulties in daily life arising from chronic renal disease, complications, waiting for a donor and the need for social support cause multiple psychiatric problems with the majority of anxiety and depression, in these patients. The recent studies reported the persistence of anxiety and depression in 25-40% of cases after renal transplantation. We aimed to evaluate the psychiatric profiles of children and teenagers after renal transplantation and detect the variables in this preliminary study.

Materials and Methods: The study consisted of 22 children and teenagers. All patients and parents were acknowledged about the study and only the volunteers were included. Patients having rejected renal graft were excluded from the study. All patients were asked to fill out the socio demographic form, family assessment device (FAD), and state-trait anxiety inventory II (STAI-II) and the symptom check list-90-R (Scl90-R). The demographic and clinical data including the donor type, the waiting time for donor, data about immunosuppressive treatment were recorded from the charts of patients. All data were analyzed on SPSS 20.0 statistical program. Correlation coefficients were used to analyze the relationship between standard definitive tests and multiple variables.

Results: The statistically significant increase in the Scl 90 obsession score was found in children of families, which are in very low socio economic status. Although the finding of the more immunosuppressive drugs used, the increased scores of FAD, STAI-II and Scl 90-R were found; the only statistically significant relation was seen between the role score of FAD and obsession score of Scl 90. There was statistically difference between depression and anxiety scores of Scl-90 belonging to cases having living related donor. However, in all cases role, attention and behavioral control score of FAD were worse. STAI-II scale was found moderately high in all cases. There weren’t any significant correlation between drug usage time, donor type and the other multiple variables. The moderate and high correlation was found between STAI-II and all scores of Scl90 except for anger.

Conclusions: There are few studies in the literature, concerning the Psychiatric Profiles of renal transplanted
children and teenagers and the factors effective on these, especially the importance of family assessment. In this study we want to emphasize the worse results found in all cases scored for role, attention and behavioral control scale of FAD. Therefore we vigorously suggest considering the cases in relation with their families during both pre and posting transplant period and following up for Psychiatric problems with the care of their developmental course, even in the post transplant long-term.

P52
MULTIPLE KIDNEY RE-TRANSPLANTATIONS IN SINGLE RECIPIENTS
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Introduction: Recurrent renal re-transplantation in a single recipient is under reported. Kidney re-transplantation is a technically challenging procedure. This report presents our experience in recurrent kidney re-transplantation in two different recipients.

Case 1: Sixty years old male received the fourth kidney transplant (Deceased DBD, November 2011) in the right iliac fossa, where he had previous 2 kidneys, with the last failed kidney in the left iliac fossa. Operation was technically challenging with extensive adhesions down to the external iliac vessels, but was completed uneventfully with good kidney perfusion. Remnant of old transplant renal artery aneurysm was resected. Patient had initial delayed graft function (DGF), which required haemodialysis (once), and wound breakdown healed after 2 weeks. Two years post-transplant renal profile shows; Creatinine 74 mmol/L, Urea 9.8 mmol/L and eGFR >60 ml/min/1.73m².

Case 2: Forty-six years old female received the fifth transplant (live related, November 2013) in the left iliac fossa (LIF), which was the third in the same side. There were extensive adhesions. The peritoneum was breached and small remnant of old graft was identified and excised. The total operative time was 3 hours. There was high drain output (lymphocele) for 10 days. One month post-transplant renal profile shows; Creatinine 64 mmol/L, Urea 9.8 mmol/L and eGFR >60 ml/min/1.73m².

Conclusions: Recurrent kidney re-transplantation is a challenging procedure that requires expertise and care. However, the peri-operative surgical complications and long-term graft outcome are similar to those of de novo kidney transplants.

P53
ULTRASOUND ELASTOGRAPHY FINDINGS OF RENAL TRANSPLANTS: INITIAL EXPERIENCE
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Introduction: Ultrasound (US) elastography is a quick and noninvasive imaging method that visualizes relative difference in tissue hardness by evaluating changes in local strain in response to external stress. Kidney elasticity measurements with ultrasound should be performed with a quantitative technique, such as Shearwave techniques. This study aims to evaluate its efficacy as a follow-up imaging modality for kidney transplants.

Materials and Methods: Between September 2013 and January 2014, clinical and laboratory functions as a normal seventeen patients were included in this study. Shear wave US elastography examination was performed in upper and lower pol cortex following kidney transplantation in first, fifth and thirtieth days postoperatively. Elasticity values acquired in upper and lower poles were compared using one-way ANOVA test for repeated measurements.

Results: Mean elasticity values acquired in the upper poles were 4.64±0.7 kPa, 4.2±1.1 kPa and 4.5±0.9 kPa for the first, fifth and thirtieth days postoperatively, respectively. Mean elasticity values acquired in the lower poles were 4.59±0.7 kPa, 4.3±0.7 kPa and 3.6±0.9 kPa for the first, fifth and thirtieth days postoperatively, respectively. The statistical analysis of the data obtained for the upper poles showed no significant difference between the postoperative days whereas the elasticity values for the lower poles showed a significant decrease with time (p<.001).

Conclusions: The elasticity values for the lower poles of the clinical and laboratory functions as a normal transplant kidneys showed a statistically significant decrease in the fifth and thirtieth days postoperatively. This method has potential monitoring utility, although assessment of clinical relevance is needed.

References
**P54**

**PEDIATRIC RENAL TRANSPLANTATION: A SINGLE CENTER EXPERIENCE**

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**Introduction:** Renal transplantation is the treatment of choice for children with end-stage renal disease.

**Materials and Methods:** We evaluated retrospectively of our 39 pediatric renal allograft recipients, including 22 boys and 17 girls from March 2010 to May 2014.

**Results:** The overall mean age at transplantation was 12.56 ± 4.09 years. The majority of recipients received living donor grafts (79.5%). The mean duration of follow-up was 27.0 ± 14.6 months. The overall mean glomerular filtration rate at last checked time was 101.02 ± 36.95 mL/min/1.73m². Five acute rejection episodes were observed in 5 patients (12.8%). Viral infections were developed in 4 recipients; cytomegalovirus (n= 2) and BK virus (n= 2). End stage renal disease was developed in 5 of the recipients; four from acute allograft dysfunction, one from cytomegalovirus infections. Two of the patients died; one from posttransplantation surgical complication and sepsis, and one from intra-operative cardiac complication. Thirty two of the recipients (82%) have normal renal functions.

**Conclusions:** Our results showed that kidney transplantation is the best treatment of choice for end-stage renal disease in children.

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**P55**

**SUCCESS OF RENAL TRANSPLANTATION IN HIGH CARDIOVASCULAR RISK PEDIATRIC RECIPIENTS**

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**Introduction:** Patients with chronic kidney disease are at increased risk for cardiovascular morbidity and mortality. Cardiac dilatation, valve regurgitations, and left ventricular dysfunction are observed in end-stage renal failure patients with uremic cardiomyopathy. Renal transplantation reduces that morbidity and mortality when compared to patients on dialysis. Surgical procedures are also risky in patients with high cardiovascular risk. Because of perioperative risks in these patients, they may not be considered a candidate for kidney transplantation. We present 4 patients with high cardiovascular risk and the success of renal transplantation of the amelioration of cardiac functions.

**Cases:** Patients ages (2 girls/2 boy) ranged between 10 and 17 years old at the time of transplantation. Mean duration of dialysis before transplantation was 41.3±31.5 months. Left ventricular volumes and ejection fraction were measured using a modification of Simpson’s rule. Preoperative mean end-diastolic left ventricular volume was 149±12 ml. Preoperative ejection fraction ranged between 14-26%. 3 patients received a living-related donor allograft and the remaining one received the allograft from a deceased donor. Median follow-up time after transplantation was 22.5 (min-max: 14-36) months. End-diastolic left ventricular volume decreased to 92±16 ml after transplantation. Postoperative ejection fraction ranged between 57-76%. Dilated cardiomyopathy with depressed left ventricular ejection fraction markedly improved after transplantation, with normalization of the ejection fraction.

**Conclusions:** Cardiac functions markedly improved after successful renal transplantation in patients with high cardiovascular risk. Although surgical procedures have high risks in these patients, successful renal transplantation is not only enhancing the quality of life; but it is also a life-saving modality.
P56
HUMAN LEUKOCYTE ANTIGENS AND RISK OF BK VIREMIA

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Introduction: BK polyomavirus (BKV), a small double-stranded DNA virus, causes latent infection in genitourinary tract. Reactivation may occur in impaired immunity, such as in renal transplanted patients. Human leukocyte antigens (HLAs) are responsible of the regulation of the immunity to BKV. In our study, we tried to identify HLAs associated with decreased or increased susceptibility to BK viremia.

Materials and Methods: 98 pediatric renal transplant patients (59M/39F) were enrolled in the study. BKV infection status was analyzed by polymerase chain reaction (PCR). Clinical parameters and specific HLAs were examined in relation to occurrence of viremia.

Results: Mean age of the patients was 12.7±5.6 years. Out of 98 patients who underwent renal transplantation, 6 (6.1%) of them had BKV infection. HLA-A01, HLA-A26 and HLA-B18 were associated with higher incidence of viremia and it was found statistically significant (p=0.036, 0.015, 0.016, respectively).

Conclusions: Matching for several HLAs seems to predispose developing BK viremia. A close monitoring for BKV infection should be done, mainly in patients who had these HLA subgroups.

P57
AGXT GENE MUTATION ANALYSIS IN PEDIATRIC PATIENTS WITH KIDNEY DISEASE

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Introduction: Primary hyperoxaluria type 1 (PH1), which is a rare autosomal recessive metabolic disease, is caused by mutations of the AGXT gene. AGXT gene encodes a peroxysomal enzyme, alanine-glyoxylate aminotransferase (AGT) which converts glyoxylate to glycine in liver. In case of absence or decreased activity of AGT enzyme, instead of glycine, oxalate is overproduced, and deposited as insoluble calcium salts at various organs. The primary deposition target of oxalate is the kidney, and this deposition causes progressive renal disease. In this study, we aim to analyze AGXT gene mutations in pediatric patients’ kidney disease.

Materials and Methods: 12 patients were enrolled to the study. Referral reasons of the patients were chronic kidney disease, nephrocalcinosis, and nephrolithiasis. Informed consent was obtained from all patients. Genomic DNA was extracted from peripheral blood samples. All coding 11 exons of the AGXT gene were analyzed by Sanger sequencing by using ABI3500 Genetic Analyzer (Applied Biosystems, Life Technologies, USA).

Results: Mean age of the patients was 9.15±7.13 years. Mean age at the time of diagnosis was 4.90±4.40 years. As a result of direct sequencing, 9 different mutations were detected in exons 1, 5, 6 and 10 of the AGXT gene in 10 of 12 patients. Three of these mutations were in exon 1 (c.121G>C, c.32C>T, c.106C>T), one was in exon 5 (c.584T>G), one was in exon 6 (c.614C>T), and two were in exon 10 (c.1020A>G, c.971_972delTG). In addition, two new variations were detected in exons 1 and 5. c.151A>T mutation in exon 1, which leads to the formation of stop codon at the 51st residue, is detected in homozygous state in two siblings, one of them had chronic kidney disease and the other one had nephrolithiasis. A missense variation in exon 5 (c.557C>T) was detected in patient with chronic kidney disease in heterozygous state, and in silico analyzes showed that this variation may have a pathogenic effect. This patient had also minor allele (c.1020A>G) in heterozygous state in exon 10.

Conclusions: The result of the study showed that, 83% of the patients enrolled this study had AGXT gene mutations. Although, liver and kidney transplantation is the only curative option for patients, AGXT gene mutation analysis should be performed prior to transplantation. In addition, as a presymptomatic diagnosis, AGXT gene should be analyzed in individuals from families with chronic kidney disease history to prevent kidney loss.

P58
DOES TRANSVERSUS ABDOMINIS PLANE BLOCK REDUCE OPIOID ANALGESIC REQUIREMENTS IN THE POST-OPERATIVE PERIOD IN RENAL TRANSPLANT RECIPIENTS?

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Introduction: Renal transplant recipients due to their pre morbid condition and altered pharmacokinetics of opioids with undesirable side effects are a challenge where pain management is concerned. The transversus abdominis plane (TAP) block provides additional analgesic benefit reducing opioid intake. In this study we aimed to test whether
addition of TAP block to standard analgesic regime reduced post-operative opiate requirement.

**Materials and Methods:** 161 consecutive live related renal transplant recipients from 2009 to 2011 were included. 76 received TAP block and 85 did not. Both groups received paracetamol and standard patient controlled fentanyl analgesia. Data was collected for fentanyl requirements, nausea, sedation and pain scores intraoperatively; in recovery and at 24 hours. The primary outcome was total fentanyl consumption in first 24 hours; other outcomes measured included pain scores, nausea, vomiting and sedation.

**Results:** Fentanyl use was significantly different between the two groups in the Intra-operative (IO) period (Median (range) TAP: 277 mcg (100-600) vs. No-TAP: 329 mcg (100-800), p=0.003). However, this did not progress to statistical significance in terms of fentanyl requirement on the ward (p=0.57) and total fentanyl requirement in the first 24 hour period (p=0.181). There was also a non-significant trend towards lesser Fentanyl use in recovery (TAP [279 mcg (0-2250)] vs. No-TAP 390 mcg (0-2600), p=0.08). Furthermore, a subgroup analysis revealed no benefit of a bilateral TAP block over unilateral block. No difference was found between the two groups with regards to Nausea score (p=0.77) as well as Sedation score (p=0.54).

**Conclusions:** TAP block provided an analgesic benefit leading to reduced opioid requirement intra-operatively as well as in the recovery in our study. However this was a limited effect that did not extend beyond the immediate post-operative period.

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**P59**

**A SINGLE-CENTER EXPERIENCE OF OVERSEAS KIDNEY TRANSPLANTATION FOR IMMUNOLOGICALLY HIGH-RISK PATIENTS**

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**Introduction:** In countries with insufficient experience and the lack of facilities to perform the kidney transplant (KT) for immunologically high-risk patients, overseas KT at neighboring countries where deal with such difficulty could be a reasonable alternative for end stage renal disease patients who can accompany by a living-related donor from their country. Here we report our overseas KT experience of Mongolian including immunologically high-risk patients.

**Materials and Methods:** Between September 2009 and February 2013, 33 Mongolian patients underwent KT in our center under the approval of the Korean Network for Organ Sharing. Their clinical data were retrospectively collected and analyzed.

**Results:** The mean recipient age was 38.8 ± 10.5 years, and the causes of end stage renal disease were glomerulonephritis (15.2%), diabetes mellitus (3%), hypertension (6.1%), and unknown (75.8%). These cases included ABO incompatibility, high levels of sensitization, and re-transplantation at frequencies of 27.3%, 36.4%, and 27.3%, respectively. Basiliximab (90.9%) or anti-thymocyte globulin (6.1%) was administered as the induction therapy, and combination regimens of plasmapheresis with or without intravenous immunoglobulins and/or rituximab were used in some high-risk patients. The mean follow-up period after KT was 12.87 ± 11.7 months. During the follow-up period, antibody-mediated rejection and graft failure occurred in 2 patients. In addition, cytomegalovirus infection, calcineurin inhibitor toxicity, and BK viremia developed in 1 patient each. The mean estimated glomerular filtration rates at 1, 6, and 12 months after KT were 88.2 ± 26.9, 67.5 ± 14.9, and 63.9 ± 21.1 mL/min/1.73 m², respectively, which are similar short-term outcomes compared to those in Korean KT patients in the same period. In addition, subgroup analysis revealed that ABO-incompatible or immunologically high risk recipients had comparable renal function statuses during the follow-up period

**Conclusions:** An overseas KT program in Korea could be conducted safely even in high-risk patients. Therefore, a proper cooperation and transfer system for those patients between neighboring countries might be helpful for improving the medical care system in the present era.

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**P60**

**LIVING DONOR KIDNEY TRANSPLANTATION FROM HEPATITIS B SURFACE ANTIGEN POSITIVE DONOR TO HEPATITIS B ANTIBODY POSITIVE RECIPIENT WITHOUT HEPATITIS B IMMUNOGLOBULIN PROPHYLAXIS IN HBV ENDEMIC COUNTRY**

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**Introduction:** Living donor kidney transplantation from chronically HBV-infected donors can be considered as a possibility to compensate for insufficiency of organ-transplants particularly in HBV endemic country where many potential donors are already infected.

**Materials and Methods:** In the years between 2012 and 2013, we transplanted 4 renal grafts from hepatitis B surface antigen (HBsAg) positive living donors to hepatitis B antibody positive recipients. All recipients were revealed to negative HBs Ab and positive HBs Ab. Lamivudine was prescribed for recipients after transplantation. But hepatitis B
immunoglobulin was not prescribed. In all cases, basiliximab for induction agent and tacrolimus, mycophenolate mofetil and steroid for maintenance agent were used. In one of 4 cases, the living donor was revealed to ABO incompatibility. All patients were monitored for liver, renal functions and hepatitis B viral status.

Results: The follow-up period was 13.0 ± 8.79 months. HBV-specific antibody titers were stable. In serial follow-up, liver enzymes including aspartate aminotransferase (AST) and alanine aminotransferase (ALT) (mean 32.52 ± 14.57 units/l, 35.07 ± 17.42 units/l) and renal function test including BUN and creatinine (mean 14.05 ± 4.96 mg/dl, 1.07 ± 0.42 mg/dl) demonstrated normal-range. There were no unwanted events of graft rejection, HBV activation and mortality.

Conclusions: When combined with careful HBV-monitoring, renal grafts from HBs Ag positive living donors can be transplanted to hepatitis B antibody positive recipients without the need for hepatitis B immunoglobulin prophylaxis in HBV endemic country.

P61
ENDOSCOPIC FINDINGS AND H. PYLORI PREVALENCE OF RENAL TRANSPLANT CANDIDATES

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Introduction: Helicobacter pylori (H. pylori) infection has close association with development of peptic ulcer, gastric cancer and gastric lymphoma. Its prevalence is 82.5% in patients with normal renal function in Turkey. H. pylori is thought to be one of the major risk factors for gastrointestinal troubles in dialysis patients. However, it is unclear whether H. pylori infection is directly associated with progression of renal dysfunction and prognosis of chronic renal failure patients.

Materials and Methods: The aim of this study was to evaluate the endoscopic findings of renal transplant candidates and to assess the prevalence of H. pylori infection in those patients.

We retrospectively analysed the last 3 years data of 151 renal transplant candidates endoscopies and the antrum pathologies of these patients for H. pylori infection.

Results: One hundred fifty one patients were included in the study. Ninety nine (65.5%) of the patients were male and 52 (34.5%) were female. Mean age of the patients was 46.2 ± 2.3 (19-66), on endoscopy: 20 (13.2%) patients have gastric or duodenal ulcer, 105 (69.5%) patients have gastritis, 26 (17.2%) patients have esophagitis, 13 (8.6%) patients have both esophagitis and gastritis and 13 (8.6%) patients have normal endoscopy. Endoscopic antral biopsy revealed that 64 (42.3%) patients were H. pylori positive whereas 57.7% of patients were H. pylori negative. All the patients with H. pylori infection were receiving hemodialysis.

Conclusions: Renal transplant candidates have significantly higher peptic ulcer diseases prevalence but lower H. pylori prevalence than normal population. This may be due to hemodialysis treatment, but more studies are needed to clarify the reason.

P62
THE USE OF BELATACEPT FOR IMMUNOSUPPRESSION IN A YOUNG ADULT RECIPIENT FOLLOWING LIVE RELATED ABOI RENAL TRANSPLANT POST CALCINEURIN-MEDIATED MICROANGIOPATHIC HAEMOLYSIS – A SUCCESSFUL NEW APPROACH

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Introduction: Since its introduction in the 1990s, ABO incompatible (ABOi) transplantation has proven to be a safe and feasible approach which is increasing in its use and popularity. Such transplants can be facilitated by (i) rituximab induced limitation of antibody formation and/or (ii) the use of antibody removal via immunoabsorption therapies or plasma exchange (PEX). However complications do occur including early and/or late rejection and haemolytic uremic syndrome including haemolytic anemias. We report a unique case of successful use of a novel agent Belatacept for immunosuppression in a young renal transplant recipient with proven sensitivity to calcineurin inhibitors leading to microangiopathic haemolytic anemia (MAHA).

Case: A 17 year old ABOi renal transplant recipient with severe learning disabilities subsequently developed biopsy proven microangiopathic haemolytic anaemia secondary to calcineurin immunosuppression (Tacrolimus and Ciclosporin). Belatacept has been used successfully to maintain immunosuppression in this young adult to avoid the increased risk of organ rejection associated with dual immunosuppression (without calcineurin inhibitors) in the early post-transplant period. It is being administered as a monthly intravenous injection (250 mg). This is a novel approach to immunosuppression which can address the potential dilemma of immunosuppression selection in cases sensitive to calcineurin inhibitor agents. Our patient is currently doing well with a stable creatinine (xx). He is maintained on mycophenolate mofetil (500mg BD), prednisolone 5mg OD, and the monthly belatacept injection.

Conclusions: Adequate immunosuppression can be maintained with Belatacept in the immediate post-transplant period in intolerant cases where complications
arise due to the more commonly used immunosuppressive agents eg Calcineurin inhibitors.

**P63**

**COMPARISON OF EFFECTS OF INDUCTION THERAPY WITH ALEMUTUZUMABM VERSUS THYMoglobuin AMONG HIGHLY SENSITIZED KIDNEY TRANSPLANT CANDIDATE IN SHIRAZ ORGAN TRANSPLANT CENTER**

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**Introduction:** Although immunosuppressive therapy has been developed after kidney-transplantation in recent years, but acute rejection remains not only the leading cause of chronic graft dysfunction and late graft loss, but also the major determining factor of short and long-term patient survival. The aim of our study was to determine the optimal induction agent for the highly sensitized patients undergoing kidney transplantation at Nemazee hospital (Shiraz, Iran).

**Materials and Methods:** We studied Shiraz Organ Transplant Center data base from July 2009 to 2012. Inclusion criteria in this study were more than one times kidney transplantation and more than 20% panel, who have been between 18 – 68 years old. Recipients who underwent multorgan transplant, or who received antilymphocyte globulin, or orthoclone monoclonal anti-CD3 antibody, or more than one class of antibody induction, were excluded from our study. Also patients who had viral hepatitis or cancer or died due to unrelated cause, during the study have been excluded. One hundred and thirty highly sensitized transplant recipients were included in this study. They were stratified into two groups, according to the induction agent used, alemtuzumab or thymoglobulin. We compared outcomes of induction therapy with alemtuzumab and thymoglobulin among kidney transplant recipients. Data collection form was consisted of demographic information, drug intake details, underlying disease. Follow-up records were used to identify cases of early complications, including delayed graft function (defined as the need for dialysis within the first week after transplantation), primary non function, acute rejection, infection, graft survival and patient survival which were completed at nephrology clinic within 6 month after transplantation.

**Results:** One hundred thirty highly sensitized kidney transplant candidate were included in our study. Mean $(±SD)$ age was $(36.68 ±13.80)$. Seventy one (54.6%) and 58 (44.7%) of patients received induction with alemtuzumab and thymoglobulin respectively .There were eight graft failures in the alemtuzumab group and three failures in the thymoglobulin group due to rejection episodes. Acute cellular rejection episodes were observed in five patients in thymoglobulin group and nineteen patients in alemtuzumab group. The results also showed that delayed graft function developed, among 27 patients receiving alemtuzumab and the eleven patients receiving thymoglobulin.

**Conclusions:** We found a significant difference between two groups, alemtuzumab and thymoglobulin in acute rejection and delayed graft function ($P$ value = 0.009, 0.027) respectively.

**P64**

**PROTECTIVE EFFECT OF TACROLIMUS AGAINST MYCOPHENOLATE MOFETIL CYTOTOXICITY AND GENOTOXICITY IN CULTURED HCT116 CELLS**

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**Introduction:** Mycophenolate mofetil (MMF) is an important and commonly used drug in the maintenance of immunosuppressive therapy for recipients of organ transplants. MMF is a puissant agent that causes various gastro-intestinal toxicities, in fact, MMF and Tacrolimus (TAC) association is the most common protocol used for maintaining immunosuppression. Therefore, strategies for minimizing the toxicity of MMF are our interest. The aim of this study we have monitored the cytotoxicity and genotoxicity of these drugs alone and combined in HCT116 cells.

**Materials and Methods:** We have investigate the effect of MMF and TAC alone and combined on cell proliferation, reactive oxygen species (ROS) generation, DNA fragmentation using comet assay and potential mitochondrial membrane $(ΔΨm)$ in cultured cells.

**Results:** Our results clearly demonstrate that MMF individually induced several toxic effects and significant alterations mediated by oxidative stress mechanism. Treatment by combined to the lowest concentration of TAC $(5µM)$ showed a significant reduction of MMF at $330µM$ (IC50) induced damages for all tested markers therefore a noticeable reduction of cytotoxicity and genotoxicity.

**Conclusions:** It could be concluded that TAC at $5µM$ is effective in protection against MMF hazards, indeed, TAC exert gastroprotective effect by modulating reactive oxygen species production.


**P65**

**EFFECT OF RAMIPRIL ON URINARY PROTEIN EXCRETION IN MAINTENANCE RENAL TRANSPLANT PATIENTS CONVERTED TO SIROLIMUS**

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**Introduction:** This study was conducted to evaluate the effect of ramipril on urinary protein excretion in maintenance renal transplant patients converted to sirolimus.

**Materials and Methods:** This placebo-controlled, double-blind, multicenter study randomized patients to ramipril or placebo for up to 6 weeks before conversion from calcineurin inhibitors to sirolimus. Patients then received their assigned treatment plus sirolimus for 52 weeks. Patients who developed proteinuria (urinary protein:creatinine ratio [U p/c] ≥0.5) were treated with increased doses of their assigned treatment; losartan was initiated if proteinuria persisted. The primary end point was the time to losartan initiation after sirolimus conversion, presented by Kaplan-Meier curves and analyzed using the log-rank test. Secondary end points included change in the estimated glomerular filtration rate (eGFR) from baseline to 12, 24, and 52 weeks and the percentage of patients with U p/c <0.5 at 24 and 52 weeks.

**Results:** In total, 295 patients (mean age, 47 years; 67% male; 64% white) were randomized and received ≥1 dose of study drug, and 264 met the criteria for sirolimus conversion (modified intent-to-treat population; ramipril, 138; placebo, 126). The cumulative rate of losartan initiation for 52 weeks was significantly lower with ramipril vs placebo (6.2% vs 23.2%; HR=0.228; 95% CI: 0.099-0.528; P=.0002). The percentage of patients with U p/c <0.5 was significantly higher with ramipril vs placebo at 24 weeks (92% vs 78%; P=.002) and remained numerically higher at 52 weeks (83% vs 73%, P=.07). No significant differences in ramipril vs placebo patients in eGFR were observed from baseline to 12, 24, and 52 weeks. The 5 most common treatment-emergent adverse events (AEs) included diarrhea, peripheral edema, upper respiratory infection, acne, and cough. Biopsy-confirmed acute rejection occurred in 13 ramipril patients and 5 placebo patients (P=.07). No patients experienced graft loss. One patient in the placebo group died due to cerebrovascular accident. One patient in each group experienced angioedema; neither case was considered serious by the investigators.

**Conclusions:** This study demonstrated the efficacy of ramipril in preventing proteinuria after sirolimus conversion. The AEs observed were consistent with the known safety profile of sirolimus and were not potentiated with the coadministration of ramipril.

**P66**

**NEUTROPENIA ASSOCIATED WITH TACROLIMUS THERAPY AFTER RENAL TRANSPLANTATION**

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**Introduction:** In renal transplant patients, neutropenia is a relatively common problem. Tacrolimus is a part of current immunosuppressive protocols in posttransplant patients. However, tacrolimus therapy has side effects, including chronic allograft nephropathy, diabetes mellitus, arterial hypertension and neurotoxicity. Tacrolimus-induced neutropenia is less recognized, but a potentially harmful complication. In this study, we aimed to demonstrate the relation between tacrolimus and neutropenia.

**Materials and Methods:** 97 pediatric renal transplant patients (50M/47F) were enrolled in the study. Neutropenia and leukopenia were evaluated during the first 6 months posttransplant. Leukopenia was defined as <4000 /µL and neutropenia was <1000 / µL. The relation between immunosuppressive therapy and leukopenia and neutropenia was studied.

**Results:** Mean age of the patients was 12.92±4.6 years old. At 6th month after transplantation mean creatinine level was 0.93±0.46 mg/dl and mean GFR was 86.2±32.9 mL/min/1.73m². Each patient received tacrolimus or cyclosporine A and mycophenolate mofetil and oral prednisolone. 57% of the patients were given cyclosporine A and mycophenolate mofetil and oral prednisolone. 57% of the patients were under tacrolimus therapy and 43% of them was given cyclosporine A. 29 patients (29.9%) had leukopenia of which 22 (75.9%) had neutropenia. 22 patients of the leukopenia group and 13 patients of the neutropenia group had taken tacrolimus therapy. Leukopenia occurred in 62% and neutropenia was 59.9% of patients under tacrolimus therapy, whereas 38% of patients not given tacrolimus therapy had leukopenia and 40.9% of them had neutropenia. Although leukopenia and neutropenia seems to be more common in patients given tacrolimus therapy, it was not statistically significant. Any correlation was observed between anemia and thrombocytopenia with tacrolimus therapy.

**Conclusions:** In our study, we demonstrate high rates of neutropenia and leukopenia. However we were not able to demonstrate an association between tacrolimus therapy and neutropenia. Further prospective studies need to be done with larger groups of patients.
P67
EVALUATION OF LATE ANTIBODY-MEDIATED REJECTION (C4D MEDIATED REJECTION): A SINGLE CENTER EXPERIENCE

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Introduction: Though the incidence of acute rejection (AR) and AR-induced early graft loss has significantly decreased, there has been no improvement in long-term graft survival rates in renal transplantation during the last decade. In this study, we evaluated renal transplant patients with late (≥ 3 years) antibody-mediated rejection (AMR-C4d-mediated rejection), who had immunologically uneventful course early after transplantation.

Materials and Methods: Between 2003 and 2010, 21 of 312 kidney transplant patients at our center were diagnosed AMR via Banff 97 criteria. In ten patients, AMR appeared after the 3rd year following the transplant. The patients’ information was retrospectively evaluated from the files.

Results: Of the seven male and three female patients, five received cadaveric and five had living-related donor kidneys. The mean age was 33 ± 11 (18-52) years, all living-related kidneys were one-haplotype matched and in cadaveric transplants the average mismatch was 3.8 ± 0.4. In 7 cases, pre-tx PRA was negative. Following ATG induction, six patients received CNI-based and four patients had m-TOR-based triple maintenance immunosuppression. The average basal and third-year serum creatinine levels were 1.24 ± 0.31 and 1.36± 0.43 mg/dl (p <0.001). The mean follow-up period until rejection was 64 ± 23 (37-101) months. History revealed recurrent bacterial infections in 4, CMV-infection and post-tx diabetes in 1 each, and drug withdrawal in 2 patients. For this reason, maintenance immunosuppressive therapy was reduced and/or had been replaced. In kidney biopsies; 6 patients had acute findings of AMR via Banff 97 criteria. In ten patients, AMR appeared non-compliance CHRONIC Graft.

Conclusions: Late AMR might emerge soon after the modification of immunosuppressive drug dosages and may be responsible for graft dysfunction or loss.

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NON-TUMORAL SKIN DISEASES FOLLOWING KIDNEY TRANPLANTATION

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Introduction: Kidney transplantation is the best option for patients with end-stage renal disease failure. These patients are prone to develop various skin complications, mostly due to immunosuppressive therapy. Several factors, other than immunosuppressive regimen, like age, sex, sun exposure and the aetiology of primary disease were known to predict cutaneous lesions. The objective of this study was to describe the prevalence and risk factors of non-tumoral cutaneous manifestations among renal transplant recipients.

Materials and Methods: Patients who had confirmed non-tumoral skin lesions were selected among 1275 renal transplant recipients from January 1990 to December 2012 in Başkent University. Demographic and clinical findings of these patients, including age, gender, primary kidney disease, immunosuppressive therapy and the time between transplantation and cutaneous lesions were examined.

Results: Among 1275 patients, 210 (16.4%) non-tumoral skin lesions were detected in 145 patients (11.3%). Of 145 patients, 109 (75.2%) were males and 36 (24.8%) were females. Mean age at the time of transplantation was 46.81±12.63 years (range, 10-78 years) and the mean interval to skin lesion after transplantation was 58.19±47.24 months (range, 1-224 months. The most common skin lesions were infectious, squamous and melanocytic lesions with the frequency of 21%, 17.6% and 16.6% respectively.

Conclusions: Infectious lesions were the most common
skin lesion among renal transplant recipients and the most frequent infectious lesions were viral warts. Compared with the general population, recipients of kidney transplants have an increased risk for infection-related cutaneous diseases. Thus, regular dermatological screening in these patients is essential to make an early diagnosis and to start appropriate treatment.

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BONE MARROW BIOPSY IN PATIENTS WITH RENAL TRANSPLANTATION: SPECTRUM OF FINDINGS AND DIAGNOSTIC UTILITY

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Introduction: Renal transplantation may be complicated by persistent fever and cytopenia. Some of these patients may undergo bone marrow biopsy but no study has systematically-recorded the bone marrow findings in these patient groups. Here, we report the range of bone marrow findings in 85 renal transplant recipients.

Materials and Methods: Patients who underwent bone marrow biopsy were selected among 1745 kidney transplant recipients from January 1990 to December 2013 in Baskent University. Clinical findings of these patients, including age, gender, immunosuppressive therapies, clinical symptom, complete blood count, age at transplantation and the time between transplantation and bone marrow biopsy were examined.

Results: There were 85 patients who underwent bone marrow biopsy after kidney transplantation. Of 85 patients, 57(67%) were males and 28 (32.94%) were females. The graft source was a living-related donor in 54 patients (63.5%) and a deceased donor in 31(36.47%) patients. Mean age at the time of bone marrow biopsy was 36.54±13.07 years (range, 4-65 years). The mean interval to bone marrow biopsy after transplantation was 59.14±57.79 months (range, 1-250 months).

Indication for bone marrow biopsy were fever in 18 (21%) patients, cytopenia in 56 (65.88%) patients, and staging work-up of Post-transplant lymphoproliferative disorders (PTLD) in 11 (12.94%) patients. Of 85 patients, five (5.8%) had shown bone marrow involvement with malignancies. Among all 5 patients, PTLD involvement was noted in 3 (3.5%) cases and plastic infiltration was observed in remaining 2 (2.3%) cases. Specific infection (tuberculosis) was identified in three of 18 (16.6%) patients with fever. Hypocellularity was noted only in 3 (16.6%) other cases, Sea-blue Histiocytosis was observed in 1(5.5%) case and marrow hypercellularity was noted in 1(5.5%) case.

Conclusions: Of 85 patients bone marrow examination provided useful information in 36 (42.35%) cases. Examination of the bone marrow may be a useful diagnostic test in pyrexia of unknown origin and cytopenia.

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KIDNEY TRANSPLANTATION AMONG TURKISH PATIENTS WITH LUPUS NEPHRITIS

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Introduction: Lupus nephritis (LN) is an important complication of systemic lupus erythematosus and cause end-stage renal disease (ESRD) in 10–22 % of the patients. Renal transplantation is a good treatment option for ESRD among patients with LN. The aim of the study is to determine the clinical findings and outcome of patients with lupus nephritis (LN) undergoing renal transplantation.

Materials and Methods: The patients who underwent kidney transplantation due to LN between January 2000 and 2012 were retrospectively analyzed. All the patients met the ACR criteria for SLE. Recurrent LN was diagnosed by transplant kidney biopsy.

Results: Among 955 renal transplantation patients, eleven patients with lupus nephritis who underwent renal transplantation were enrolled. Five patients were male. In seven patients, LN was previously diagnosed by native kidney biopsy at our center and all of them were class IV according to the WHO and ISN/RPS classification. The duration of dialysis before transplantation was 21±24 months. The duration between the diagnosis of LN and transplantation was 11±6 years. Before transplantation, five patients had hypocomplementemia and high titers of anti-nuclear antibody (ANA) (titer between 1/40 and 1/280) among seven patients who had available data. The mean age at the time of the transplantation was 36.25±11.24 years. Only one patient had preemptive transplantation. The number of patients who underwent deceased transplantation was three. Induction therapy was either basiliximab in 4 patients or anti-thymocyte globulin in 7 patients. Ten of eleven patients received prednisolone, MMF/azathioprine and a calcineurin inhibitor as maintenance immunosuppressive therapy. Five patients had acute rejection episode. No patient or graft loss occurred during the first year. Mean serum creatinine level and proteinuria was respectively 1.30±0.22 mg/dl and 0.18±0.13 gm/day at first year. The mean follow-up time was 4.77±2.63 years. Four patients were diagnosed as clinical LN recurrence 23±18 (6–43) months after transplantation. Clinical recurrent LN was diagnosed by transplant kidney biopsy which was done due to graft dysfunction.
in 4 patients, proteinuria (>1 gm/day) in 2 patients and microscopic hematuria in 1 patient. The mean follow-up time after clinical LN recurrence was 47 ± 30 months. Two patients had graft loss after 4.08 and 9.18 years following transplantation and both of them had clinical recurrent LN. The 5-year overall graft survival was 85.7 %.

**Conclusions:** In our study, nearly half of the patients had recurrent LN and only two of them had graft loss. Kidney transplantation is a feasible renal replacement treatment option for patients with ESRD secondary to SLE but recurrence of LN is not rare.

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**FUNGAL INFECTIONS IN COMMERCIAL TRANSPLANTS: A DIAGNOSTIC CHALLENGE**

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**Introduction:** In an era where there are increasing legislations against organ trafficking, yet demand for organ donors is on the rise, many kidney transplants take place under poor conditions of hygiene, poor pre-transplantation work-up and conditioning of immunosuppression. Life threatening infections are a serious complication and are particularly challenging both in terms of diagnosis and management. Furthermore, a delay in diagnosis can result in severe morbidity and death. Radiological examination may show reduced renal perfusion and areas of infarction however, there are no specific diagnostic criteria. In patients, presenting with renal graft dysfunction in the post-transplant period, the renal biopsy which is the mainstay in the management of transplant patients, is helpful when there is evidence of rejection, whether T-cell mediated or antibody mediated. However, when there is only acute tubular injury, the exact etiology underlying this is usually not apparent. In commercial transplants, the possibility of a fungal infection should be considered and sought using serological tests, blood and urine cultures.

**Case:** We report here, two patients who received commercial kidney transplants and presented with graft dysfunction several months after transplantation. Both had transplant biopsies: one showed features of acute tubular injury with isometric type vacuolation. CNI toxicity was suggested as a possibility. The other biopsy was normal. There was no rejection in either biopsy or evidence for viral infection such as BK virus or CMV and no thrombotic microangiopathy. Despite supportive management, graft dysfunction persisted and deteriorated ultimately culminating in graft nephrectomies. In both, large calibre renal arteries showed full thickness acute inflammation and necrosis of their walls with acute inflammatory cells, multinucleated giant cells and vascular thrombosis resulting in parenchymal infarction. Fungal hyphae with the morphology of Aspergillus organisms were present in the wall and lumen of these vessels. There were no fungal hyphae within the renal parenchyma which explains why no fungal organisms were identified on biopsy.

**Conclusions:** In conclusion, in commercial kidney transplants with graft dysfunction and no evidence for rejection on allograft biopsy, the possibility of an opportunistic fungal infection should be considered with a low threshold.

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**DEVELOPMENT OF AN INFORMATION MODEL FOR KIDNEY TRANSPLANT WAITING LIST**

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**Introduction:** Deceased donor kidney transplantation is unique among surgical procedures in that it is an urgent procedure performed in an elective population. Because of the inclusion of histocompatibility matching in the allocation algorithm, it has not been possible to accurately determine when a given patient will be called for transplantation. This situation is also called unpredictability of allocation. Patients on the active transplant list can be called for a transplant at any time. As a result, every effort must be made to optimize their health according to best practices and published clinical practice guidelines. In parallel, dialysis units, nephrologists, and the patients themselves must keep transplant programs
appraised of major developments in the patient’s health that could be relevant to their transplant candidacy and posttransplant management.

**Materials and Methods:** Once the patient is placed on the transplant waiting list after undergoing an initial extensive evaluation, continued surveillance is required for all patients. In such patients, the cardiovascular status may deteriorate during the prolonged wait for a kidney. Therefore, we developed a kidney transplant waiting list surveillance software program which alerts organ transplant coordinator on time regarding which patient needs which workup.

**Results:** The new designed software has a database of our waiting patients with their completed and pending controls. The software has also built-in functions to warn the responsible staff with an e-mail. If one of the controls of a recipient delayed the software sends an automated e-mail to the staff regarding the patient and delayed control(s).

The software has been developed with C# programming language which supports Microsoft Windows® operating system environments. The database is sqlite which is freeware and widely used on small data projects. The software has the following functions

- **Patient communication info:** Software has a patient communication info entry and update capability which helps the responsible staff to reach patients easily if needed.
- **Search:** We designed the software to search the list based on the following parameters: surname, national ID, patient ID, blood group, PRA values (positive or negative), viral markers statement (Hepatitis B, C or HIV).
- **Alert list:** When software is started list of patients who required medical workup are shown (popup) at the first screen.
- **Alert e-mail:** If any patient needs work up the system sends an alert e-mail to the responsible staff.
- **Control entry:** When a patient submits a new work up result, the user can enter the data to the system.
- **System management:** Users can add or delete a control parameter definition.

**Conclusions:** As of January 2014, a total of 21,000 patients were registered on the National kidney transplant waiting list in Turkey and the kidney transplant waiting list had been expanding by 2000 to 3000 patients each year. Therefore computerize waiting list program is crucial to help to transplant centers up-to-date their patients on time.

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**THE IMPACT OF DYSLIPIDEMIA ON QUALITY OF LIFE IN DIALYSIS PATIENTS**

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**Introduction:** Dyslipidemia is commonly observed in ESRD patients, which is one of the most important risk factors for cardiovascular disease and could affect health related quality of life. Almost 40% of dialysis patients suffer from dyslipidemia, generally type IV, which defined by decreased high-density lipoprotein (HDL) plasma level. Some studies have evaluated the quality of life (QOL) of patients undergoing dialysis, but there is limited information available about relation between dyslipidemia and quality of life in this population. According to this perception we aimed to design this study.

**Materials and Methods:** To assess the QOL of patients, we used the kidney disease quality of life questionnaire.

**Results:** From a total of 651 patients, 553 (85.2%) was educated, 60 (9.2) was employed, 476 (73.3%) was married and 390 (60.7) was male. The mean (Standard Error) of patients age, hospitalization and dialysis duration was 56.93 (0.63) years, 4.54 (0.42) days and 49.13 (2.66) months. As you seen the quality of life scores are significantly higher in HDL<40, (KDCS=56.21 (p-value=0.005), MCS=46.78 (p-value=0.07) and total QOL=0.04 (p-value=0.04)) and PCS is significantly higher in non-HDL cholesterol<=100(PCS =40.03 and p-value=0.16). There are no other significant (p-value<0.2) association between quality of life scores and other lipid profile. We use univariate logistic regression analysis for investigation the relationships between healthy lipid profile (HDL>=40 and LDL<=70 and TG<=200 and non-HDL cholesterol<=100) and variables that associated (p-value<0.2) with serum lipid profile metabolisms. The analysis shows that healthy lipid profile is significantly associated with dialysis vintage (p-value=0.016), creatinine (p-value=0.01), hemoglobin (p-value=0.005) and uric acid (p-value=0.019).

In multivariable logistic regression analysis healthy lipid profile is significantly (p-value<0.05) associated with hemoglobin (coef=-0.27 and p-value=0.008) and uric acid (coef=0.29 and p-value=0.039).

**Conclusions:** The quality of life scores are significantly higher in HDL<40, and Physical component summary is significantly higher in non-HDL cholesterol.
THE ROLE OF A SINGLE CENTRE EXPERIENCE IN AZERBAIJAN’S NEPHROLOGY FIELD

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Introduction: As we know, there’s a saying that, in order to evaluate the level of medicine in a country, one should pay attention to its level of renal nephrology service; specifically the level of kidney replacement therapy (RRT), hemodialysis (HD), peritoneal dialysis (PD) and transplantation. With the increasing number of patients requiring RRT, it’s the utmost duty of the modern medicine to structureize and organize it. Since its establishment in 2000, Medservic PMC has dedicated its main services to hemodialysis and RRT alongside with healthcare in other branches of medicine, follow-ups, getting the patients ready for transplantation and other nuances that might not seem very distinguishing in comparison to well-developed countries, but we believe it’s important and beneficial for the countries within post-soviet geography.

Materials and Methods: This article shows the compared statistical indicators of the patients who have been enlisted in reports of Azerbaijan Republic, Medservic PMC which is in Azerbaijan and of ERA-EDTA between 2000 – 2013. The statistics of the patients reported in Medservis PMC’s account for the last 14 years have been categorized in respect to number of factors (age and sex, etiological factors, vascular access type, acute and chronic diseases, hepatitis profile).

Results: During its activity in the last 14 years, we’ve received 5894 new patients at Medservis PMC. 58.9% of these patients (3395) have been males and 41.1% (2413) have been females. Of all the patients received, children made the 1.6% (86 total). 9% of the total applied patients (531) had acute kidney failure and 91% came with chronic kidney disease –V stage. The main reasons of acute kidney failures have been obstetrics-gynecologic and obstructive factors.

Conclusions: Medservis PMC has contributed importantly to nephrology area of Azerbaijan with its first-in-the-country services in remote hemodialysis, hemodialysis of children, close-up control of the pregnancy of a woman with 6 years of HD and successfully delivering, first permanent catheter and etc. during 14 years of activities.

QUALITY OF LIFE IN RENAL TRANSPLANT RECIPIENT AND DONOR

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Introduction: Quality of life (QoL) assessment in renal transplant patients has become an important tool of attention in evaluating outcomes. In this work the quality of life (QOL) of the renal transplant donor and recipient is compared to healthy age-BMI matched individuals.

Materials and Methods: Subjects were chosen from a tertiary renal care facility where patients were on hemodialysis for variable time before transplantation. The donors were all living related. Most of them had 2-3-antigen match with negative crosshatch. All were HBV and HCV negative. The immunosuppression protocol was prednisolone, cyclosporine/tacrolimus and mycophenolate mofetil/azathioprine. The renal function was stable. The quality of life was assessed by KDQOL-SF v1.3.

Results: Comparison among healthy subjects (n=20), kidney donor (n=20) versus recipients (n=40) for age was 35±8, 40±11 vs. 37±10, years, (p=NS) and BMI 23±5, 21±4 vs. 21±4, kg/m², (p=NS). The mean duration of transplantation of donor and recipients was 22±11 vs. 28±25, months, (p=NS). The score of items in short form (SF36) health survey domain among 3 groups respectively showed that general health score 48±23, 60±20 vs. 59±20; physical functioning 61±28, 84±23 vs. 76±26; role physical 31±38, 70±44 vs. 63±35; pain 79±36, 73±23 vs. 69±25; emotional well being 63±17, 74±14 vs. 73±34; social function 83±20, 95±8 vs. 91±15 and energy/fatigue 57±17, 62±16 vs. 58±15; (p=NS) was similar in all groups. Correlation studies showed strong positive association of all the items with each other.

Conclusions: This study finding is in accordance with the outcomes expected that quality of life improves significantly to near normal in renal transplant recipients. At the same time donors quality of life is also not compromised. Both donor and recipient have similar high quality scores as that of a healthy person.

IMPACT OF DONOR SOURCE ON GRAFT AND PATIENT SURVIVAL IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS


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Introduction: Evaluation of the impact of kidney donor sources on the outcome of renal transplantation
is not adequately studied. We aimed to compare the long-term outcome of kidney transplantation from different sources among a pediatric recipient population.

Materials and Methods: This study comprised 105 pediatric recipients who received their kidney grafts between 1994 and 2011 at Hamed Al-Essa Organ Transplant Center of Kuwait. These patients were further subdivided into three groups according to donor source (37 with LRDs); (31 with LURDs) and (35 with cadaveric donors). All patients' data were assessed with special emphasis on graft and patient survival as well as post-transplant medical complications.

Results: All groups with mean follow up of seven years were comparable regarding pre-transplant demographic features especially diabetes, anemia, hypertension, tuberculosis, bone disease and viral profile. We found that patient survival at 1, 5, and 10 years was comparable in all groups. In our series, we observed that rejection rate in the 3 groups was comparable (p>0.05). However, kidney survival was poor among cadaveric group compared to other groups despite potent induction and maintenance immunosuppression. This could be explained by poor HLA match; high PRA; higher incidence of ATN and NODAT in the same group (p<0.05). This was translated as significantly higher mean serum creatinine. The overall incidence of post-transplant complications was comparable among the three groups except significantly higher post-transplant diabetes among LURD group (p=0.004).

Conclusions: Pediatric renal transplants have good long term patient outcome whatever the donor source is; with poorer cadaveric grafts and higher risk of NODAT with unrelated donors.

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ASSOCIATION WITH PRA AND AECA POSITIVITY IN KIDNEY TRANSPLANT PATIENTS

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Introduction: The corresponding HLA antigens of alloantibodies identified in patients awaiting kidney transplantation are often listed as unacceptable for transplantation. Referred to as panel reactive antibody (PRA) analysis to determine whether a patient possesses antibodies to HLA antigens. PRA positivity is associated with rejection reaction. Endothelium is the major tissue for hyperacute and acute rejection. Binding of antibody to endothelium activates several immunological mechanisms. Antiendothelial cell antibodies (AECA) are a group of antibodies which may play a role in induction immunological reaction that triggers inflammation.

The aim of the study was investigation if there is an association between AECA positivity and PRA positivity in renal transplantation patients.

Materials and Methods: In this study we investigated the association between anti-endothelial cell antibodies (AECA) and PRA class-I and class-II, cross-match positivity in patients. For this purpose, we investigated 205 patients' results and than compared this with 100 healthy volunteers' results (previous AECA study results). All sera samples were analysed by LUMINEX bead technology for calculated PRA positivity and using slides, each containing biochips coated with frozen sections of HUVEC (human umbilical vein endothelial cells) and capillary-rich tissue such as skeletal muscle (Euroimmun, FB 1960–1005–2, Germany) for AECA positivity. AECA antibodies are stained with fluorescein labeled antihuman antibodies and visualised by fluorescence microscopy for AECA. Statistical analysis was performed using the statistical package SPSS v 17.0. Data were summarized according to the frequency distribution. The catagorical variables between the groups was analyzed by using the Chi square test or Fisher Exact test. Values of p < 0.05 were considered statistically.

Results: AECA was positive in 48 out of 89 (PRA class-I and class-II negative p:0.00) 22 out of 35 patients (PRA class-I positive p:0.047 ), in 25 out of 39 patients (PRA class-II positive, p:0.005), in 26 out of 40 (PRA class-I+ and class-II+, p:0.0001), in 37 out of 57 of the serological and FCM cross match positive patients (p:0.016). Finally, in 122 out of 205 patients and in 25 out of 100 volunteers. (p<0.001) Our study results show that AECA positivity more frequent in PRA and cross-match positive patients than PRA negative and control group.

Conclusions: It seems that target autoantigens expressed on the surface of healthy endothelial cells. Binding of AECA to EC may activate complement by the classical pathway AECA were able to activate EC resulting in upregulation of the adhesion molecules. Key question of our study is, ‘what is the antigenic specificity of the AECA’? Our study results show that humoral autoimmunity due to AECA (+) may play an important role for graft destruction independent from PRA and cross-match positivity.
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**FACTORS INFLUENCING ATTITUDE TOWARDS KIDNEY DONATION FOR TRANSPLANTATION IN ILORIN**

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**Introduction:** Chronic renal failure (CRF) is a major cause of premature death and unnecessary suffering in Nigeria. Majority of those with end stage renal disease (ESRD) who are in the most productive age bracket die from inability to pay the cost of haemodialysis which is the most commonly available mode of renal replacement therapy in Nigeria. The quality of life of the few that can afford the cost of haemodialysis is poor in contrast to the few transplanted patients because they cannot sustain maintenance dialysis. Also, facilities for cadaveric kidney transplant are lacking and centres that do renal graft rely on live related donor kidneys. A survey is carried out to assess factors affecting attitude towards kidney donation for transplantation in Ilorin, Nigeria.

**Materials and Methods:** A total of 600 self administered, semi-structured questionnaires were distributed amongst asymptomatic adults (Aged ≥ 17years) with a response rate of 88%. The responses were compiled into contingency tables depending on the variables considered and data analyzed using statistical package for social studies (SPSS) version 14.

**Results:** There were 282 males (53.4%) and 246 females (46.6%) with age range of 17-65years and a mean of 34.76±14.86. Two hundred and ninety two (55%) were willing to donate a kidney (165 males, 127 females). Majority of the willing donors (86%) were between 30 and 50 years of age. Education level did not appear to influence their willingness to donation a kidney but had a positive influence on their knowledge about kidney failure. There was gender disparity based on religion, in their willingness to donate a kidney as more male Christians and Muslims were willing to donation than their females.

**Conclusions:** The main constraints to live related kidney donation were fear of surgical pains, belief in life after death and uncertainty of donor outcome. This calls for public awareness programmes on safety of kidney donation for transplantation. The involvement of traditional and religious leaders in such programmes may enhance positive results.

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**ANTIBODY-MEDIATED REJECTION CAUSED BY COMPLEMENT-BINDING ANTIBODIES AGAINST EPITOPES SHARING WITH DONOR HUMAN LEUKOCYTE ANTIGEN IN A KIDNEY TRANSPLANT RECIPIENT; IDENTIFICATION BY A SINGLE ANTIGEN BEAD-C1q ASSAY AND EPITOPE ANALYSIS**

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**Introduction:** This case report presents a sensitized renal transplant patient in whom unique donor epitope-specific antibodies caused a positive complement-dependent cytotoxicity (CDC) crossmatch result.

**Case:** The antibodies had a weak response against donor HLA-B*67:01 antigen without C1q binding activity, but had a strong reaction against several non-donor-specific HLA-B antigens in both luminex single antigenbead (SAB)-IgG and SAB-C1q assays. Epitope analysis demonstrated that SAB-C1q recognizing HLA-B antigens displayed the same epitopes (44RE, 65QIA, 70IAQ), suggesting that CDC crossmatch was positive due to antibodies against common epitopes being shared between donor- and non-donor-specific HLA antigens. The patient received renal transplantation after desensitization treatment. Protocol biopsy at post-transplant 4 months showed C4d-negative antibody-mediated rejection, but she remained clinically stable until post-transplant 15 months.

**Conclusions:** This case suggests the usefulness of identifying C1q binding antibody specificities against HLA epitopes for the comprehensive interpretation of donor-specific antibodies and prediction of renal transplantation outcome.
SAFETY AND EFFICACY OF THE EARLY INTRODUCTION OF EVEROLIMUS (CERTICAN) WITH LOW DOSE OF CYCLOSPORINE IN DE NOVO KIDNEY RECIPIENTS AFTER 1 MONTH OF TRANSPLANTATION

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Introduction: Everolimus and cyclosporine exhibit synergistic immunosuppressive activity when used in combination. We examined the safety and efficacy of the use of everolimus with a cyclosporine-sparing strategy in de novo renal transplant recipients.

Materials and Methods: A comparative, parallel, randomized, open-label one-year study has been performed in 148 patients from five transplant centers to compare the efficacy and tolerability of everolimus + reduced-dose cyclosporine (the investigational group) or enteric-coated mycophenolate sodium (Myfortic®)+ standard-dose cyclosporine (the control group) in combination with basiliximab, steroids. The eligible subjects were randomly assigned at one month post-transplantation. Efficacy failure (biopsy-confirmed acute rejection, death, graft loss, or loss to follow-up), safety, and renal function were evaluated at one, three, five, and 12 months post-transplantation. This study is registered with ClinicalTrials.gov; registration identifier = NCT01706471.

Results: Efficacy failure was not significant. One graft loss has been reported in the control group and no patient death reported in both groups. The incidence of biopsy-confirmed acute rejection until 12 months post-transplantation of the investigational group was 7.5%, compared to 11.1% of the control group (P=0.565). The mean eGFR of the investigational group at 12 months post-transplantation was significantly higher (68.1 ± 16.8 ml/min/1.73m²) than that of the control group (60.6 ± 15.8 ml/min/1.73m²; P=0.016). The amount of urinary protein excretion at 12 months post-transplantation in the investigational group was higher (237.7 ± 270.3 mg/day) than in the control group (127.5 ± 259.1 mg/day; P=0.034). There was no significant difference (P>0.05) in the incidence of discontinuations and serious adverse events between the groups.

Conclusions: One of the cyclosporine-sparing strategies, the regimen of everolimus + reduced-dose cyclosporine after one-month post-transplantation is well tolerated, with low efficacy failure and better renal function in comparison with Myfortic®+ standard-dose CsA.

RELATIONSHIP BETWEEN DIFFERENT CNIS AND THE AREA UNDER THE CURVE (AUC) FOR MYCOPHENOLIC ACID IN OMANI ADULT POST RENAL TRANSPLANTATION PATIENTS: A PILOT STUDY

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Introduction: Mycophenolate mofetil (MMF) is an anti-purine anti-proliferation agent, used most often with Calcineurin Inhibitors (CNIs) to prevent rejection in organ transplantation. The active metabolite of MMF is the mycophenolic acid (MPA). It is also used in different autoimmune diseases. The inter- and intra-individual variability of MPA is well documented; however, it is not of routine clinical practice to perform the AUC for such a drug with variable pharmacodynamics.

Materials and Methods: We prospectively analyzed 27 stable kidney transplant patients followed up at the Royal Hospital (RH) in Oman. Limited sampling strategy was performed to represent the MPA area under the plasma concentration-time curve during one 12-hour dosing interval (AUC (12)) and four samples were obtained during this interval.

Results: Sixteen (59.3%), eight (29.6%) and three (11.1%) patients received tacrolimus, cyclosporine and none of the CNIs respectively. Three patients (11.1%) had AUC below the target. Six patients (22.2%) had MMF AUC above the target levels.

Conclusions: The preliminary results confirm the inter- and intra-individual variability of MPA exposure. It seems that patients on cyclosporine require a minimal daily dose of MMF. Patients on tacrolimus with a daily dose of MMF ranging between 1 gram and 2 gram had an AUC level
either within or above the target. It seems that patients on tacrolimus might do well with MMF daily dose of 1-1.5 gram. Although the present study is a prospective one, it limitation is the small number of patients. We are in process of extending the study to include more number of patients. We recommend the usage of the abbreviated AUC of the MMF in routine clinical practice. Our study shows that patients on ciclosporine should receive a minimal daily dose of MMF of 1.5 gram. Patients on tacrolimus may do well with a daily dose of MMF 1-1.5 gram.

**P82**

**RENAL FUNCTION AND REGULATORY T-CELL ASSESSMENT IN KIDNEY TRANSPLANTED PATIENTS RECEIVING CYCLOSPORINE A VERSUS SIROLIMUS AFTER 2 YEARS**

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**Introduction:** One way to overcome the calcineurin inhibitor (CNI) induced nephrotoxicities and rejection events in routine immunosuppressant protocols is their replacement with mammalian target of rapamycin (mTOR) inhibitors that are not nephrotoxic and cause better tolerogenic properties. This study evaluated the conversion effects of cyclosporine A (CsA) with sirolimus (SRL) on GFR and T-regulatory (Treg) cell numbers 2 years after kidney transplantation.

**Materials and Methods:** 88 primary kidney recipients, all receiving clinically adjusted doses of MMF plus steroids, were randomized through adaptive method to remain on CsA or to switch to SRL (n=29) after early phase of 3-6 months post-transplantation. GFR and 2 subsets of Tregs, CD4+CD25+FoxP3+ and CD8+CD28- cells were counted by 3-color flow cytometry before conversion and at year 2 after transplantation. Then the data were analyzed using t-test, Mann Whitney or chi square test, fisher’s exact test, and linear multivariate regression analysis with Enter method.

**Results:** 2 years after transplantation GFR decreased in CsA group (P=0.002). In CsA and SRL groups, 2 years after transplantation the frequency of CD4+CD25+FoxP3+ (P<0.001, P=0.018; respectively) and CD8+CD28- (P=0.028, P<0.001; respectively) Tregs were significantly increased. At year 2 after transplantation, there was no correlation between the frequency of Treg subpopulations and different variables including GFR, Cr, ALT, AST, LDL, cholesterol, biopsy proven acute rejection episodes, UTI, respiratory infection, CMV and BK infection in each drug group. In both drug groups, the changes of CD8+CD28- Tregs remained significant after controlling the likely confounding effects of GFR changes, acute rejection episodes, urinary tract infection, respiratory infection, CMV and BK infection (P=0.006).

**Conclusions:** Our study suggests that stable kidney recipients on maintenance SRL therapy have a high circulatory percentage of CD4+CD25+FoxP3+ and CD8+CD28- Tregs as well as a better graft function compared with recipients on CsA. In the long run, if it be tolerated by the patient, the CNI may be replaced by an mTOR inhibitor which has been demonstrated to prevent both acute and chronic rejection and to play a pivotal role in tolerance induction.

**P83**

**LONG TERM OUTCOME OF ANTI-THYMOCYTE GLOBULIN VERSUS BASILIXIMAB INDUCTION IN RENAL TRANSPLANT RECIPIENTS**

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**Introduction:** Although Basiliximab and rabbit antithymocyte globulin (ATG) are effective in delaying and reducing the incidence of acute rejection (AR) thus improving short-term graft survival, their impact on long-term graft survival has not been well established in renal transplant recipients. The aim of our study was to compare the safety and efficacy of ATG and Basiliximab in living donor kidney transplant recipients over a period of 3 years.

**Materials and Methods:** Renal transplant data were collected for the patients undergoing kidney transplantation from living related and unrelated donors. The surgeries were performed at Sahoul hospital, Sousse, Tunisia, from November 2007 to November 2012 and the recipients received either ATG or Basiliximab for induction therapy. We studied retrospectively 84 kidney transplant recipients: 59 patients received induction with ATG and 25 patients received induction with Basiliximab. All the patients received Calcineurin inhibitors, mycophenolate mofetil and corticosteroids as maintenance immunosuppressive therapy.

**Results:** Patient survival at 3 years was 93.6% in the ATG group and 86.4% in the Basiliximab group, while graft survival was 90.6% and 80.7%, respectively. The incidence of acute rejection was 22% and 24% in the ATG and the Basiliximab groups, respectively. The estimated mean glomerular filtration rates at 3 years post-transplantation were 90.54 mL/min and 86.28 mL/min in the ATG and Basiliximab groups, respectively. A low incidence of urinary tract infection and cytomegalovirus was observed in the
ATG group. There were no significant differences between the two groups.

**Conclusions:** Our study suggests that both induction regimens with ATG and Basiliximab in living kidney transplantation offered a safe and effective treatment and were associated with excellent long-term patient and graft survival.

**P84**

**EFFECT OF CYTOCHROME P450 3A5 GENETIC POLYMORPHISM ON TACROLIMUS DOSES AND CONCENTRATION**

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**Introduction:** Tacrolimus pharmacokinetic characteristics vary greatly among individuals. Tacrolimus is a substrate of cytochrome p450 (CYP), of subfamily CYP3A. CYP3A activity is the sum of the activities of the family of CYP3A genes, including CYP3A5. Subjects with the CYP3A5*3/*3 genotype express large amounts of CYP3A5. Heterozygotes (genotype CYP3A5*1/*3) also express the enzyme. We postulated that CYP3A5 polymorphism is associated with tacrolimus pharmacokinetic variations.

**Materials and Methods:** CYP3A5 genotype was evaluated in 41 renal transplant recipients and correlated with the daily tacrolimus dose and concentration-to-dose ratio.

**Results:** The frequency of the homozygous CYP3A5*1 genotype (CYP3A5*3/*3) was 9.75%, and 90.25% of subjects were heterozygous (CYP3A5*1/*3). The mean doses required to obtain the targeted concentration-to-dose ratio were significantly lower in patients with the CYP3A5*3/*3 genotype.

**Conclusions:** Determination of CYP3A5 genotype is predictive of the dose of tacrolimus in renal transplant recipients and may help to determine the initial daily dose needed by individual patients for adequate immunosuppression without excess nephrotoxicity.

**P85**

**THYMOGLOBULIN USE FOR KIDNEY TRANSPLANTATION IN SOUTH KOREA (SINGLE CENTER EXPERIENCE)**

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**Introduction:** The rabbit antithymocyte globulin (Thymoglobulin®) first became available over 25 years ago and is the most widely used lymphocyte depleting preparation in solid organ transplantation. But clinical data as the induction agent for kidney transplantation were few in our country until now.

**Materials and Methods:** Twenty two of high risk patients for kidney transplantation have received thymoglobulin induction therapy for kidney transplantation in our center from 2009 to 2013. The informations were collected regarding total thymoglobulin dose, recipients’ panel reactive antibody, immunsuppression, viral infection, acute rejection, and adverse events.

**Results:** Mean age of kidney transplant recipients were 48.2 ± 10.0 years old and HLA mismatch were 4.14 ± 1.28. Mean cumulative dose of thymoglobulin was 4.14 ± 1.45 mg/kg and mean pre-transplant panel reactive antibody were 49.76 ± 32.76% in class I, 44.86 ± 39.85% in class II. Patient and graft survival were 86.36 % and 95.45 % at 12 months. Incidence of cytomegalovirus infection was 13.64 % at 12 months.

**Conclusions:** Thymoglobulin induction for renal transplantation is safe and associated with a low incidence of acute rejection and post-transplantation complications in Korean population.

**P86**

**GRAPEFRUIT JUICE AS A CAUSE OF IRREVERSIBLE GRAFT DYSFUNCTION IN A KIDNEY TRANSPLANT RECIPIENT TREATED WITH EVEROLIMUS**

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**Introduction:** We report a case of a 47-year-old man with a history of end stage renal disease secondary to diabetic nephropathy that underwent a cadaveric kidney transplant from a 65-year-old diabetic female donor.

**Case:** The patient received antithymocyte globulin as induction therapy and was discharged with a serum creatinine (Scr) of 1.6 mg% on a maintenance regimen of Tacrolimus (TAC), Mycophenolate Mofetil (MMF) and
prednisone. Two months post-transplant (MPT2), Scr increased to 2.4 mg%. First kidney graft biopsy (KGB1) revealed acute tubular injury with isometric vacuolization (TIV) suggestive of TAC nephrotoxicity on baseline chronic changes: 30% glomerulosclerosis, 15% interstitial fibrosis and tubular atrophy (IFTA) and mild to moderate arterial and hyaline arteriosclerosis. Viral and C4d stains were all negative. At MPT5, he was converted from TAC to Everolimus (EVR) 3 mg/day while maintaining the same MMF dose at 2g/day. At MPT6, he developed several extra-renal adverse effects prompting the gradual tapering of EVR and MMF to 1.5 mg and 1 g per day, respectively with stabilization of Scr at 1.6 mg%. At MPT 10, he developed bilateral ankles edema with tremor and slight increase in Scr prompting further reduction in EVR dosage to 1 mg / day following a KGB2 that showed similar findings with further increase in TIV to 50%. His Scr returned again to 1.6 mg%. By two years after transplantation, he started dieting following 20 kg of weight gain. The Scr rose to 2.2 mg % and reached 2.5mg% in the following 3 months. KGB3 revealed a doubling in IFTA to 30% without any evidence of glomerular or tubular micro-inflammation. The electron microscopy findings were consistent with mild glomerular and peri-tubular capillaries endothelial cell damage with focal effacement of the epithelial cell foot processes without lamellation. His viral and C4d stains as well as the panel reactive antibodies (PRA) were all negative. The EVR blood trough levels were always within therapeutic range (2.8 – 6.2 ng/ml). He admitted taking daily 2-3 glasses of natural grapefruit juice (GFJ) over the preceding 3 months.

Conclusions: The occurrence of graft dysfunction was associated with an unexplained doubling of IFTA. This irreversible deterioration in renal function occurred following the introduction of GFJ, potent inhibitor of both CYP3A4/5 and efflux permeability glycoprotein (P-gp) pump. Inhibition of P-gp has been recently shown in animal model to be associated with increased EVR intracellular drug concentration without any change in whole blood levels. Epithelial mesenchymal transition (EMT), a key mediator of IFTA in both experimental and human kidney disease models, has been recently established to be associated with EVR therapy in a renal cell model. Although the EMT was induced with high EVR dose, it may also occur however, at therapeutic dose in case of low expression of P-gp caused by either a genetic mutation or the ingestion of P-gp inhibitors such as drugs and/or food products like GFJ. To our knowledge, this is the 1st reported case of EVR-induced kidney injury in a kidney graft recipient following the introduction of GFJ for a significant period of time.

P87 EVALUATION OF GANCICLOVIR RESISTANCE IN CYTOMEGALOVIRUS INFECTION OF RENAL TRANSPLANT RECIPIENTS IN TEHRAN

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Introduction: Human cytomegalovirus (HCMV) infection is a major issue in solid organ transplant (SOT) recipients [1, 2]. Mutations within UL97 and UL54 gene encoding protein kinase and DNA polymerase, respectively, are the main causes of resistance [3, 4].

Materials and Methods: Our study focused on kidney transplant recipients with high quantity of CMV load after antiviral therapy. Our population study comprised 38% female and 62% male. DNA extraction from them was performed using QIAamp DNA Mini kit (Qiagen), in accordance with the manufacturer's instructions.

Results: For detection of DNA load in CMV patients, 58 specimens from kidney transplant recipients were tested by quantitative real-time PCR. Cytomegalovirus DNA was observed in 50 specimens (86%) with the range of 1.9× 103 to 11× 107 copy/ml serum. All of these patients had received GCV for more than three months. By applying sequencing method, the consequences showed 18 mutations in ten patients. Among these, 16 mutations were concerned to UL97, and the rest to UL54 genes. Forty CMV-positive patients did not reveal any mutation in our study.

Conclusions: As a result, the consequences of long-term GCV resistance were not attainable.
Introduction: There are controversial reports about the role of anti-thymocyte globulin (ATG-F) induction therapy in early and late functionality and performance of kidney transplant. In this study, we aimed to evaluate the two groups of kidney transplants (ATG-F recipient and ATG-F non-recipient) and assess the effects of ATG-F on the functionality and graft rejection in these two groups.

Materials and Methods: In this study, 265 patients who had kidney transplant and received ATG-F (9 mg/kg, single dose) during period 2010-2012 were enrolled as case group. Our control group were selected retrospectively, and consisted of patients who did not receive ATG-F and had complete follow-up for 3 months. Complete blood count and CMV screening had been performed monthly for 3 months. The data of two groups were compared for occurrence of CMV infection, thrombocytopenia, leukopenia and frequency of early and delayed graft rejection.

Results: No significant differences in age and sex were found between two groups (P>0.05). Mean hemoglobin level was 9.8±2 g/dL in case and 9.5±1.9 g/dL in control group (P>0.05). Mean white blood cell count was 10±4.5 ×10^3/µL in ATG-F group and 9.9±4.7 ×10^3/µL in control group (P>0.05). Mean platelet count was 220.1±67.7 ×10^3/µL and 214.1±97.4 ×10^3/µL in the case and control groups respectively (P>0.05). In ATG-F group, 12.5% had early graft failure and 16.7% had delayed graft failure. In contrast 14.2% and 7.6% of individuals of control group suffered from early and delayed graft rejection respectively (P<0.001). Frequency of CMV infection in ATG-F group was significantly lower than control group (P<0.001). Although only ATG-F received patients had ganciclovir prophylaxis.

Conclusions: Considering the lower rate of early and late rejection in ATG-F received patients, it is recommended to use high dose ATG-F as induction therapy in our center. This form of induction therapy is a part of standard care in many transplantation centers in order to reduce the risk of early and late graft failure.

EVALUATION OF PATIENTS WITH ANTIBODY MEDIATED REJECTION AFTER RENAL TRANSPLANTATION

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Introduction: Antibody mediated rejection (AMR) is a major cause of graft loss after renal transplantation. The aim of our study is to retrospectively analyze clinical characteristics and the outcome of the renal transplant recipients who experienced antibody mediated rejection.

Materials and Methods: The renal transplant recipients who were transplanted in two different transplantation centers between January 2008 and December 2012 were retrospectively analyzed. Patients who had at least one episode of biopsy proven AMR were included. The demographic and clinical characteristics of the patients were reviewed retrospectively from the medical records.

Results: Thirty five patients were enrolled. Mean age at the time of the transplantation was 42.9 ± 11.7 years. Nearly half of the patients were women (54.3 %). Duration of dialysis before transplantation was 55.8 ± 59.1 months. Twelve patients underwent living related donor transplantation. Among 17 living unrelated donors, eleven was husband, one was son and one was father-in-law of the recipient. Nearly half of the patients (51.6 %) had history of blood transfusion. All except one living related donors were one haplotype identical. The mean number of HLA mismatch was 4.6 ± 0.8 among patients who were transplanted from living unrelated and deceased donors. CDC-xM of all patients was negative and eleven patients had PRA ≥ 50 % before transplantation. All patients received induction therapy either with anti-thymocyte globulin (n=31) or basiliximab (n=4). Maintenance immunosupression consisted of CNI, MMF and corticosteroid. The duration between the transplantation and diagnosis of AMR was 262.5 ± 511.9 days. The mean level of serum creatinine at the time of the diagnosis was increased to 2.9 ± 1.46 mg/dl from baseline creatinine level of 1.53 ± 0.58 mg/dl. The mean level of interstitial infiltration, tubulitis, microvascular injury (sum of glomerulitis and peritubular capillaritis) and vasculitis was 1.8 ± 0.9, 1.8 ± 1.1, 3.0 ± 1.4 and 0.5 ± 0.7, respectively. C4d
scoring was found to be $2.5 \pm 0.8$. The treatment of AMR was pulse methyl prednisolone in 28, anti-thymocyte globulin in 20, intravenous immunoglobulin in 28, rituximab in 1 and plasmapheresis/immunoadsorption in 21 patients. The percent of the patients who responded to treatment was 75%. Graft loss occurred within six months after the diagnosis of AMR among three patients who did not respond to treatment. Two patients who responded to treatment lost their graft 17.3 and 29.3 months after transplantation. One patient who initially responded to treatment died 2.9 months after transplantation. Mean follow-up time after the transplantation was $32.7 \pm 18.1$ months. At last follow-up, level of serum creatinine and proteinuria was $1.55 \pm 1.02$ mg/dl and $0.71 \pm 1.03$ gm/day. The three-year graft and patient survival rates were 80% and 97.1%, respectively.

**Conclusions:** AMR is an important complication of renal transplantation. Although AMR cause graft loss and functional impairment, response to treatment may be obtained in majority of the patients with early diagnoses and aggressive combination treatment.

**P90**

**CRESCENTIC GLOMERULONEPHRITIS (GN) DE NOVO AFTER RENAL TRANSPLANTATION (RT): A CASE REPORT**

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**Introduction:** In rare cases of kidney transplant recipients, whose initial nephropathy was not glomerular could develop glomerular proteinuria or nephrotic syndrome, with a histological appearance often of membranous nephropathy. However, although rare, the extracapillary glomerulonephritis (de novo) is a possible complication after renal transplantation sometimes putting into question the nature of the initial nephropathy especially when the latter was unknown before the surgery.

**Case:** We report a case of de novo crescentic GN occurred in a transplanted kidney, we analyze through a literature review: A woman aged 28 years with a history of preeclampsia hospitalized in order to explore advanced renal failure due probably to glomerular nephropathy of indeterminate disease. The patient was supported by periodic hemodialysis for a year; then had a kidney transplant from a living related donor on 26/01/2011. During monitoring, it kept a stable graft function with a 120 mmol / L of creatinine and a proteinuria around 0.5g /day. Thirty months later, she was hospitalized for worsening graft function with 946μmol/l of creatinine and a history of stop immunosuppressive therapy for a period of 3 days a month ago. Clinical examination was unremarkable except a left axillary abscess and a tremor of the extremities. The graft was warm and painless. Laboratory tests found metabolic acidosis with renal impairment (creat up 1000μmol / l) with hematuria and significative proteinuria. Immunologic tests are positive for cANCA without any particular antigenic specificity. The graft biopsy found a crescentic GN with subacute tubulointerstitial lesions without rejection with negative immunofluorescence study including C4d. The patient received 3 Solumedrol pulses followed by oral treatment (1mg/Kg/d). There were no extra-renal locations and the outcome was poor with starting up of the dialysis.

**Discussion:** Abnormalities of the urinary sediment (hematuria, proteinuria) are good indicators for the diagnosis of GN (recurrence or de novo) on the transplant. Cases reported in the literature of crescentic GN on renal graft usually correspond to a relapse of the initial nephropathy despite immunosuppression. Their treatment and prognosis are identical to those of native kidneys. In RT, relapsed ANCA vasculitis may occur frequently in transplant patients. Overall, graft survival is excellent and comparable to transplantation for other causes of ESRD. Relapse rates vary, but may be lower due to the use of modern immunosuppression with several emerging options potential treatment of relapse.

**Conclusions:** Our case confirms the following points: firstly, the possibility of occurrence of a de novo crescentic GN type III with positive ANCA after renal transplantation (which should challenge the etiology of primary renal disease); secondly, the pathogenic mechanism may involve the appearance of antibodies and installation of a de novo GN - otherwise, the prognosis is not as favorable as during a relapse.

**P91**

**HEPCIDIN AND L-CARNITINE AS MARKERS OF INFLAMATION IN CHILDREN WITH CHRONIC KIDNEY DISEASE**

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**Introduction:** The majority of studies on anemia, inflammation, and disturbances of iron metabolism have focused on patients in end-stage renal failure. This study aim was to investigate the relation between Carnitine and Hepcidin levels among the patients of hemodialysis, and iron metabolism in them.

**Materials and Methods:** Thirty children with ESRD undergoing HD, at the hemodialysis unit and thirty healthy, age-matched and sex-matched children were serve as controls. Serum levels of iron, ferritin and total binding capacity (TIBC), hemoglobin, albumin (ALB). Total L-
Carnitine (LC), hs CRP and hepcidin were measured. **Results:** Abnormal serum inflammatory changes iron status, LC, were exhibited in HD children compared with healthy controls, Pearson’s correlation revealed a significant inverse correlation between serum albumin and ferritin, hepcidin levels. Also a negative correlation found between LC and ferritin. A multivariate regression analysis also demonstrated a positive correlation between inflammatory risk (high-sensitivity C-reactive protein >3 mg/l) and hepcidin levels. Also a positive correlation between LC and iron was seen. **Conclusions:** In patients under peritoneal dialysis, oral L-carnitine can increase serum albumin level and prevent CRP rising, beneficial effects of L-carnitine on anemia and, its supplementation is recommended for these patients. Malnutrition-inflammation complex is an incremental predictor in hemodialysis patients. Further studies are needed to assess whether modulating inflammatory or nutritional processes can improve anemia management.

**P92**

**ANEMIA AFTER RENAL TRANSPLANTATION: IMPACT ON PATIENT AND GRAFT SURVIVAL**

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**Introduction:** Anemia, a common complication after kidney transplantation, has a controversial impact on graft and patient survivals. To examine further the clinical impact of post transplantation anemia (PTA) on renal transplant patients, we designed the following retrospective study with the aims to evaluate incidence of PTA after 3 months and its association with patient survival and graft.

**Materials and Methods:** A total of 97 patients who underwent kidney transplantation at our center from November 2007 through November 2012 were retrospectively analyzed. Post transplantation anemia (PTA) was defined as mean hemoglobin <11 g/dl 3 months after transplantation. Data on demographics, pretransplantation dialysis, previous transplant history, degree of HLA mismatch, and donor characteristics were collected. Some of the posttransplantation data that were collected in addition to the hemoglobin included delayed graft function; diabetes; hypertension; induction and maintenance of immunosuppressive regimens; post transplantation infections. Cox regression models were used to assess the effects of PTA anemia on each outcome: Mortality and graft survival.

**Results:** Median follow-up time was 3 years. Three months after transplantation, the mean hemoglobin was of 12.3 g/dl (7.1 to 16.5 g/dl). Of the 97 patients, 24.7 % were found to be anemic after transplantation. During the entire follow-up period, there were 4 (4.1%) deaths and 7 (7.2 %) kidney losses. In multivariate Cox regression models, being anemic after transplantation, after the first 3 months, was associated with increased overall mortality and increased renal allograft loss.

**Conclusions:** This study shows that posttransplantation anemia is associated with worse patient and graft survival when compared with non anemic renal transplant recipients.

**P93**

**BONE LOSS IS ASSOCIATED WITH GRAFT DYSFUNCTION AT THE TIME OF FIRST YEAR OF KIDNEY TRANSPLANTATION: A CROSS-SECTIONAL STUDY**

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**Introduction:** Metabolic bone disorder develops during chronic renal failure, continues after renal transplantation (RT), and is further aggravated by immunosuppressive treatments. The most critical period for bone loss is the first 12 months of post-transplant period. However the long term course of bone mineral density (BMD) after transplantation has not clearly defined. We perfomed a study to determine the effects of graft function, immunosuppressive treatments and biochemical parameters on BMD in the second year of RT.

**Materials and Methods:** One hundred and fifty RT recipients with a minimum 24 months post-RT follow-up were enrolled into the study. Frequency of patient groups in the first and second year were as follows: Osteoporosis: 62.7% vs 82.7%; osteopenia: 33.3% vs 15.3% and normal: 4% vs 2%, respectively. Patients were divided into three groups according to their lowest mean DEXA t-scores as osteoporosis, osteopenia and normal in the second year. Parathyriod hormone (PTH), glomeruler filtration rate (GFR), 24 hour urinary protein loss and BMD (by dual-energy x-ray absorptiometry(DEXA)) were measured in 12-24 months after transplantation.

**Results:** The median GFR of osteoporotic patients was lower (p<0.04) and PTH and proteinuria levels were significantly higher in the second year of RT (p<0.02). Mean daily prednisone dosage was significantly higher in the first post-RT year compared to second year (12 ± 4.1 vs 4.7 ±3.4 mg/day). Other drugs including daily dosage...
of cyclosporine and sirolimus did not show significant difference both in the first and second year of post-transplant period. Correlation analysis revealed that GFR was negatively correlated with PTH (r: -0.03, p=0.029), 24 hour urinary protein loss (r=-0.26, p=0.01) and positively correlated with t-scores (r: -0.04, p=0.02) in the second post-RT period.

Conclusions: We suggest that low BMD of RT recipients at the time of first year of transplantation is further strongly reduced with the loss of graft function. The rapid loss of BMD emphasizes the need for prevention started in the early post-transplant period.

**P94**

**SAGITTAL ABDOMINAL DIAMETER AS THE ANTHROPOMETRIC MEASURE OF CARDIOVASCULAR AND GRAFT LOSS RISK IN RENAL TRANSPLANT RECIPIENTS**

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**Introduction:** Cardiovascular disease is the most common cause of death in renal transplant recipients. Arterial stiffness plays an important role in cardiovascular diseases and is an independent predictor for cardiovascular mortality in renal transplant recipients. Studies have demonstrated sagittal abdominal diameter (SAD) presented stronger prognostic value for all-cause and cardiovascular mortality in the general population. The aim of this study is to evaluate the association between the arterial stiffness and novel anthropometric indices in renal transplant recipients.

**Materials and Methods:** One hundred eighty one renal transplant recipients from our renal transplant outpatient clinic were enrolled into the study. All patients were evaluated for their standard clinical (age, gender, duration of hemodialysis, post-transplant time), biochemical parameters. Anthropometric measurements (waist and hip circumference, abdominal sagittal diameter) were performed for all patients. PWv was determined from pressure tracing over carotid and femoral arteries using the SphygmoCor system. We calculated the estimated GFR (eGFR) using the MDRD4 equation.

**Results:** Patients were divided into two group according to SAD measurements. Group 1 (n=127) was defined as the patients SAD ≤ 24.3 cm and group 2 (n=54) was defined as the patients SAD ≥ 24.3 cm. Patients in group 2 had significantly higher triglyceride, C-reactive protein, uric acid, systolic blood pressure, PWv and body mass index measurements compared to Group 1 (p<0.05 for all). In group 2 eGFR was significantly lower than group 1 (p<0.022). SAD had positive correlation with PWv; Systolic and diastolic blood pressure, body mass index, triglyceride, fasting glucose, C-reactive protein and uric acid (p<0.05 for all).

**Conclusions:** We showed both SAD was significantly associated with several components of metabolic syndrome, inflammation and arterial stiffness as well as graft loss. Considering the significant association of visceral fat with inflammation and cardiovascular disease, estimating visceral fat by SAD could be a useful tool to stratify cardiovascular risk as well as graft function in renal transplant recipients.

**P95**

**HYPERVERISCOSITY IN RENAL TRANSPLANTATION RECIPIENTS**

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**Introduction:** The resistance of blood against blood flow is called plasma viscosity. Elevated plasma viscosity results in greater flow resistance, and a high incidence of circulatory complications. Increased blood and plasma viscosity has been described in patients with coronary and peripheral arterial disease. In this study, we evaluated the influence of clinical and laboratory findings on plasma viscosity in renal transplant recipients.

**Materials and Methods:** Eighty one kidney transplant recipients (27 female, 37.8±11.3 years, 50.38±16.8 months post-transplantation period) with normal graft functions were enrolled. The biochemical and clinical parameters in the first year of post-transplantation period were retrospectively recorded and graft function is evaluated with the yearly decline in eGFR. Plasma viscosity was measured at 37°C in a Brookfield DV-II + Clone Plate Viscometer [Brookfield, Stoughton, MA, USA] and searched for the association with cross-sectionally analyzed cardiovascular parameters including body composition analyses (Tanita BC-420MA), ambulatory blood pressure monitoring data (ABPM), pulse wave velocity (PWv) (SphygmoCor system), eGFR was calculated according to MDRD formula.

**Results:** Patients were divided into two groups according to the median value of serum viscosity level. Patients with high viscosity had higher serum LDL (p=0.042) and CRP (p=0.046) levels than lower viscosity group. In ABPM overall (p=0.048), day-time (p=.047) and office systolic BP (p=0.046) levels and left ventricular mass index (p=0.012) were significantly higher in patients with hyperviscosity than patients with low viscosity levels. Patients with high viscosity had higher hip
circumference (p=.038) and fat mass (p=.048) than patients with low viscosity levels. Patients with highest serum Hb levels (Hb>16 g/dL, n= 8) had significantly higher serum viscosity levels (p=.0001) than patients with lower Hb levels. eGFR decline was significantly higher (91.39 to 77.31 ml/min/1.73 m², p=.0001) in hyperviscous patients than patients with low viscosity levels (11.3% vs 15.4%) at two years follow-up.

Conclusions: We suggest that the hyperviscous state of the renal transplant recipients may arise from the inflammatory state, hypertension, and increased fat mass and increased LVMI of patients. Hyperviscosity is also closely related with renal allograft dysfunction.

P96
IMPACT OF HCV ON THE DEVELOPMENT OF DIABETES MELLITUS IN EGYPTIAN LIVE-DONOR RENAL ALLO TRANSPLANT RECIPIENTS AT MANSOURA UROLOGY AND NEPHROLOGY CENTER

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Introduction: Post-transplant diabetes mellitus is a common complication in renal allograft recipients. Recently, a high prevalence of DM has been reported among patients with chronic hepatitis C virus. The association between hepatitis C and DM appears to be fairly well demonstrated in the general population, although some controversy still exist. This work aimed to study the impact of HCV on the development of diabetes mellitus among Egyptian live-donor renal allo-transplant recipients.

Materials and Methods: This retrospective single Centre study included 979 kidney transplant recipients who were transplanted at Mansoura urology & nephrology Centre between 2000& 2010 from which 66 patients were excluded, the remaining 913 patients divided into four groups according to HCV serology and diabetic status.

Results: Pre-transplant dialysis duration and number of blood transfusion units were statistically significant among both viremic and non viremic groups. As regard induction therapy, a highly statistical significance was found between the four groups regarding presence& type of adjuvant therapy (p-value <0.001). As regard maintenance immunosuppression, High statistically significant results were found regarding steroid and rapamycin between four groups (p value <0.001) with lower significance regarding MMF (p-value 0.04) but no significance regarding azathioprine, cyclosporine or tacrolimus therapy. As regard NODAT, incidence was statistically higher in viremic versus non viremic group (P < 0.001).

Conclusions: There is a positive correlation between incidence of NODAT and HCV.

P97
APELIN, IN POST TRANSPLANT DIABETIC KIDNEY ALLOGRAFT RECIPIENTS

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Introduction: Apelin, a cytokine mainly secreted by adipocytes and a variety of tissues, including gastrointestinal tract, adipose, brain, kidney, liver, lung and various sites within the cardiovascular system. Apelin is closely related to glucose metabolism and was proposed to be a promising therapeutic agent for treating insulin resistance. Apelin and orphaned G-protein – coupled apelin (APJ) exhibit roles in the regulation of fluid homeostasis. Circulating serum apelin suppresses insulin secretion by binding to the APJ receptor on B cells of islets of Langerhans. Several studies have also documented the altered level of serum apelin in type 2 diabetic patients, but the results remain controversial. The purpose of this study was to analyze apelin levels in Neo onset diabetes after transplantation.

Materials and Methods: Forty seven diabetic renal transplant (NODAT) recipients were compared to forty non diabetic renal transplant recipients and 20 non diabetic donors regarding positive family history of diabetes, body weight, BMI, blood pressure, blood chemistry, including apelin level. Logistic multiple analysis were made for statistically significant data on univariate analysis.

Results: Apelin levels were significantly higher among obese, hypercholesterolemia NODAT , 419.25 ± 196.04, 310.1 ± 142.02, 608.3 ± 248.33 (p>0.001).

Conclusions: Apelin a small peptide present in a number of tissues emerged as a new player in energy metabolism and insulin resistance especially in NODAT.

P98
OUTCOME OF KIDNEY TRANSPLANTATION IN BAHRAIN

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Introduction: Renal transplantation is considered the optimal form of renal replacement therapy for patients with end stage renal disease. Kidney transplantation was started in Bahrain in 1995 at our unit.
Materials and Methods: Between June 1995 and December 2013, 125 renal transplants in 124 patients were performed at our unit. There were 115 living related donor and 20 deceased donor transplants (DD), including 81 male and 44 female patients. Most of the recipients were Bahraini (94.1%) and 116 (92.8%) of them received their first graft. Diabetic nephropathy was responsible for 22.4% of end-stage kidney disease. Their age ranged from 3 to 66 years and the follow up period was 1 to 216 months postoperatively.

Results: Dialysis before transplantation was done in 85.4% of patients. All patients received triple drug immunosuppression and induction therapy with basiliximab. There were a total of 22 (17.7%) episodes of acute rejection diagnosed clinically and/or by graft biopsy. Most of the rejection episodes occurred within the first month post-transplantation. Seven (5.6%) grafts had primary non-function due to acute tubular necrosis (ATN), and all of them were from DD. There were 15 episodes of severe infection. Seven patients died from their infection including three due to severe respiratory tract infection. Three patients developed cytomegalovirus infection which was diagnosed on clinical and serological grounds. Three patients developed malignancy (one lymphoma, one Kaposi sarcoma and one brain tumor). There were 3 surgical and urological complications encountered in our patients. At the last follow-up visit, there are 86 patients (68.8%) have good graft function. Thirty-eight patients lost their graft, 16 of them due to death with functioning grafts. The commonest cause of graft loss was chronic rejection.

Conclusions: The overall results in our center are comparable to those published from other centers in the Arab World. Our main challenge is shortage of kidney donors.

P100
A FATAL OUTCOME AFTER RENAL TRANSPLANTATION IN A PEDIATRIC PATIENT WITH NOONAN SYNDROME

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Introduction: Noonan syndrome is a congenital, relatively common, genetically heterogeneous disorder and characterized by facial dysmorphism, short stature and a wide spectrum of heart defects. In patients with minor cardiac pathology, life expectancy is normal.

Case: A 4 year-old boy with Noonan syndrome had a kidney transplantation from his mother because of end stage renal disease due to bilateral vesico-ureteral reflux. The patient had hypertension, low grade cardiomyopathy and peritoneal dialysis previously. After uneventful transplantation surgery patient was extubated and moved to the postanesthesia care unit. Fourteen hours after surgery patient had generalized tonic clonic seizure due to hypertension and hyponatremia. Patients’ serum sodium level was 119 mg/mL and magnetic resonance imaging revealed no pathology except for diffuse

P99
SIROLIMUS ON BK NEPHROPATHY AFTER KIDNEY TRANSPLANTATION

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Introduction: BK virus-associated allograft nephropathy (BKVN) is one of the important complications of kidney transplantation (KT) that leads to graft dysfunction and loss. There is no established anti-viral drug for BKVN, and the reduction of immunosuppression has been used currently as a therapy to control BKVN. Recent studies have reported that sirolimus, mammalian target of rapamycin (mTOR) inhibitor may control BK virus replication. We report the outcome of sirolimus-based treatment on BKVAN in a single center.

Materials and Methods: Between September 2007 and December 2011, 534 patients received KT at our center. BK viral load monitoring was monitored with urine and blood BK virus PCR per our BK virus monitoring protocol. We reviewed medical records including biopsy and BK virus PCR in the patients, who were treated with sirolimus-based immunosuppression (IS) change. BKVAN were proven by needle biopsy.

Results: In 15 among 534 patients BKVAN were proven by needle biopsy at a median of 5 months post transplantation. In 9 recipients, their calcineurin inhibitor-based IS was changed into sirolimus-based therapy. Follow-up duration sirolimus-based therapy was a median of 18.8 months. In all 9 patients BK viral load in blood decreased as with sirolimus-based IS. Six patients showed viral clearance in BK viral load PCR in blood at post-treatment 12 month. During the follow-up post-sirolimus treatment, 1 patient had biopsy-proven acute cellular rejection and received steroid pulse therapy. Another one patient showed sustained hypercholesterolemia, tacrolimus-based IS resumed maintaining in low trough level. There was no graft failure due to BKVAN after the treatment of sirolimus-based IS.

Conclusions: In recipients with BKVN, sirolimus-based IS led to decrease in BK viral load in blood PCR and maintaining their graft functions. Long-term follow-up and controlled studies should be required for elucidating the effect of sirolimus on BKVAN.
cerebral edema. Following days MRI controls showed ischemic-hemorrhagic changes and his neurologic condition deteriorated progressively. In the subsequent course of the patient no neurologic improvement was observed and he died four months after transplantation according to secondary complications such as infection, pulmonary and intraabdominal hemorrhagic problems at the intensive care unit. In this period renal functions was not deteriorated and urine output was normal.

**Conclusions:** Here we report a mortal ending case of renal transplantation in a pediatric patient with Noonan syndrome. Our patient presented unexpected and refractory neurologic complications in the postoperative period which was irresponsible to intensive therapies and died because of secondary complications.

**P101**

NIACIN AMELIORATES KIDNEY ISCHEMIA AND REPERFUSION INJURY INDUCED IMPAIRMENT OF VENTRICULAR CONTRACTILITY, OXIDATIVE STRESS AND MITOCHONDRIAL DYSFUNCTION IN RATS

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**Introduction:** Kidney ischemia and reperfusion (I/R) injury frequently leads to cardiac dysfunction, while the associated myocardial oxidative injury often involves mitochondrial dysfunction and depletion of intracellular NAD⁺ (the oxidized form of the nicotinamide adenine dinucleotide coenzyme), leading to rapid reduction in intracellular ATP levels. We propose that treatment with niacin, an antioxidant and a component of NAD, during kidney I/R injury may improve mitochondrial energy metabolism and protect cardiac contractility.

**Materials and Methods:** Sprague-Dawley male rats were divided into three study groups: a sham-operated group, a kidney I/R group, and a group treated with niacin; niacin (100 mg/kg/d) was administered every 12 hours through gavage feeding, starting 3 days prior to the kidney ischemia through 4 days of reperfusion injury; an additional dose of 100 mg/kg was administered 30 min before ischemia. Kidney ischemia was conducted by bilateral occlusion of renal pedicles for 45 min, followed by releasing the clamps and closing the abdominal incision. Cardiac contractility was assessed after 4 day of reperfusion, by the slope of the end-systolic pressure volume relationship (ESPVR) generated through a series of left ventricular pressure-volume loops recorded using a high fidelity conductance-based pressure-volume catheter, during a brief compression of inferior vena cava at around diaphragm. Blood samples were collected at baseline following anesthesia via retro orbital puncture and also at the end of study, to assess serum markers of myocardial (troponin I; cTnI) and renal injury (BUN and creatinine). Urine was collected at baseline after laparotomy and also the end of study. At the end of study, the heart was removed and a section of LV free wall was used for assessments of protein levels of malondialdehyde (MDA) and PGC-1α, the expression of which regulates the mitochondrial metabolism.

**Results:** Kidney I/R injury reduced the cardiac contractility (ESPVR) as compared with the sham group (P < 0.05), along with increased serum cTnI and tissue MDA and decreased myocardial protein expression of PGC-1α, suggesting myocardial injury and associated increase in oxidative stress and reduction in myocardial mitochondrial metabolism. In contrast, niacin treatment improves ESPVR (P < 0.05) with increasing myocardial PGC-1α expression and reducing oxidative stress (P < 0.05).

**Conclusions:** Kidney I/R injury decreases ventricular contractility, and increasing myocardial oxidative stress while reducing mitochondrial function. Treatment with niacin effectively attenuates myocardial injury and ventricular contractility impairment and improves mitochondrial metabolism.

**P102**

LYCOPENE ATTENUATES OBSTRUCTIVE LUNG DISORDER INDUCED BY KIDNEY ISCHEMIA AND REPERFUSION IN RAT BY SUPPRESSING TOLL-LIKE RECEPTOR 4 EXPRESSION

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**Introduction:** Lung injury developments are frequently observed subsequent to kidney ischemia and reperfusion (I/R) injury, but the mechanisms responsible are unclear. Activation of Toll-like receptors (TLRs) has been implicated in remote organ injury induced by I/R injury visceral organs including kidney. In this study, we aim to investigate the protective efficacy of lycopene, a carotenoid pigment and phytochemical, against kidney I/R injury associated lung disorder, and its relationship with TLR4 expression.

**Materials and Methods:** Sprague-Dawley male rats were divided into three groups: a sham-operated group, a kidney I/R group, and a group treated with lycopene prior to the kidney ischemia and during reperfusion; lycopene (50 mg/kg/day) was orally treated twice daily, starting 3 days prior to renal ischemia through 3-day of reperfusion. Ischemia was
conducted by bilateral occlusion of renal pedicles for 45 min, followed by releasing the clamps and closing the abdominal incision. Lung function testing was conducted at the end of 3-day reperfusion, using a Buxco forced maneuver system. Blood samples, pulmonary bronchoalveolar lavage fluid (BALF) and lung tissues were collected at the end of study. Urine was collected after laparotomy prior to ischemia, and the end of study.

**Results:** Kidney I/R injury increased inspiratory resistance (RI) ($P<0.05$), functional residual capacity (FRC) ($P<0.05$) and moderately increased chord compliance ($C_{chord}$), while decreased maximum mid-expiratory flow (MMEF) ($P<0.05$) and vital capacity (VC) ($P<0.05$), indicating obstructive lung disorder. We also observed marked increases in neutrophils in BALF and degrees of hydroxyl radical production and lipid peroxidation as well as TLR4 protein expression in the lungs, assessed by tissue methylguanidine (MG) and malondialdehyde (MDA) and western blot analysis, respectively. In contrast, lycopene treatment notably ameliorated obstructive lung disorder with improved RI and MMEF, along with significant reduction in TLR4 protein expression and levels of MG and MDA in the lungs ($P < 0.05$).

**Conclusions:** Kidney I/R injury induces obstructive lung disorder, along with increases in TLR4 expression, pulmonary hydroxyl radical production and lipid peroxidation in the lungs. Lycopene treatment effectively attenuates obstructive lung disorder and lipid peroxidation, strongly associated with TLR4 suppression.

**P103**

**TUBERCULOUS LYMPHADENITIS IN A RENAL TRANSPLANT RECIPIENT: A CASE REPORT**

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**Introduction:** Tuberculosis (TB) is a serious complication in renal transplant recipients, especially in developing countries. TB lymphadenitis is among the most common extrapulmonary presentations. The TB incidence in kidney recipients patients is greater than the general population.

**Case report:** We present a 22 year-old man presented as a cervical and periauricular nontender swelling two mounts after kidney transplantation. After a few days, developed post auricular fistula. He had no other systemic symptoms such as fever or night sweats. There was no evidence of pulmonary involvement in chest radiography and mantoux test was negative. He underwent excisional biopsy of cervical tissue, and the diagnosis was made on the basis of histopathology and growth in culture of Ziehl-Neelsen. For treatment we begin two months of rifampicin, ethambutol, isoniazid, and pyrazinamide followed by nine months of isoniazid and rifampicin. Clinical response, termination of discharge and then shrinkage of the lesion, promptly followed of treatment.

**Conclusions:** Post-transplant TB is a major problem in kidney transplant recipients and is a life-threatening infection. In transplant patients, atypical presentation may delay diagnosis.

**P104**

**EXERCISE TEST IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS AND ITS RELATIONSHIP WITH THEIR CARDIAC FUNCTION**

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**Introduction:** Pediatric kidney transplant recipients are at increased risk of cardiovascular disease (CVD). Exercise test is a good method to evaluate exercise capacity, cardiorespiratory fitness, and risk of potential CVDs. The aim of this study was to assess the exercise capacity in this population and determine its relationship with their cardiac function using conventional and Tissue Doppler echocardiography.

**Materials and Methods:** Exercise test, conventional and Tissue Doppler echocardiography were performed on 44 kidney transplant children (age ranging 11 to 20, 59% male) with acceptable renal function and the results were compared with their normal healthy counterparts.

**Results:** Our transplant patients achieved significantly lower maximal heart rate, maximal HR ratio, total energy expenditure during the exercise and maximal O2 consumption (Max VO2) than the normal group ($p<0.05$). No correlation was found between hemoglobin (Hb) level, dialysis duration, kidney function and the exercise test parameters. Our transplant patients had preserved systolic function despite profound diastolic dysfunction. MaxVO2 did not correlate with systolic and diastolic heart function

**Conclusion:** Our pediatric renal transplant recipients had severely impaired cardiorespiratory fitness and diastolic dysfunction compared with their healthy counterparts. No correlation was found between MaxVO2 as the main parameter of cardiorespiratory fitness and cardiac function.
P105

PNEUMOCYSTIS JIROVECII (CARINII) PNEUMONIA (PCP) AND CYTOMEGALOVIRUS CO-INFECTION IN A RENAL TRANSPLANT RECIPIENT: A CASE REPORT

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Introduction: This infection usually occurs within a year after kidney transplantation. PCP rarely occurs after one year post transplantation. It seems to be a relationship between cytomegalovirus (CMV) infection in kidney transplant patients and an increased risk of PCP infection.

Materials and Methods: A 37-year-old patient with kidney transplantation about three years ago for diabetes mellitus. He was treated with Tacrolimus 6 mg/day – Cellcept 2 gr/day – Prednisone 5 mg/ day. He has developed non-productive cough, fever and dyspnea from one month ago. Physical examination reveal: temperature 38°C, in Chest auscultation: crackle. Serum creatinine didn’t increase and was about 1.8 mg/dl, CRP ++, O2 saturation: without oxygen: 83% and with oxygen: 90%, CMV-PCR: 324000. Chest –x ray and lung HRCT was done and showed: diffuse, bilateral, interstitial infiltrates and extensive ground glass opacities and cystic lesions. Bronchoalveolar lavage (BAL) fluid analysis performed on day 3, and confirmed the pneumocystis infection (fig.1).

Results: He was diagnosed with CMV and PCP co-infection. He was successfully treated with gancyclovir and oral trimethoprim-sulfamethoxazole. Seven days later, the patient was febrile and symptom resolved.

Conclusions: Many of studies have shown an relationship between CMV-infection in kidney transplant patients and an increased risk of PCP- infection. This is thought to be a result of the immunomodulatory effects of the cytomegalovirus infection.

P106

TREATMENT OF ORAL KAPOSI SARCOMA BY SIROLIMUS IN A CHILD WITH RENAL TRANSPLANTATION: CASE REPORT AND LITERATURE REVIEW

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Introduction: Kaposi Sarcoma is one of the most common neoplasia seen in patients after kidney transplantation. The mean occurrence time for malignant tumors after renal transplantation was reported as 61 months whereas for Kaposi’s sarcoma it was written as 20 months. The etiopathogenesis is poorly understood, mostly dependent on human herpesvirus type 8 (HHV-8) infection. In this study, we reported the occurrence of oral Kaposi’s sarcoma in a pediatric renal transplant patient on the 10th months after transplantation and complete regression of lesions with well functioning graft, via sirolimus therapy.

Case: A 13-year-old boy received a renal graft from a living unrelated donor. On the 10th months of transplantation, he admitted to hospital with a flat purple lesion of 17x11x3 mm in diameter on his left gum, presenting for 3 weeks. He also had a violaceous macular lesion on anterior one-third of the leg. The patient’s HIV antibody repeated twice was negative. The biopsy result of the lesion revealed the diagnosis of KS. Diagnosis of oral Kaposi sarcoma was made. The graft was functioning well and there was no systemic involvement. Cyclosporine A was stopped and sirolimus started. He has been on our follow up for a year without any recurrence and with well functioning graft.

Conclusions: In the presented case, we wanted to emphasize importance of the switch to sirolimus in the treatment of Kaposi Sarcoma seen in the early post transplant period.
PREVALENCE OF URINARY TRACT INFECTIONS IN KIDNEY TRANSPLANT PATIENTS BY EXTENDED-SPECTRUM BETA-LACTAMASE-PRODUCING BACTERIA

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Introduction: Urinary tract infection (UTI) is a most common complication after kidney transplantation which can impair graft function, potentially reducing graft and patient survival. It is a major cause of morbidity and mortality among transplant recipients. Multi-resistant extended-spectrum beta-lactamase producing bacteria (ESBL) have largely increased among the renal transplant recipients causing UTI. The aim of this study was to evaluate the frequency of ESBL-producing organisms and possible causative conditions of ESBL-related UTI among 117 kidney transplant recipients over the last 3 years.

Materials and Methods: We performed a retrospective study from January 1, 2011 to March 31, 2014 at a tertiary care teaching hospital in south west of Iran, Shiraz (Namazee hospital). Records of kidney transplant recipients with an admitting diagnosis of UTI and a positive culture for ESBL-producing bacteria in this period were reviewed. ESBL production was determined by the antibiotic susceptibility profile of urine cultures.

Results: We identified a total of 58 episodes of UTI among these 117 patients during this period. A total of 39 isolates were obtained (89% E. coli, 5% Klebsiella spp and 6% Acinetobacter spp) from 117 patients. 42% of patients were male and 58% were females, aged ≥ 58 years. 38% of isolated strains were susceptible to amoxicillin-clavulanate, 76% to fosfomycin and 21.5% to ciprofloxacin. The total number of ESBL E. coli positive urine cultures during hospital admission was 51 episodes. 18 of these patients had elevated creatinine values during the episodes of UTI and 6 of them developed bacteremia. Of the six patients, four of them had a favorable outcome except for two patients who developed persistent allograft dysfunction.

Conclusions: UTI due to ESBL-producing bacteria are a serious problem and identifying risk factors facilitates early detection and improved prognosis. Because of increasing antibiotic resistance rates and change in resistance patterns of ESBL-producing organism, guidelines for the management of UTIs must be revised. Early diagnosis along with appropriate and judicious use of antibiotics will ensure long term success in allograft and patient outcome.

INCIDENCE AND TYPES OF MALIGNANCY POST KIDNEY TRANSPLANTATION IN SAUDI ARABIA

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Introduction: Cancer development is a common cause of mortality post organ transplantation. Specific types of cancer are more common to occur because of immunosuppression and been mediated by viral pathogens. Incidence and types of cancers are not studied before in our region. We aimed to study the incidence and types of cancer post kidney transplantation in our region.

Materials and Methods: This is a bidirectional single center study of all kidney transplantation performed in a tertiary care center. All patient charts and electronic medical record were reviewed and patients were prospectively surveyed for cancer development. In addition, national cancer registry data were compared using national identification number to insure capturing all patients and to calculate normalized incidence ratio.

Results: Total of 2077 patients underwent kidney transplantation at this center from 1981 to end of 2013. Age range between 1.5-71 years, 61% were men and 432 patients were younger than 18 years. Induction with depleting agents was used in 45% of patients and with interleukin blocking agents in 19 % of patients. Viral hepatitis was prevalent in 29 % of patients, 6.5 with hepatitis B and 22.5% with hepatitis C infection. Average followup was 110.4 months and it ranges between 1-370 months post transplantation. 98 (4.7) patients developed cancer post transplantation, of these 16 were younger than 18 years old and 72 were adults. 42 % of these patients had diseases donor transplantation. Post transplantation lymphoproliferative disorder occurred in 30 patients, 16 of them were EBV mismatched pediatric patients, 53% were nodal disease and 10 were neurological. All PTLD were of B cell except one T cell derived. Kaposi sarcoma occurred in 17 patients, 2 of them had gastric involvement and the rest were skin limited disease. Hepatocellular carcinoma developed in 7 patients all of them had viral hepatitis. Skin basal and squemce cell carcinoma developed in 8 patients, no cases of melanoma were seen. Cervical cancer developed in 2 patients only, rest of cancers were solid organ cancers.

Conclusions: In conclusion we noted a low incidence of cancer in our region with 4.7% of patients developing cancer. PTLD and Kaposi sarcoma were commonest types of cancer. In comparison to international data, we noticed more hepatocellular carcinoma probably related to prevalence of viral hepatitis in this region and lower skin carcinoma.
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EVALUATION OF FREE WATER EXCRETION CAPACITY OF RENAL TRANSPLANT PATIENTS WITH CLEARANCE METHODS

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Introduction: Few studies have been done on free water excretion capacity of renal transplant recipients. This presentation is a study that was designed to evaluate free water output capacity of renal allografts using clearance methods; percent urine output and free water clearance (E-CH2O)

Materials and Methods: In this study, creatinine clearance, E-CH2O, and percent urine output in 3 hours were calculated after administering 20 mL/kg oral water loading with urine collection for 3 hours in 25 renal transplant recipients with good graft function (creatinine < 1.5 mg/dL) and 25 healthy controls. Creatinine clearance and E-CH2O were calculated according formulas: Creatinine clearance =V×Ucr/Pcr; E-CH2O =V×(1-UNa+UK/PNa). The Immunosuppressive protocol was uniform during the study period, namely, cyclosporine, prednisolone and mycophenolate mofetile. Statistical analysis was done using t-test, K-square and Pearson’s correlation test.

Results: The majority of grafts came from living donors (73%) whereas 27% of patients received a deceased donor. The mean ages of renal transplant patients and normal groups were 37.68±13.88 and 31.40±8.20 years, respectively. Forty one %of case group patients were men in contrast to 59% in control group respectively. Creatinine clearance, E-CH2O and percent urine output in 3 hours of recipients were lower than those healthy controls. There was no significant correlation between The E-CH2O and creatinine clearance in renal transplant recipients.

Conclusions: This study demonstrated that creatinine clearance, E-CH2O and percent urine output were decreased among renal transplant patients compared with controls. But there was no difference between two groups in respect to creatinine clearance. This indicates E-CH2O abnormality may be earlier than creatinine clearance decrement.

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HIGH RATE OF RESISTANCE TO ANTIBACTERIALS AMONG BACTERIAL ISOLATES FROM URINE IN HOSPITALIZED PATIENTS AFTER KIDNEY TRANSPLANTATION, SOUTHERN IRAN

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Introduction: Urinary tract infection (UTI) after kidney transplantation (KT) can influence the quality of life and survival rate of renal transplant (RT) recipients. Knowing leading cause of UTI and their antibacterial susceptibility patterns are essential in selecting an appropriate prophylactic regimen after KT and appropriate antimicrobials for empiric therapy. The aim of this study was to determine these variables among patients during hospitalization after KT in Nemazee Hospital, Shiraz, southern Iran.

Materials and Methods: In this retrospective study, we used electronic medical records data to assess the type and antibiotic resistance pattern of all bacterial isolates from urine cultures of patients over a 18-month period (March 2012- October 2013). According to our protocol, the urethral catheter is removed five days post KT. We use cefixime as prophylactic regimen before catheter removal and then start and continue trimethoprim-sulfamethoxazole for 6 months. During hospitalization, we send urine culture regularly. If repeated cultures revealed the same isolate in a patient, only we used one in data analysis. We compared risk factors for UTI in RT recipients with data of 152 randomly selected RT recipients without bacteriuria and compared the type and antibiotic resistance pattern of isolate from urine culture of RT recipients with data of 116 randomly selected non-transplant patients admitted with UTI in our center within the same period.

Results: There were 116 episodes of bacteriuria in 88 recipients during hospitalization after KT (17%). The mean age of patients with bacteriuria was 43.74 years (5-87) year and 50% female. Majority were received deceased donor graft (97.7%). The most common risk factors for UTI in RT recipients were hypertension, diabetes and renal stone (23.9%, 16.4% and 7.6%, respectively). Escherichia coli was the most common isolate in the RT and non-transplant patients (36.2% and 68.1%, respectively). Gram-positive (GP) bacteria was more common isolates in RT recipients than non-transplant patients were (29.3% and 12.9%, respectively; p<0.0001). Streptococcus species were the most common GP isolates (20.7% and 9.5% in the RT and non-transplant patients, respectively). The antibiotic sensitivity
rates of gram-negative isolates to ciprofloxacin were 27.5% and 29.2% in RT and non-transplant patients, respectively; to trimethoprim-sulfamethoxazole, 10.6% and 16.5%; to ceftriaxone 9.5% and 28.4%; to cefixime 4.5% and 22% and to gentamycin 49.3% and 54.1%. The antibiotic sensitivity rates of GP isolates to ciprofloxacin were 0% and 13.3% in RT and non-transplant patients, respectively; to trimethoprim-sulfamethoxazole, 6.1% and 14.3%; to ceftriaxone 0% and 26.7%; to cefixime 0% and 23.1% and to gentamycin 15.6% and 28.6%. In KT patients, the sensitivity rate of GP bacteria to vancomycin was 53.3%.

Conclusions: GP bacteria were more common uropathogen in RT recipients than non-transplant patients were. The resistance rates of isolates from urine culture was high to third-generation cephalosporins, fluoroquinolones and aminoglycosides, so none are appropriate for empirical therapy of UTI in RT recipients during hospitalization after transplantation in our center. Periodic evaluation of microbiological profile of UTI and re-assessment of the efficacy of antibiotic prophylaxis for prevention of UTI in RT recipients are necessary.

P111

A RARE CAUSE OF DELAYED GRAFT FUNCTION AND GRAFT LOSS: EXTRARENAL PSEUODANEURYSM

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Introduction: The purpose of this study is to emphasize that extrarenal pseudoaneurysm should also be considered as an etiology of delayed graft function or graft loss.

Case: The 28-year-old patient who had been on hemodialysis for 10 years underwent renal transplantation. The graft came from a 72 year old cadaver donor. During post-operative follow-up, the patient had urine output, but his serum creatinine level did not fall as expected. No pathology was detected on Doppler ultrasonography (USG). The patient who was followed up with the prediagnosis of delayed graft function had low urine output on postoperation day 36 followed by anuria. Thereupon, examination with computed tomography (CT) and kidney scintigraphy (DTPA) showed renal artery pseudoaneurysm and kidney graft with no perfusion respectively.

Conclusions: The patient underwent graft nephrectomy and primary aneurysm repair.

P112

DERMAL TOPHUS – A COMPLICATION OF GOUT IN A KIDNEY TRANSPLANT RECIPIENT

Hatice Ebru Ayvazoğlu Soy1, Emre Karakaya1, Arzu Karataş Toğral2, Aydınca Akdur1, Gökhan Moray1, Mehmet Haberal1
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Introduction: Clinical gout in renal transplant recipient is the consequence of increased hyperuricemia and subsequent urate deposition. In literature, the use of cyclosporine A has been reported as the cause of both hyperuricemia and gout. Cyclosporine usage leads to hyperuricemia via low urinary excretion of uric acid. In this study we report the case of a renal transplant recipient with dermal tophus.

Case: A 61 year old male patient, received kidney transplant in February 2002 from his cousin. The cause of renal failure was diabetes mellitus. He has been taking prednisone 4mg/day, cyclosporine 2mg/kg/day as immunsuppressive therapy. He did not come to his routine follow up. We hospitalised him to investigate increased creatinine levels, fatigue, nausea and dermal lesions on both hands, ear and elbow. Laboratory findings showed; creatinine 1.69 mg/dl (body weight 68kg), urea 32 mg/dl, uric acid 10.2 mg/dl. Punch biopsy is taken from the lesions on hand. Pathological examination confirmed the presence of monosodium urate crystals, compatible with a gout tophus. The patient is consulted to rheumatology department, 300mg allopurinol is added to his therapy. Cyclosporine is changed to 3mg/day sirolimus.

Conclusions: Hyperuricemia and gout are frequent complications in adult renal transplant recipients with reported revelances of 80% and 10%. Cyclosporine and tacrolimus play role in inducing hyperuricemia and gout. Clinical gout usually occurs several years after renal
transplantation and presentation might be atypical. In future, a greater number of renal transplant cases with unusual localisation of tophaceous gout will be diagnosed. The possibility of gout should be kept in mind during evaluation of these patients.

P113
PREVALENCE AND OUTCOME OF HERPES ZOSTER INFECTION IN RENAL TRANSPLANT RECIPIENTS

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Introduction: Varicella zoster virus (VZV) is an important pathogen after renal transplantation. The aim of this study is to assess the outcome of disseminated VZV infection in renal transplant recipients and to determine potential risk factors for mortality.

Materials and Methods: From January 2001 to January 2014, we performed 1614 renal transplantation at our institution. VZV infection was diagnosed in 41 patients (2.5%). Median time of diagnosis of VZV was 5 years after transplantation (range 3 month to 13 years).

Results: Thirty seven patients (90%) had dermatomal distribution of VZV, four patients (10%) had disseminated VZV infection. After diagnosis of VZV immunosuppressive therapy was reduced and patients received acyclovir. Cutaneous lesions were healed with scar in 7 cases (17%). Two patients (5%) developed post-herpetic neuralgia. Seventy percent of cases were diagnosed within 5 years, and 92% were diagnosed within 10 years after transplantation. Mortality due to VZV was 2% (n:1). Visceral involvement found to be a risk factor for mortality. Prophylactic acyclovir or gancyclovir therapy following transplantation reduced VZV infection. However, VZV seropositivity did not influence fatal outcome.

Conclusions: Early initiation of antiviral therapy may prevent development of complication and visceral dissemination of disease. Active immunization should be applied for all seronegative patients before organ transplantation.

P114
NODAT AFTER TRANSPLANTATION

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Introduction: The appearance of diabetes after transplantation is a serious complication. It causes increases of human and financial costs. The incidence reported in the literature is very variable. This is due to the various definitions of diabetes. The different immunosuppressive regimens on population that are genetically different may influence its occurrence. We have reported the experience of our center.

Materials and Methods: Our study concerns 183 patients with a first kidney transplant, followed by fasting plasma glucose (FPG). We excluded from this study, patients who were already diabetics before the transplantation and also the ones followed for a period of less than a year. We had then, a total of 132 included patients.

Results: We found that the incidence of hyperglycemia during the first 10 days of transplantation was about 61%. The incidence of hyperglycemia after the first month was 34%. The incidence of NODAT after a year is 4.4%. The decrease of the hyperglycemia frequency coinciding with the diminution of corticosteroids shows us well their major role in the glycemic imbalance after transplantation. On the contrary, the role of Tacrolimus became more evident after one year of transplantation.

Conclusions: Our study shows lower diabetes incidence than the reported results from literature. This could be explained by the use of lower doses of calcineurin inhibitors, or by replacing tacrolimus by neoral for patients with hyperglycemia.

P115
HYPERTENSION AFTER RENAL TRANSPLANTATION

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Introduction: Cardiovascular events are the leading cause of death after renal transplantations. Hypertension is one of the most prevalent cardiovascular risk factor in chronic kidney disease (CKD) and kidney transplants.

Materials and Methods: It is a retrospective and descriptive study including 100 patients transplanted between 2007 and 2011. The average duration on dialysis was 23 months; exclusion criteria were a following of less than 12 months,
a stenosis of the graft artery and an impaired graft function. We analyzed the demographic profile of our patients: age, sex and initial nephropathy and we checked the blood pressure profile of each patient before and after kidney transplant.

Results: The prevalence of hypertension is about 61% in our population. One third (1/3) of the population with hypertension had a normal blood pressure before transplantation. 47 % of normotensive patients before the transplantation have developed hypertension on post transplantation.

Conclusions: The persistence and the appearance of post-transplantation hypertension is common, however it seems to us that it is less severe than for patients with chronic renal failure. The cure of hypertension in transplanted patients may be due to the disappearance of the nephropathy or often to an unknown hypervolemia during dialysis.

P117
INVOLVEMENT OF NEURONAL PATHWAYS IN THE PROTECTIVE EFFECTS OF HIND LIMB PERCONDITIONING DURING RENAL ISCHEMIA

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Introduction: Remote ischemic per-conditioning (RPeC) is a therapeutic intervention that has been demonstrated to reduce renal ischemia injury in the experimental models. However, the underlying renal protective mechanisms remain unclear. We hypothesized that RPeC utilizes neural pathways to convey the protective signal from the perconditioned remote organ to the kidney.

Materials and Methods: Male rats were anaesthetized and subjected to 45 min renal ischemia followed by 24 hours reperfusion, at the end of which renal functional indices were measured. RPeC was induced by 4 cycles of 5 min left femoral artery occlusion interspersed with 5 min reperfusion just at the beginning of renal ischemia with or without femoral and sciatic nerve resection (neural pathway).

Results: RPeC resulted in improved renal functional indices when compared to control. However, femoral and sciatic nerve resection abolished the protective effect of RPeC in the kidney.

Conclusions: In conclusion, remote hind limb ischemic perconditioning reduced renal IRI in the rat in a manner which implicates a neural pathway.
VESICO-URETERAL REFUX AFTER RENAL TRANSPLANTATION: EXPERIENCE OF NEPHROLOGY DEPARTMENT OF SAHLOUL HOSPITAL

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Introduction: The vesico-ureteral reflux (VUR) is a rare urological complication after kidney transplantation. VUR in graft kidney could be secondary to the implantation technique. VUR may increase the risk of bladder stones, urinary tract infections, but the long-term consequences on the graft of VUR are still controversial. Some authors believe that VUR significantly reduced graft survival (urinary tract infections, reflux nephropathy). The aim of our study was to evaluate the incidence and risk factors of vesico-ureteral reflux after renal transplantation in our unity and its impact on graft survival.

Materials and Methods: It is a retrospective study which includes all kidney transplantation performed between 2007 and June 2013, all patients included must achieve at least 3 months of follow up.

Results: Among 110 renal transplant recipients, 11 patients (4 men, 7 women) had vesicoureteral reflux after renal transplantation (on the graft), the diagnosis is confirmed by a retrograde cystography (RC). The average age of patients was 31.5 years (max = 54, min = 7 years), with a sex ratio = 0.71 (5 men and 7 women). The cause of chronic renal failure was: chronic interstitial nephropathy is in 9 cases, 2 cases of focal segmental glomerulosclerosis (HSF) and one case undetermined nephropathy. The average time between renal transplantation and diagnosis of VUR is 6 months. VUR was complicated by recurrent urinary tract infections in all patients.

Conclusions: After transplantation, the vesicoureteral reflux is usually identified with the occurring of one or more episodes of urinary tract infections which can be associated with impaired renal function; the diagnosis is based on retrograde urethrocystography. In case of impairment renal function associated with infectious episodes, the treatment of reflux can improve or at least stabilize graft function. The vesicoureteral reflux after renal transplantation affects mostly women in our series. The vesicoureteral reflux on the transplanted kidney is a rare disease; it is the cause of recurrent urinary tract infections; these infections can be harmful to kidney function.

EFFECT OF REMOTE PERCONDITIONING ON THE HEPATIC ANTIOXIDANT SYSTEM OF RATS SUBJECTED TO RENAL ISCHEMIA AND REPERFUSION

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Introduction: Novel treatment strategies are required to reduce the development of hepatic injury during surgical procedure in which renal ischemia/reperfusion (IR) is inevitable. Remote perconditioning (rPeC) has been proved to reduce the extent of kidney damages induced by renal IR injury. The aim of this study was to determine the protective effect of rPeC against hepatic injury caused by renal ischemia.

Materials and Methods: Male rats were subjected to the right nephrectomy and randomized as: sham, no additional intervention; IR, 45-min of left renal pedicle occlusion; rPeC, four cycles of 5-min limb IR were administered at the beginning of renal ischemia. After 24 hours of reperfusion, blood samples were taken for the assay of hepatic functional indices, and hepatic tissue was processed for the evaluation of superoxide dismutase (SOD) activities and total glutathione (GSH) levels.

Results: A significant improvement in hepatic functional injury was observed in the treatment group which was indicated by reduced alanine transaminase (ALT) and Aspartate transaminase (AST) in the plasma of rPeC group compared with the IR group. It was accompanied by increased SOD activities and GSH levels in the liver of rPeC-treated animals compared with the IR group.

Conclusions: It is concluded that, rPeC exerts protective effects on renal IR-induced hepatic injury as a remote organ. The protection may be a consequence of intensification of antioxidant system in the liver. This simple approach may be a promising strategy against IR-induced remote organ damages in the clinical practice.
P120
SURGICAL COMPLICATIONS IN RENAL TRANSPLANTATION
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Sindh Institute of Urology and Transplantation, Civil Hospital, Karachi, Pakistan

Introduction: The incidence of urological complications after RENAL transplant ranges from 3 to 14%. The main objective of this study is to analyze the causes, donor and recipient specific risk factors and their impact on management of surgical complications after renal transplantation

Materials and Methods: It is a retrospective study of renal transplantation was done at SIUT between November 1985 and December 2010. All urological complications encountered were recorded. Ultrasonography, renal scintigraphy, antegrade pyelography, CT scan and MR angiography were the main diagnostic tools.

Results: 3150 patients were transplanted during this period. There were 508 (16.1%) episodes of complications. These were divided into complications related to Transplant bed 206 (6.54%), Urologic complications 178 (5.65%) and Vascular complications 124 (3.94%). Of 3150, 49 patients had lower urinary tract dysfunction. They had treatment (including reconstructive surgery) prior to transplant and they all fared well post transplant. All complications were treated either conservatively or surgically.

Conclusion: Many complications may occur after kidney transplant. Prompt diagnosis with high index of suspicion and a combination of endourological and open reconstructive techniques may play a major role in minimizing urological complications

P121
A CASE REPORT: IS RIGHT KIDNEY TRUE SIDE FOR RENAL DONOR WHO PREDICTS PREGNANCY?
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Departments of 1Obstetrics and Gynecology, and 2General Surgery, Kahramanmaras Sutcu Imam University School of Medicine, Kahramanmaras, Turkey

Introduction: A 23-year-old woman who become pregnant after 4 months from donation admitted to our emergency department with renal parenchyma damage during 39 weeks of her pregnancy.

Case: We present a case of a woman with a donated kidney and symptomatic hydronephrosis who failed conservative treatment and required emergency delivery because of the progressive increase in creatinine levels.

Conclusions: At this, she delivered with normal vaginal delivery.

P122
MINIMAL ACCESS TRANSPLANT IN OBESE PATIENTS
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Renal transplant Unit, University City Hospital of Belfast, Northern Ireland, UK

Introduction: Kidney transplant via a minimal incision is not new however this approach will fit well with obese patients whereas access is known to be difficult and associated with wound complications and prolonged recovery.

Materials and Methods: The technique comprises an inguinal incision 4-6 cm above the pubic bone and extends laterally to one-inch lateral to the mid inguinal point. Once the skin and subcutaneous tissues were opened, the external oblique will be split in the same direction of the wound. Split the oblique and transverse abdominal muscles at the lateral edge of the wound then separate the abdominal muscles from the lateral border of the rectus muscle. Inferior epigastric vessels tied and cut as well as the round ligament. Mobilizing the peritoneum upward and iliac vessels will be exposed. Dissect the space between urinary bladder and rectus muscle to create a pouch, which accommodate the kidney. Now, the renal vessels are clearly visible whilst the kidney itself is hidden in the sup-rectus pouch. Suitable retractors are essential. Start with arterial anastomosis. Clamps were released after testing arterial and venous anastomosis. Secure the haemostatis then the kidney will be either left in the pouch, rotated laterally or stay in the middle of the wound. Only close the external oblique muscle.

Results: This technique requires minimal assistance, smaller incision. An illustrative photo and diagram are included with the full demographic data of the patients.

Conclusions: On conclusion, engrafting kidneys in obese patients using this technique is feasible, safe with comparable outcome however more studies are needed.
**P123**

**DISTRIBUTION OF BACTERIAL INFECTIONS AND THE AGENTS IN RENAL TRANSPLANTATION CASES IN IZMIR TEPECİK TRAINING AND RESEARCH HOSPITAL**

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**Introduction:** Organ rejection has been decreased and patient and transplant survivals have been prolonged along with the use of newly developed strong immunosuppressant agents in patients who underwent solid organ transplantation. However, effective immunosuppressant agents enhance the incidence and severity of infections in these patients. Although infections may be observed at any time after organ transplantation, infections that develop usually 1-6 months after transplantation and are in the form of reactivation are typical for transplant infections. Moreover, hospital-acquired surgery-related infections may be observed particularly within the first month after transplantation. The present study investigated bacterial infections, infectious agents and resistance status in patients who underwent renal transplantation in Izmir Tepecik Training and Research Hospital.

**Materials and Methods:** The study was carried out in 2-year period between January 2012 and December 2013 in Izmir Tepecik Training and Research Hospital. Bacterial infections, microorganisms that cause these infections and resistance status in the cases that underwent renal transplantation were retrospectively investigated. Records of the cases were obtained from patient files, hospital automation system, and records of the infection control committee. Diagnosis of infection was made according to the definition of Centers for Disease Control and Prevention (CDC); bacterial identification and antibiotic susceptibility tests were done by conventional culture methods, VITEK-2 (bioMérieux, France) automatized bacteria identification method, Kirby-Bauer disc diffusion method, and E-test. Antibiotic susceptibility of the patients was assessed in accordance with Clinical and Laboratory Standards Institute (CLSI) criteria. Recurrent infections caused by the same agent were included in calculation for once.

**Results:** The study comprised a total of 54 renal transplantation cases with a mean age of 38 years, of which 23 (43%) were female. A total of 98 infection attacks were detected in 25 (46.2%) of the cases. The most common infections in the order of frequency were urinary tract infection (UTI) in 19 (76%) cases, blood circulation infection due to central venous catheter (CVC) in four (16%) cases, surgical area infection (SAI) in three (12%) cases, and pneumonia in one (4%) case. Seventeen (89.4%) of the UTIs were recurrent infections. The most common agent microorganisms for UTIs were Escherichia coli (E. coli) in 16 (84.2%) cases, Klebsiella pneumoniae (K. pneumoniae) in seven (36.8%) cases, Pseudomonas aeruginosa (P. aeruginosa) in four (21%) cases and Enterococcus spp. in three (18.7%) cases. Prevalence of broad spectrum beta lactamase (BSBL) for E. coli and K. pneumoniae isolated from UTI cases was 31.2% and 42.8% respectively. The most common agents determined in the cases with blood circulation infection due to central venous catheter were coagulase negative staphylococcus in two (50%) cases, methicillin-susceptible Staphylococcus aureus (MSSA) in one (25%) case and methicillin-resistant Staphylococcus aureus (MRSA) in one (25%) case. Microorganisms responsible for the infection of surgical area were Enterococcus spp., K. pneumoniae, and E. coli. The agent was E.coli in a single pneumonia case.

**Conclusions:** Bacterial infection occurs in approximately half of the cases that underwent renal transplantation and the infection shows recurrent characteristic. Usually hospital-acquired Gram negative bacteria are responsible for these infections. Eliminating existing physiological and anatomical problems and educating patients about hygiene might be effective in preventing recurrent UTIs.

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**P124**

**PORTAL VEIN THROMBOSIS**

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**Introduction:** Our objective was to evaluate 6 cases with portal vein thrombosis.

**Materials and Methods:** During last year we did 100 liver transplantations. 6 patients had portal vein thrombosis. Two had Grade 2 and 4 had Grade 4 thrombosis.

**Results:** In 3 we did thrombectomy, in 1 we used the collateral veins, in 1 case renoportal anastomosis and in the last case portal vein arterialization was done. Only one case died with liver failure.

**Conclusions:** Portal vein thrombosis is not a contraindication for liver transplantation.

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**P125**

**PROGRESSIVE MULTIFOCAL LEUCOENCEPHALOPATHY AFTER CONSECUTIVE THREE LIVER TRANSPLANTATIONS: CASE REPORT**

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**Introduction:** PML after solid organ transplantation especially after liver transplantation is a rare condition. If the


A patient has poor prognostic factors like atypical radiological factors or high virus burden in cerebrospinal fluid (CSF), overall survival rates could be poor. Here we report a case who received liver transplantation three times and developed PML with unexpected radiological findings. 

Case report: A 55-year-old male patient who suffered from oesophageal variceal bleeding was diagnosed as chronic liver failure due to hepatitis B. His MELD score was 19 at the beginning of administration. He underwent cadaveric liver transplantation. After the initial operation he received two more transplantations consecutively due to hepatic arterial thrombosis. The patient was discharged with prednisolone 5 mg/day, mycophenolate mofetil 1000 mg/day, and tacrolimus 4 mg/day for immunosuppression. The blood tacrolimus level of the patient was 9 ng/ml when he was discharged.

The initial neurological symptoms of the patient were focal weakness of his extremities and dysarthria for last two weeks when he administered for routinely control at the ninth month after liver transplantation. There were no meningeal signs and no cranial nerve defects. A cranial magnetic resonance imaging revealed asymmetric extensive hyperintense areas in the bilateral frontoparietal and occipital lobes predominantly involving periventricular and subcortical hemispheric white matter. Post contrast T1-weighted images showed no obvious contrast enhancement. There was mass effect with compression of the posterior horn of the lateral ventricle on the left side (Figures 1A–1E). Lumbar puncture was performed and cerebrospinal fluid was examined for infectious etiologies. Polymerase chain reaction was positive for polyoma JC virus (450000 copies/mL). Then the patient was diagnosed as multifocal progressive leukoencephalopathy due to JC virus. The total withdrawal of immunosuppressive therapy was obtained. But unfortunately, the motor functions of the patient worsened on the following days. Three weeks later, second MRI was obtained. The second MRI showed that the extension and character of the lesions and their mass effect did not change (Fig. 2a–e), however a new increased signal in the pons was seen bilaterally (Fig. 2e). We lost the patient due to respiratory failure five weeks after admission.

Conclusions: Liver transplant recipients who receive long term immunosuppression can develop PML due to reactivation of JCV. Certainly, all the liver recipients do not encounter the lytic infection of CNS caused by JCV. We need to know whether retransplantation or repetitive induction immunosuppression may cause this viral disease. If so, we should be aware after retransplantation of liver in order to prevent or minimize the poor clinical outcomes of PML.

Figure 1 (A–E):

Figure 2 (A–E):

Table 1. Characteristics of posttransplant headache in 37 patients

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency (%)</th>
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<tbody>
<tr>
<td>Timing of the first posttransplant headache episode</td>
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</tr>
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<td>Less than 1 month</td>
<td>10 (27)</td>
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<tr>
<td>1-6 months</td>
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<td>After 6 months</td>
<td>12 (32.4)</td>
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<tr>
<td>1-3 times a week</td>
<td>7 (18.9)</td>
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P126

HEADACHE FOLLOWING LIVER TRANSPLANTATION

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Introduction: Post transplant headache is a recognized complication of organ transplantation presenting primarily or as a worsened previous migraine. The purpose of this study is to determine the prevalence of headache in patients after liver transplantation and assess the effect of suspected associated factors on its prevalence.

Materials and Methods: A total of 100 patients underwent liver transplant between 2000 and 2011 were randomly selected by an independent computer consultant. A questionnaire was used to assess the patients' information retrospectively via both interview and chart review. The correlation between post transplant headache and associated factors including underlying condition contributing to transplant, immunosuppressive drugs, pre transplant MELD score & CHILD grade and post transplant elevated liver enzymes was then assessed by statistical analysis.

Results: 37 (37%) patients had experienced post transplant headache, among whom, it was newly formed in 20 (54.1%) patients. Patients with post transplant headache mostly had been confronted by episodes of headache when their liver enzymes were elevated (p=0.001). The relationship between other associated factors and post transplant headache was not statistically significant.

Conclusions: The elevated liver enzymes after transplantation seem to be an inducing or aggravating factor in patients who experience post transplant headache.

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Results: M mode echocardiographic parameters showed no changes in 2 dimensional evaluation left ventricle except Left ventricular posterior wall thickness in systole was 78mm±20.5, 93.4mm±24.7 and 68.3mm±18.6 in pre transplant, post transplant and normal group (p=0.04).

Conclusions: TDE parameters showed no statically significant changes have been occurred after transplant except early diastolic velocity (Ea) of intervetricular septum in pre, post transplant and normal group (14.7mm±3.2, 12.7mm±2.8, 12.5mm±3.2; p=0.03). The results of TDE showed that there were no improvement of ventricular function occurred 6 month after liver transplantation.

P128
LIVING DONOR LIVER TRANSPLANTATION FOR CLASSICAL MAPLE SYRUP URINE DISEASE: CASE REPORT
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Introduction: We report a pediatric Classical Maple Syrup Urine Disease (MSUD) patient whose Branched-chain ketoacid dehydrogenase (BCKDH) enzyme activity was 0 %. This patient was the first pediatric case in our country that underwent living donor liver transplantation. Here we represent early post transplant period of this patient.

Case: 28 month old male patient developed neurologic symptoms such as nausea, vomiting and drowsiness after birth. Branched-chain amino asid (BCAA) levels were found high after metabolic evaluation. Patient fed with special MSUD formulas because of entire body (muscle, liver, kidney etc) BCKDH activity was 0%. And after that especially the brain was preserved from acute and chronic metabolic intoxication. Physical development of patient became appropriate for liver transplantation so we performed liver transplantation from father to provide an estimated 9-13% of the BCKDH enzyme activity. Differences between BCAA values before and after transplantation are shown in table. Three months after transplantation MSUD formulas stopped and patient is fed entirely normally. Liver function tests are also normal. Irregularities observed in neurocognitive functions prior to transplant have disappeared completely at the post transplant period.

Conclusions: Despite special dietary and medical therapy in patients with MSUD, severe neurological symptoms and untimely deaths at the first decade of life may be seen. Liver transplantation provides sufficient BCKDH enzyme activity so it can be effective and permanent method for treatment of this disease. And also liver transplantation may stop possible brain damage in these patients.

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EVALUATION OF MYOCARDIAL FUNCTION BEFORE AND AFTER LIVER TRANSPLANTATION BY TISSUE DOPPLER IN CIRRHOTIC PEDIATRIC PATIENTS
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Objectives: The clinical evaluation of heart in cirrhotic patients is not very reliable so performing Tissue Doppler-Cirrhotic cardiomyopathy (TDE) in these patients seems to be a good indicator of cardiac dysfunction. TDE allows measurement of the cardiac regional function and both systolic and diastolic times. Therefore, the evaluation and comparison of TDE before and after liver transplantation in these patients could be promoting their health.

Materials and Methods: This is a case-control study which was done in 30 children before liver transplantation due to cirrhosis and the same 30 cirrhosis patients 6 month after liver transplantation and 30 normal children (control group). M-mode echocardiography, two dimensional, Doppler and TDE were done and compared with normal group.
Table: Pre and post transplant values of Branched-chain aminoasit levels.

<table>
<thead>
<tr>
<th>HPLC aa</th>
<th>N(umol/L)</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tr>
<td>Methionine</td>
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<td>27.9</td>
<td>15.9</td>
<td>17.1</td>
<td>20.1</td>
<td>8.7</td>
<td>9.6</td>
<td>6.0</td>
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<tr>
<td>Isoleucine</td>
<td>33-97</td>
<td>244</td>
<td>138</td>
<td>102</td>
<td>110</td>
<td>123</td>
<td>90</td>
<td>109</td>
<td>70</td>
<td>57</td>
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<tr>
<td>Leucine</td>
<td>65-179</td>
<td>1282</td>
<td>834</td>
<td>904</td>
<td>1109</td>
<td>158</td>
<td>110</td>
<td>164</td>
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<td>Tyrosine</td>
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<td>78</td>
<td>104</td>
<td>74</td>
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<td>Phenylalanine</td>
<td>38-86</td>
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<td>43</td>
<td>43</td>
<td>39</td>
<td>47</td>
<td>41</td>
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</tr>
</tbody>
</table>

HPCL aa: High Performance Liquid Chromatography amino acid

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THE PATTERN OF PRE-MICRORNA-196A-2 AND-146A GENE POLYMORPHISMS WITH OUTCOMES OF HCC IN LIVER TRANSPLANTED PATIENTS

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Introduction: Hepatocellular carcinoma (HCC) is one of the clinically complicate liver cancers, and patients with HCC need to receive liver transplant for effective therapy. On the other hand, discovery of the interference of microRNAs (miRNA) in hepatocellular carcinogenesis represents an important area of research for the development of clinical applications. Genetic polymorphisms of microRNA molecules may have role in the outcome of liver transplantation. Mutations in the open reading frames of microRNAs may have important effects in liver transplant patients. It has been suggested that the presence of single-nucleotide polymorphisms in precursor miRNAs (pre-miRNAs) can alter miRNA processing, expression, and/or binding to target mRNA and represent another type of genetic variability that can affect the clinical outcomes in transplant patients. Therefore, in this present study the pattern of miR-146a G>C and 196a-2 C>T gene polymorphisms was evaluated in liver transplantation in HCC patients.

Materials and Methods: In a cross sectional study, Tissue samples were collected from 100 HCC patients between years 1386-1392. The 60% of HCC patients underwent liver transplant surgery and 14(23.3%) of them experienced for acute rejection. The miR-146a G>C (rs2910164) and miR-196a-2 C>T (rs11614913) gene polymorphisms were evaluated in HCC disordered patients using an-in-house-PCR-RFLP method.

Results: Our data shows that the CC genotype and C allele of the miR-146a G>C (rs2910164) polymorphism is associated with increased risk of transplant rejection in HCC disordered liver transplant patients (OR=5.73, 95%CI: 0.88- 40.09, P= 0.04; OR= 2.45, 95%CI: 0.87- 6.89, P=0.05), respectively. In addition CC genotype and C allele of the miR-146a G>C (rs2910164) were significantly more frequent in male patients who experienced for acute rejection compared with non-rejected patients (OR= 5.33, 95%CI: 0.78- 39.66, P= 0.05; C: OR= 2.86, 95%CI: 0.94– 8.74, P= 0.03), respectively. But no genotypes and alleles of the miR-196a-2 C>T (rs11614913) polymorphism had not significant effect on the HCC outcomes in liver transplant recipients.

Conclusions: Based on these findings, the patients with CC genotype and C allele of the miR-146a G>C may be genetic susceptible factor for transplant rejection (especially in the male gender). It is obvious that further studies are required to validate our findings in a larger population, as well as in patients with different ethnic origins.

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THE ASSOCIATION BETWEEN FERRITIN DEFICIENCY IN PATIENTS WITH LIVER CIRRHOSIS BEFORE TRANSPLANTATION AND MORTALITY RATE AFTER LIVER TRANSPLANTATION

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Introduction: A concentrated investigation over recent studies suggests the correlation between serum ferritin (SF) levels in cirrhotic patients awaiting liver transplantation and mortality rate after transplantation. The purpose of this study was to investigate the association between pre-transplant serum ferritin levels in patients with liver cirrhosis and mortality rate after liver transplantation.

Materials and Methods: A cross sectional study was conducted between February 2013 and February 2014 among adult and pediatric patients who underwent liver transplantation at Shiraz Transplant Center. Serum ferritin level, demographic data and data regarding 6 months post transplant survival was collected using data gathering forms. Ferritin deficiency was described as serum ferritin level below mg/dL and mg/dL in adult and pediatric patients consecutively. Ferritin deficiency was compared between
those who survived and those who expired 6 months after liver transplantation.

**Results:** A total of 362 adult and pediatric patients underwent liver transplantation over the time period at Shiraz Transplant Center. There were 224 male (62 %) and 134 female (38 %). Of these patients, there were 333 liver transplants from deceased donor and 29 from living related donors. During first 6 months post liver transplant, 45 patients (12.4 %) expired due to different etiologies. Ferritin deficiency was observed in 35 (9.66 %) patients prior liver transplantation and 327 (90.33 %) patients had normal ferritin levels. Mean age of patients with ferritin deficiency was 33.43 ± 19.13 years and mean age of patients with normal serum ferritin level was 33.11 ± 19.2 years (P=0.497). Six months mortality was 40 (12.2 %) in those with normal serum ferritin and 5 (14.3%) in those with ferritin deficiency before transplantation. Although mortality rate was a bit higher among patients with ferritin deficiency as compared to those with normal serum ferritin, this difference was not statistically significant (P=0.446).

**Conclusions:** Our results showed that there is no association between ferritin deficiency in patients with liver cirrhosis before transplantation and 6 months mortality rate after transplantation. Preoperative serum ferritin concentration may not be a valid marker for prediction of mortality in liver transplant recipients.

**P131**

**THE ASSOCIATION BETWEEN THROMBOCYTOPENIA IN PATIENTS WITH LIVER CIRRHOSIS BEFORE TRANSPLANTATION AND MORTALITY RATE AFTER LIVER TRANSPLANTATION**

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**Introduction:** Thrombocytopenia as defined platelet count <150,000/microL is a common complication in patients with chronic liver disease. Multiple factors have been characterized to explain the possible causes of thrombocytopenia in chronic liver disease. Decreased production of platelets due to thrombopoietin deficiency, bone marrow suppression and administration of antiviral agents, in addition to increased splenic sequestration of platelets have been determined so far. It has been suggested that there is an association between low platelet counts prior to liver transplantation (LT) and increased mortality after transplantation. The aim of the study is to determine whether thrombocytopenia has any impact on survival after liver transplantation.

**Materials and Methods:** A single-center, cross-sectional study between February 2013 and February 2014 among adult and pediatric patients who underwent liver transplantation at Shiraz Transplant Center, . Platelet count, demographic data and data regarding 6 months post transplant survival was collected using data gathering forms. Thrombocytopenia was defined as total platelet count <150,000/microL. Thrombocytopenia was compared between those who survived and those who expired 6 months after liver transplantation.

**Results:** A total of 362 adult and pediatric patients underwent liver transplantation over the time period at Shiraz Transplant Center. There were 224 male (62 %) and 134 female (38 %). Of these patients, there were 333 liver transplants from deceased donor and 29 from living related donors. During first 6 months post liver transplant, 45 patients (12.4 %) expired due to different etiologies. Among the recipients, 211 patients (58.28 %) had thrombocytopenia before liver transplantation and 151 (41.71 %) had normal platelet counts (P>0.05). Mean age of liver recipients with normal platelet levels was 26.03 ± 18.2 years and those with low platelet counts was 38.3 ± 18.15 years (P=0.0001). Six months mortality was 27 (12.8%) versus 18 (11.9%) in recipients with thrombocytopenia and patients with normal platelet counts consecutively (P=0.468).

**Conclusions:** Thrombocytopenia is not an independent risk factor for mortality following LT.

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**EFFECTS OF DIFFERENT PEEP VALUES ON LIVER FUNCTION AND INDOCYANINE GREEN CLEARANCE TEST IN LIVER TRANSPLANTATION DONORS: A PROSPECTIVE, RANDOMISED, DOUBLE-BLIND STUDY**

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**Introduction:** The aim of this study is the determination of optimal PEEP and effect of PEEP values at different intraoperative period on liver function and liver function tests comparing to the ICG clearance test in donor patients.

**Materials and Methods:** After Ethics Committee approval and patient consent right hepatectomy was performed in 40 patients. In the operating room patients was monitored and basal hemodynamic values were recorded. BIS was used to assess depth of anesthesia. In all patients, anesthesia was standardized with lidocaine, fentanyl and thiopental. Anesthesia was maintained with isoflurane in 50/50
% oxygen-air mixture, an infusion of remifentanil and cisatracurium. Nondominant radial artery invasive arterial blood pressure monitoring was provided. Body temperature was monitored with an esophageal probe. Heater blankets were provided to maintain normothermia during surgery. Internal jugular venous catheter was inserted to central venous pressure monitoring in all patients. Patients MAP, HR, SpO₂, and Bls values were recorded. If applied Pringle maneuver time, remnant liver total amount of bleeding, the amount of urine, total anesthesia time, the total operation time, times of operation phases, total amount of liquid during operation and type of fluid (crystalloid, colloid, blood and blood products) were recorded. After transsection, the graft weight were also recorded. After antagonization of muscle relaxants, patients was extubated and 0.05 mg / kg iv. morphine was administered for postoperative analgesia. Indocyanine green clearance test values before general anesthesia (T₀), after induction of general anesthesia (T₁), after transsection (T₂), postoperative 24 and 72 hours were recorded. Simultaneously, hemoglobin (Hb), hematocrit (Hct), platelet count, PT, INR, total bilirubin, direct bilirubin, albumin, AST, ALT values were analyzed.

Results: In terms of PDR and R15, statistically significant difference was not observed between groups. PDR and R15 at T₁, T₂, T₃ and T₄ values in time T₀ found a statistically significant within groups (p <0.05). Significant changes in ALT, AST, total and direct bilirubin, ALP and GGT levels were significantly different within groups (p <0.05). Significant changes in Hb and Hct values when compared to the baseline values (T₀) within group (T₁, T₂, T₃, T₄) measurements and between group comparisons at T₂ and T₄ (p <0.05). MAP and CVP were statistically significantly different between the groups (p <0.05).

Conclusions: It was concluded that PEEP values between 0 and 10 cmH₂O has no effect on global liver function and liver-related liabilities tests in patients undergoing elective liver donor surgery.

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**PROPOSED PROPER INCISION LENGTH OF INFERIOR VENA CAVA FOR SIDE TO SIDE CAVO-CAVAL ANASTOMOSIS OF PIGGYBACK TECHNIQUE IN DECEASED DONOR LIVER TRANSPLANTATION**

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Introduction: The advantage of the piggyback technique in liver transplantation is to maintain physiologic hemodynamics without the need for extra-corporal venovenous bypass. We have used side-to-side cava-caval anastomosis in deceased donor liver transplantation (DDLT) as one of anastomotic approaches. Stenosis or occlusion of the vena cava early after liver transplantation is associated with high morbidity and mortality. These complications are more frequent when the piggyback technique is used. Despite the widespread acceptance of this method, many surgeons have performed numerous diverse incision length of inferior vena cava (IIIVC). One reason for this may be the rare studies of the proper IIIVC, and they have difficulties deciding what IIIVC is enough for need of the donated liver. We report 20 cases of DDLT using the side-to-side cavo-caval anastomosis of piggyback technique, focusing the IIIVC.

**Materials and Methods:** Between May 2007 and April 2011, 20 patients who had undergone DDLT at our institution were studied retrospectively. The venous outflow reconstruction was performed in side-to-side cavo-caval anastomosis method. We analysed the demographics, clinical progress, and IIIVC at operating room. Moreover, we analysed the diameter of each donated hepatic vein and cavo-caval anastomosis through post-operative CT. We hypothesized IIIVC is equal to the the equation ( = πr, r² = (a² + b² + c²)/4, a = diameter of Rt. hepatic vein, b = diameter of common trunk of Lt.-middle hepatic vein, c = diameter of other hepatic vein).

Results: In postoperative CT, the areas of reconstructed IVC orifice decreased by 30% to 70% compared with those from IIIVC based on the diameter of each hepatic vein. Revised length after we multiply calculated IIIVC by 1.2 (or the square root 1.5) was applied for 20 cases. Four cases had lesser IIIVC than revised ones. Especially, in the 19th case, he developed symptom of abdominal discomfort, and abnormal liver function of serum total bilirubin 6.2 mg/dl and AST/ALT 297/597 IU/L at postoperative day 9. Doppler showed monophasic wave form of the hepatic vein. Computed tomography showed the diameter of 9.5 x 12 mm with focal narrowing at the cavo-caval anastomosis site. Liver biopsy was performed and resulted as ‘no evidence of acute allograft rejection’. On postoperative day 10, he underwent interventional stent placement at cavo-caval anastomosis site. He was discharged home on postoperative day 23 with serum total bilirubin 2.3 mg/dl and AST/ALT 69/239 IU/L, and without any other symptoms. In other 3 cases, they recovered fully without any specific problem after the operation.

Conclusions: After we experienced our 20 cases and reviewed the articles of the outflow obstruction, we recommend that equation of 1.2 x calculated IVC orifice ( = πr, r² = (a² + b² + c²)/4) as IIIVC in DDLT using side-to-side cavo-caval anastomosis of piggyback technique. We think 25 mm to 45 mm of IIIVC is enough for side-to-side cavo-caval anastomosis of piggyback technique, to calculate based on that equation.

**πr, r² = (a² + b² + c²)/4 as IIIVC in DDLT using side-to-side cavo-caval anastomosis of piggyback technique. We think 25 mm to 45 mm of IIIVC is enough for side-to-side cavo-caval anastomosis of piggyback technique, to calculate based on that equation.**
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DIFFERENT RISK FACTORS OF MORTALITY IN EARLY VERSUS LATE LIVER RETRANSPANTATION
Hyung Hwan Moon, Lee Kyo Won, Na Byunggon, Oh dong Kyu, Gyeseung Choi, Jong Man Kim, Jae Bern Park, Choon Hyuck David Kwon, Sung Joo Kim, Suk-Koo Lee, Jae-Won Joh
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Introduction: The survival rates of liver retransplantation (ReLT) are 20 to 50% lower than those of first transplantation. The objective of this report was to identify the risk factor of mortality after ReLT as urgency for ReLT.

Materials and Methods: Between October 1996 and December 2013, 49 patients underwent ReLT. We performed a retrospective analysis of these patients using their medical records. Clinical characteristics, postoperative complications, survival rate and causes of death were investigated. Multivariate analysis was performed to identify the risk factors.

Results: The rate of ReLT is 3.3% (39/1178). The overall survival rate for ReLT was 55.8%, 39.1% and 32.3% at 3 months, 1 and 3 years, respectively. Multivariate analysis revealed a serum total bilirubin of more than 24.5mg/dl was the factors related to survival. (P = .039) Also, there were no differences between living donor ReLT and deceased donor ReLT in operation interval, operation time, post transplant ICU stay, total hospital stay and survival.

Conclusions: ReLT for the patient with a serum total bilirubin level of more than 22mg/dl should be considered cautiously. And, LDLT for ReLT may be an alternative for well-selected patients.

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TWO-STAGE LIVER TRANSPLANTATION: THREE CLINICAL SCENERIOS
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Introduction: Two-stage liver transplantation, involving a total heptectomy with a temporary portocaval shunt followed by liver transplantation, requires intensive perioperative care, especially during the prolonged anhepatic period. We presented three cases with three different clinical conditions.

Case 1: 57 y-o male underwent living related LT due to viral B hepatitis and HCC. He admitted to ICU with mechanical ventilation. He was re-operated due to hepatic artery thrombosis on the 2nd day. Unfortunately, there was no additional liver source, and then his liver was extracted totally. After anhepatic phase for 48 h in the ICU, he was re-transplanted from deceased donor. At the 15th day he discharged from the hospital with good outcome.

Case 2: 38 y-o female underwent LT due to fulminant toxic hepatitis. She ingested wild mushroom. He admitted to ICU prior to LT. At the preoperative period, she had high dose inotropes and CVVHDF for AKI. This therapy was continued intra-operatively. The surgeons decided only porto-caval shunt operation and total heptectomy due to fatal status of the patient. The aim of this option was prevent self-damage of the non-functional liver to body and immunologic trigger. After the operation she was admitted to ICU and MARS therapy was initiated. Unfortunately, she was lost at the postoperative 12th h.

Case 3: 5 y-o male underwent cadaveric LT due to abdominal trauma (fall down from stairs). He was operated due to severe liver laceration at other center. He was discharged from the hospital with good outcome. 11 months later, he was admitted to our ICU again. He had bad health status and severe jaundice. He was diagnosed as severe biliary stricture. Percutaneous transluminal cholangiography was performed and biliary drainage catheter was inserted. His complaints were persisted. The liver biopsy was performed and diagnosed as rejection. The living related LT was performed. On the 1st week hepatic artery thrombosis was diagnosed and he was re-operated. At the operation, he was diagnosed as total liver blood supply was interrupted. There was no additional liver source. The only obligatory option was total heptectomy. At the ICU, MARS and plasma exchange were performed. Urgent liver notification was performed. 50 h later, he was successfully re-transplanted with deceased donor. Refractory lung edema was present. He admitted to ICU again. Unfortunately, he was lost at the postoperative 6th h.

Conclusions: Two-stage liver transplantation could serve as rescue therapy for acute liver failure patients.

References
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P136
EXTRA-CORPOREAL MEMBRANE OXYGENATION AFTER LIVING RELATED LIVER TRANSPLANTATION
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Introduction: ECMO is a rescue therapy with indications as acute and cardiorespiratory failure, when conventional treatments fail. ECMO can be performed with either
pumpless or pump. There is little literature about ECMO, especially after LT. We presented our experience of two patients.

**Case 1:** 69 y-o woman underwent LT due to autoimmune hepatitis. 4 weeks later, she was admitted to ICU with acute respiratory failure and sepsis. She was intubated and mechanically ventilated. Her respiratory status was compromised gradually. Acinetobacter b. and Aspergillus f. were isolated from her tracheal aspirate culture. Appropriate antibiotics were started. On the 5th day, bilateral tube drainage were inserted due to massive pleural effusion. CVVHF was initiated for AKI. Thorax CT showed that bilateral Aspergillus ball. Her ABG’s and clinics were deteriorated on conventional mechanical ventilation. The rescue therapy with pumpless extracorporeal lung assist (pECLA, ILA membrane ventilator, Novalung, Germany) was planned. On the 10th day, 15F right arterial, 17F left venous cannula were inserted with fluoroscopy guidance at the femoral vessels. She was anti-coagulated with UF heparin (ACT 180-200s). Her ABG’s and lung mechanics were dramatically improved in 2 days. CVVHF was simultaneously continued. Therapy was continued for 7 days with lung improvement. On 27th day she was lost due to refractory septic shock.

**Case 2:** An 8 m-o male infant underwent LT and hepatico-jejunostomy due to congenital extrahepatic biliary atresia. He had an acute onset on CLF with pneumonia. On the 3rd day, after successful operation, he was admitted to ICU. The ABG’s and clinical condition of baby was deteriorated suddenly on 1st day. On 3rd day, the conventional MV and maximum inotropic therapy were failed. Near cardiac arrest, we decided urgent veno-arterial ECMO therapy. Right 8F c. carotis and 16F i. juguler vein cannula were inserted. ECMO pump (Novalung, Germany) was connected to the cannulas. He was heparinized (ACT 180-200 s). With high dose inotropic support and ECMO therapy, his cardiopulmonary status was improved on 1st day. Nevertheless, he was lost on 7th day due to severe collapse.

**Conclusions:** Despite our unsuccessful experience of 2 cases, the ECMO therapy for LT patients will cause well prognosis in selected cases.

**References**

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**BLOOD GLUCOSE REGULATION DURING LIVING DONOR LIVER RECIPIENT SURGERY**

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**Introduction:** The goal of this study was to compare the effects of two different regimens, D5W plus insulin at 100 mL/h and D5W at 10 mL/h, on blood glucose levels according to three phases (dissection, anhepatic, and nehepatic) of LDLT.

**Materials and Methods:** The study were enrolled and randomly allocated to the D5W plus insulin infusion group (group 1, n = 60) or the D5W infusion group (group 2, n = 60) using a sealed envelope technique. Blood glucose levels were measured three times during each phase and the target blood glucose level was 150 mg/dL. When the blood glucose level of a patient exceeded the target level, extra insulin was administered via a different intravenous route. The following patient and procedural characteristics were recorded: age, sex, height, weight, body mass index, ESLD, MELD score, total anesthesia time, total surgical time, and number of patients who received an extra bolus of insulin. The following laboratory data were measured at the preoperative period and at the end of the operation: hemoglobin, hematocrit, platelet count, PT, INR, potassium, creatinine, total bilirubin, and albumin.

**Results:** There was no hypoglycemia noted (blood glucose < 60 mg/dL). There were statistically significant differences in levels of blood glucose during the dissection and neohepatic phases in the recipients. The levels of blood glucose during these two phases were higher in group 1 than in group 2 (p<0.05). Blood glucose levels were significantly different when compared with D1 in group 1. Specifically, blood glucose levels were elevated at every measurement point (p<0.05). Excluding A1 and A2, blood glucose levels were significantly different as compared with D1 in group 2. Specifically, blood glucose levels were elevated at every measurement point (p<0.05).

**Conclusions:** We concluded that D5W infusion alone may be more effective and result in safer blood glucose levels as compared with D5W plus insulin infusion for LDLT recipients. Exogenous continuous insulin administration may induce hyperglycemic attacks, especially during the nehepatic phase of LDLT surgery. Further prospective studies that include homogeneous patient subgroups and diabetic recipients are needed.
PLASMA LEPTIN IN KIDNEY TRANSPLANTED PATIENTS DURING THE EARLY POST TRANSPLANTED PERIOD

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Introduction: Leptin is a 16 KD protein that is encoded by the ob gene and secreted by adipocytes. Leptin is important in the regulation of appetite, food intakes and energy expenditure, sexual maturation and fertility, hematopoiesis and activity of the hypothalamic-pituitary-gonadal axis. The main target receptors are present in the hypothalamus where leptin exerts its actions causing anorexia and stimulating thermogenesis. Leptin is primarily cleared from the circulation by the kidney and elevated plasma leptin are reported in uremic patients. The present study aimed to assess plasma leptin concentrations in patients with kidney transplant during the early post renal transplant period.

Materials and Methods: Serum leptin were measured by ELISA in 30 ESRD patients undergoing renal transplant (22 males and 8 females), 20 subjects as a control (17 males and 3 females).

Results: This study showed the following:
Hemodialysis patients (pre-transplant patients) had significantly lower mean BMI than the control subjects.
Mean serum leptin concentration in hemodialysis patients (pre-transplant patients) was higher than the control subjects.
Post-transplant patients had mean serum leptin concentration similar to the control subjects and significantly lower than the hemodialysis patients (pre-transplant patients).
Serum leptin levels are correlated positively with BMI in all groups and significantly decreased in post-transplant than pre-transplant. There was correlation between serum leptin and age in pre-transplant group while no correlation in post-transplant group. There was no correlation between serum leptin and parameters commonly used to assess the extent of renal function. Our data revealed higher serum leptin levels in females than males despite similar BMI.

Conclusions:
Successful renal transplant is followed by a significant decrease of leptin concentration.
Successful renal transplant is followed by a significant increase of BMI.
Significant correlation between serum leptin and BMI. Thus, leptin may play an important role in improvement of anorexia, weight gain after normalization of renal function after renal transplantation.
Factors other than excretory capacity of the transplanted kidney are apparently in the post transplant decrease of leptin concentrations.

SUPERIOR VENA CAVA OBSTRUCTION IN RENAL TRANSPLANT RECIPIENT: CASE REPORT AND REVIEW OF LITERATURE

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Introduction: SVC The superior vena cava (SVC) syndrome is due to obstruction of the SVC and may present by dyspnea, chest pain, cough, headache, dysphasia, and symptoms of increased intracranial pressure; however, the affected patients can be asymptomatic. Double lumen subclavian and internal jugular dialysis catheters are commonly used as immediate vascular access for patients requiring urgent hemodialysis. Thrombosis and stenosis are frequent complications with infrequently reported superior vena cava (SVC) syndrome in these patients. Herein, we describe the impact of SVC syndrome-related to long-term use of hemodialysis indwelling catheters in renal transplant recipient.

Case: A 22-year-old man, who developed end stage renal disease (ESRD) secondary to renal dysplasia, had received his 1st renal allograft from his mother on 1993. However, he developed chronic graft failure after 14 years due to chronic transplant glomerulopathy. After a period of hemodialysis, he developed benign intracranial hypertension possibly due to superior vena cava stenosis with repeated central vein catheterization and difficult vascular access. Following desensitization with immunoadsorption- due to high anti-HLA antibodies- he underwent 2nd renal allotransplant on 2009 with slow graft function. Few months later, he developed bilateral pleural effusion that was proven to be chylothorax. Magnetic resonant venography revealed stenosis of both subclavian veins and also superior vena cava. Tube drainage was performed and he was managed successfully with anticoagulation for two years without relapse.

Conclusions: In renal transplant patients, conservative management by anticoagulation can be applied successfully in cases of chylothorax secondary to superior vena cava stenosis.
## P140
ACCURACY OF CONTINUOUS NON-INVASIVE ARTERIAL PRESSURE MONITORING IN LIVING LIVER DONORS DURING TRANSPLANTATION

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**Introduction:** Hemodynamic monitoring is vital during liver transplantation as distinct hemodynamic changes are expected. The CNAP (continuous non-invasive arterial pressure) monitor is a non-invasive device for continuous arterial pressure measurement by a tonometric method. This study compared the CNAP monitoring with invasive direct arterial pressure monitoring in living liver donors during transplantation.

**Materials and Methods:** Forty patients were analyzed while undergoing hepatic lobectomy for liver transplantation. Invasive pressure monitoring was established at the radial artery and CNAP monitoring using a finger sensor was recorded from the contralateral arm simultaneously. Systolic, diastolic and mean invasive arterial pressures were compared with those obtained by CNAP. Correlation between the two methods was calculated.

**Results:** A total of 5433 simultaneous measurements were obtained. For the systolic arterial blood pressure 55% of CNAP measurements were within 10% of direct arterial measurement. The correlation was 0.479 and CNAP bias was -0.3 mmHg and limits of agreement were 32.0 mmHg. For diastolic arterial blood pressure 50% of CNAP measurements were within 10% of direct arterial measurement. The correlation was 0.630 and CNAP bias was -0.4 mmHg and limits of agreement were 21.1 mmHg. For mean arterial blood pressure 60% of CNAP measurements were within 10% of direct arterial measurement. The correlation was 0.692 and CNAP bias was +0.4 mmHg and limits of agreement were 20.8 mmHg.

**Conclusions:** The two monitoring techniques did not show an acceptable agreement. Our results suggest that CNAP monitoring is not equivalent to invasive arterial pressure monitoring in living liver donors during transplantation.

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## P141
EFFECTS OF TWO DIFFERENT TECHNIQUES OF POSTOPERATIVE ANALGESIA MANAGEMENT IN LIVER TRANSPLANTATION DONORS: A PROSPECTIVE, RANDOMISED, DOUBLE-BLIND STUDY

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**Introduction:** The aim of this study was to compare the donor patients who received intravenous morphine with patient controlled analgesia or epidural morphine during the early postoperative period who underwent liver transplantation.

**Materials and Methods:** After Ethics Committee approval and patient consent right hepatectomy was performed in forty patients. In the operating room patients were monitored and basal hemodynamic values were recorded. BIS was used to assess depth of anesthesia. In all patients, anesthesia was standardized with lidocaine, fentanyl and thiopental. Anesthesia was maintained with isoflurane in 50/50 % oxygen-air mixture, an infusion of remifentanil and cisatracurium. Nondominant radial artery invasive arterial blood pressure monitoring was provided. All patients were provided to maintain normothermia during surgery and body temperature were monitored. Internal jugular venous catheter was inserted to central venous pressure monitoring in all patients. Forty patients were included in the study and randomly divided into 2 groups in a double-blinded manner. They were given i.v. morphine 5 mg (Group K), or epidural anesthesia adding morphine 2 mg (Group E) by epidural anesthesia technique starting 15 minutes before the estimated time of completion of surgery. All the patients received PCA with intravenous morphine (Group K; PCA device was set to deliver 1 mg of morphine with a lockout of 15 minutes and a 4 hour limit of 20 mg, and no continuous infusion), or epidural morphine (Group E; PCA device was set to deliver 0.5 mg of morphine with a lockout of 30 minutes and a 4 hour limit of 10 mg, and no continuous infusion) and were followed for 24 hours, and pain scores were evaluated by study nurses who were blinded to the study protocol. If analgesia was felt to be inadequate at any time during the study, the lockout time was shortened to 5 minutes. Morphine consumption, nausea, and vomiting, respiratory depression visual analogue scale and sedation scores were recorded in the postanesthesia care unit (PACU) and at 2, 4, 12, and 24 hours after operation.

**Results:** There were no statistically significant differences between the groups for demographic values. The VAS scores at movement and at rest and morphine consumption at 12, and 24 hours after operation evaluation time points
were significantly higher in group E than those in group K (P<0.05). Further, total morphine consumption in group K was significantly higher than that in group E (P<0.05). The occurrence of nausea and vomiting were significantly lower in the Group K than in the Group E at 2 and 24 hours (P<0.05). Itching was significantly higher at all the evaluation time points were significantly higher in group E than that in group K (P<0.05).

Conclusions: Epidural morphine via PCA was associated with the decreased postoperative morphine consumption and VAS scores. Unfortunately, this technique has a increased incidence of nausea vomiting and itching. These findings may be beneficial for managing postoperative analgesia protocols in donor patients liver transplantation.

P142
LIVING-DONOR LIVER TRANSPLANTATION IN A PATIENT WITH BUDD-CHIARI SYNDROME AND TYPE 1 DIABETES MELLITUS

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Introduction: We report a case of Budd-Chiari Syndrome (BCS) who turned out to have type 1 Diabetes Mellitus (DM) one month after the diagnosis and had successful living-donor liver transplantation (LDLT).

Case: A 19-year-old man was admitted to hospital with the complaints of abdominal pain and distention. He was diagnosed to have cirrhosis due to BCS after a series of laboratory investigations. The patient was screened for thrombophilia tests and was found to have heterozygote Factor V Leiden mutation. On admission, plasma glucose level was 82 mg/dl. For this patient with end-stage liver disease, LDLT was considered. A relative of the patient volunteered for right lobe liver donation. During the work-up period, the patient was admitted to emergency department with the complaints of nausea and vomiting. His plasma glucose level was measured to be 580 mg/dl; Hemoglobin A1c was 10.5%, and he did not have ketoacidosis. He was started on intensive insulin therapy. Preoperatively, he had severe insulin resistance and needed about 2.5 IU/kg of insulin daily to keep plasma glucose values under 200 mg/dl. His c-peptide level was 0.43 ng/ml (0.9-3.0). Further investigations for DM revealed that anti-glutamic acid decarboxylase antibody was positive, anti-islet antibody was weakly positive, and anti-insulin antibody was negative indicating the diagnosis of type 1 DM. Genotyping of the patient revealed HLA-DR3, HLA-DR4 and HLA-DQ2 positivity which are known to be associated with type 1 DM. After work-up of the donor, the recipient underwent surgery for LDLT. Standard surgical procedures were performed. The postoperative period was uneventful. Postoperatively, his daily insulin requirement was initially high due to the high glucocorticoid doses he received for immunosuppression. He needed relatively less insulin as the glucocorticoid dose was tapered. One month after the LDLT, he needed 1.5 IU/kg insulin daily to regulate plasma glucose levels. Liver and kidney function tests show normal results on the second month of transplantation.

Conclusions: Many recent reports indicate that LDLT can be performed safely in patients with BCS with adequate venous drainage techniques and with anticoagulant therapy. The occurrence of type 1 DM after the decision of LDLT was a challenging condition in this case. It's known that type 1 DM negatively influences outcome after liver transplantation. In addition, daily management of diabetes is challenging in transplant recipients receiving diabetogenic drugs such as corticosteroids and calcineurin-inhibitors. Male gender, pre-transplantation diabetes, post-transplantation dialysis, as well as post-transplantation renal insufficiency were identified as the main risk factors for mortality. Simultaneous pancreas-kidney transplantation would be needed in our case over time if diabetic or immunosuppressor induced nephrotoxicity develops. Our patient is currently more than 2 months posttransplantation and physically rehabilitated.

P143
VALIDITY OF A BIOREACTANCE-BASED CONTINUOUS CARDIAC OUTPUT MONITORING SYSTEM IN ADULT-TO-ADULT LIVER TRANSPLANTATION

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Introduction: Pulmonary artery catheterization (PAC) has long been considered as the standard modality for the assessment of cardiac function and preload during liver transplantation. However, a relatively high incidence of severe PAC-induced arrhythmias in recipients and unclearness of clinical benefit of PACs in operative settings has led to a trend in favor of less invasive modalities. Thus, we tested the feasibility of a noninvasive continuous cardiac output monitoring system (NICOM) based on thoracic bioreactance as an alternate to PACs.

Materials and Methods: This pilot study of 10 recipients undergoing adult-to-adult liver transplantation evaluated the agreement in cardiac output derived from a PAC and NICOM using the Bland-Altman plot. Additionally, NICOM-derived stroke volume variability and thoracic fluid content were tested regarding the validity as surrogate parameters implying recipients volume status using
the Pearson’s correlation test. Automatically recorded hemodynamic parameters were taken for analyses at an interval of 5 minutes.

**Results:** A total of 1110 paired PAC and NICOM assessments was analyzed. Mean bias in cardiac output between the two techniques was 0.35 ± 2.16 L/min. Accordingly, 95% limits of agreement ranged from -3.88 to 4.57 L/min. Irrespective of transplant phases, the range of 95% limits of agreement were greater than 6.00 L/min: the dissection phase, -2.65-3.94; the anhepatic phase, -4.67-4.92; the reperfusion phase, -4.33-4.75. Regarding volume status, stroke volume variability and thoracic fluid contents were significantly correlated with cardiac outputs, ejection fraction, and end-diastolic volume (P < 0.001). Central venous pressure was negatively correlated with cardiac outputs and ejection fraction (r < 0, P < 0.05).

**Conclusions:** The agreement level in cardiac output of a PAC and NICOM was not satisfactory from the view point of clinical viewpoint. However, NICOM-derived stroke volume variability and thoracic fluid content displayed promising results while central venous pressure failed to predict cardiac function and preload status.

**P144**

**HEPATIC VENOUS OUTFLOW TRACT STENOSIS IN SPITE OF NORMAL IMAGING MODALITIES TREATING WITH BALLOON DILATATION AND INSERTION OF STENT**

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**Introduction:** Hepatic venous outflow tract stenosis after liver transplantation is a relatively rare but important complication that may result in massive ascites and chronic allograft rejection. This complication is more prevalent among pediatrics and after living donor liver transplantation. Here in, we reported two patients with hepatic venous outflow tract stenosis with normal Doppler ultrasound that were treated successfully with transjugular balloon dilation and placement of stent in inferior vena cava.

**Materials and Methods:** The old chart of all liver transplant patients in Shiraz transplant center between 2010 and 2013 were reviewed to find Patients with hepatic outflow tract stenosis and normal imaging.

**Results:** There were 2 patients with hepatic venous outflow tract stenosis with normal Doppler ultrasound after liver transplantation. The first patient was a 51 year old man with hepatitis C virus induced liver cirrhosis and hepatocellular carcinoma who underwent liver transplantation from deceased donor in 2010. He was kept on mycophenolate mofetil, tacrolimus and prednisolon and had an uncomplicated course till 3 years later that developed abdominal protrusion. Doppler ultrasound revealed massive ascites but IVC and portal system were patent with normal flow. Analyses of ascetic fluid were negative for malignancy and infections. The patient underwent balloon dilatation and stenting of IVC under guide of angiography with rapid improvement of ascites in the next days.

The second patient was a 5 year-old girl with progressive familial intrahepatic cholestasis (PFIC) that underwent liver transplantation from deceased donor in June 2013. She had an uncomplicated post-op course and received on mycophenolate mofetil, tacrolimus and prednisolon as immunosuppressive regimen. Four months after liver transplantation she presented with decreased urine output and abdominal distension. Doppler ultrasound revealed massive ascites however there was no thrombosis, stenosis or narrowing of hepatic venous outflow tract. Liver and renal function tests were normal and analysis of ascetic fluid was negative for malignancy and infections. The patient underwent balloon dilatation and stenting of IVC under guide of angiography with rapid improvement of ascites.

**Conclusions:** Hepatic outflow tract stenosis is an important cause of massive ascites after liver transplantation. We have described two cases that were managed with IVC stenting despite normal imaging studies. These cases highlighted the role of clinical suspicious in management of complicated patients.
P145
PREGNANCY AND DELIVERY AFTER LIVER TRANSPLANTATION: PRESENTATION OF 11 CASES

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Introduction: Over the last decades, liver transplantation (LT) has been the prominent treatment option in patients with end-stage liver failure. Patients who underwent LT can maintain their usual activities of daily living with a professional care and multidisciplinary follow-up. In this bulletin, we present 11 patients who had an uneventful gestation and delivery after liver transplantation.

Materials and Methods: Between 2002 and 2010, 11 patients at fertility age became pregnant after LT in our clinic. Mean age was 25. Etiology of end-stage liver disease was chronic Hepatitis B and D in 4 patients, Wilson’s disease in 1 patient, Budd–Chiari syndrome in 1 patient, autoimmune hepatitis in 1 patient, primary sclerosing cholangitis in 1 patient, familial intrahepatic cholestasis in 1 patient, and 2 patients had cryptogenic cirrhosis. LT was performed from living donors in 9 patients and cadaveric donors in 2 patients. Postoperative follow-up was performed with routine office visits in our transplantation policlinic by a multidisciplinary team including supervisor liver transplantation physician, senior transplant surgeons and gastroenterologists. Along with the gestation and delivery period, patients have been followed closely, and also an obstetrician has joined the team. Tacrolimus was used for immunosuppressive therapy in all patients. Because, lower rates of pregnancy induced hypertension and preeclampsia were reported in patients that use tacrolimus during pregnancy. Blood level monitoring of tacrolimus was made and rearrangements were done if it is needed. We did not administer corticosteroids in this period, because corticosteroids are associated with premature rupture of membranes and also adrenal insufficiency in newborns.

Results: Ten of 11 patients had an uneventful gestation period and birth without any complications or malformations in the newborns. One newborn had a low birth weight, than he died because of sepsis.

Conclusions: Patients who underwent LT at fertility age can have a usual pregnancy and delivery period with a close follow up performed by a multidisciplinary team.

P146
LIVER TRANSPLANTATION IN CIRRHTIC PATIENTS WITH PORTAL VEIN THROMBOSIS: A SINGLE CENTER EXPERIENCE

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Introduction: Portal vein thrombosis is a complication in patients with liver cirrhosis that has been previously considered as a contraindication for liver transplantation. This study aimed to evaluate outcomes of liver transplantation in patients with portal vein thrombosis.

Materials and Methods: A cross-sectional analysis of patients who underwent liver transplantation at Shiraz organ transplant center, Shiraz, Iran, was performed in March 2014. A questionnaire including information regarding age, sex, underlying cause of cirrhosis, date of transplant, type of allograft, immunosuppressive regimen, complications and rejection episodes were collected and analyzed with SPSS software. These patients were compared with transplant patients without portal vein thrombosis.

Results: Among more than 2000 liver transplant recipients, there were 38 liver cirrhosis patients with portal vein thrombosis. Controls were 50 liver transplant recipients due to liver cirrhosis without portal vein thrombosis. Mean age of patients was 42.89 years and 40.24 in controls. There were 16 female and 22 males. Fifteen patients had hepatitis B virus (HBV) induced liver cirrhosis, 15 had autoimmune hepatitis, 4 patients had cryptogenic liver cirrhosis, 2 patients had Wilson disease and 2 patients had biliary atresia. There were only 3 patients in pediatric age groups with portal vein thrombosis. Thirty six patients received liver allograft from deceased donors and 2 patients underwent live transplantation form living related donors. Twelve patients (31.5 %) developed acute rejection requiring methyl prednisolone pulse therapy. Six month patient survival was 97.3 % and 1 year patient survival was 92.1 %. There were no statistically significant difference between rejection episodes and patient survival in patients with portal vein thrombosis and controls (P>0.05).

Conclusions: Liver transplantation in cirrhotic patients with portal vein thrombosis is comparable to those without this complication.
LIVER TRANSPLANTATION IN NON-CIRRHOTIC PATIENTS: SHIRAZ EXPERIENCE

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Introduction: Liver transplantation is the treatment of choice not only in patients with liver cirrhosis but also in some non-cirrhotic patients. These are mainly consisted of metabolic or genetic diseases of the liver. Here in, we reported Shiraz experience regarding liver transplantation in non-cirrhotic patients.

Materials and Methods: A descriptive analysis of patients who underwent liver transplantation at Shiraz Organ Transplant Center, Shiraz, Iran, was performed in March 2014. Data of patients with hypercholesterolemia, hyperoxaluria, Crigler-Najjar syndrome (CNS), hemangioma were gathered and extracted from old charts of patients. Information regarding age, sex, type of allograft, graft and patient survivals after transplant were collected.

Results: A total of 2300 liver transplantation have been performed in Shiraz Organ Transplant Center form 1993. There were 37 cases of hypercholesterolemia, 5 cases of hemangioma, 7 patients with hyperoxaluria and 49 patients with Crigler-Najjar syndrome. Patients’ characteristics were outlined in Table 1. These patients were compared with 100 age and sex matched cirrhotic patients who underwent liver transplantation at the same timetable. Overall six months patients’ survival was 85.71 % in non-cirrhotic patients versus 90.02 % in patients with liver cirrhosis (P>0.05). There were no statistically significant difference between acute rejection episodes among patients with cirrhosis (n=15) and non-cirrhotic patients (n=14) (P>0.05).

Conclusions: Liver transplantation for patients with non cirrhotic liver disease has had favorable and excellent outcomes with patients and graft survival rates comparable to patients with liver cirrhosis.

<table>
<thead>
<tr>
<th>Disease</th>
<th>Mean age (Years)</th>
<th>Sex (M/F)</th>
<th>Type of allograft (DD/ LRD/ SPLIT)</th>
<th>Rejection episodes</th>
<th>6-months survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crigler-Najjar</td>
<td>6.54</td>
<td>21/28</td>
<td>17/23/9</td>
<td>9</td>
<td>83.67 %</td>
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<tr>
<td>Hypercholesterolemia</td>
<td>10.48</td>
<td>20/17</td>
<td>29/5/3</td>
<td>3</td>
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</tr>
<tr>
<td>Hyperoxaluria</td>
<td>19.28</td>
<td>4/3</td>
<td>7/0/0</td>
<td>2</td>
<td>71.4 %</td>
</tr>
<tr>
<td>Hemangioma</td>
<td>41</td>
<td>4/1</td>
<td>4/3/0</td>
<td>0</td>
<td>80 %</td>
</tr>
<tr>
<td>Total</td>
<td>49/49</td>
<td>33/28/12</td>
<td></td>
<td>14</td>
<td>85.71 %</td>
</tr>
</tbody>
</table>

EVALUATION OF EBV DNEMIA IN LIVER ORGAN RECIPIENTS BY QUANTITATIVE PCR ASSAY AND RESPECTIVE CLINICAL CONSEQUENCES

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Introduction: EBV primary infection and/or reactivation are suggested to play a significant role in incidence of Post Transplantation Lymphoproliferative Disorders (PTLD) and some other complications in immunocompromised patients, especially organ recipients. We assessed EBV viral load in EBV/PTLD suspected liver transplant patients at specified times after transplantation and evaluated the corresponding clinical findings and post transplant complications.

Materials and Methods: Of the 696 patients who underwent liver transplantation, EBV viral load of 127 liver transplant recipients suspected to EBV infection/disease were examined intermittently in this retrospective study. Sampling was performed over 4 year period from July 2009 to May 2013 and quantification performed by Taq-Man Real-Time PCR assay. Clinical and pathological data was gathered by reviewing medical records.

Results: The most common cause leading liver transplantation was HBV end stage with 12% frequency however in 39% of patients the underlying disease was indeterminate. In total, 78/127 (61%) suspected patients exhibited EBV-DNemia and 19 of them associated with PTLD. The median viral load of PTLD patients was significantly higher than non affected patients (4035 copy/ml vs.500 copy/ml) Among the PTLD cases, 13 patients were living and 6 expired and of the non-PTLDs, 57 were living and 2 expired. Totally, PTLD were diagnosed clinically in 34 subjects (4.9%). Estimated mortality rate of PTLD patients was 35% during 1.5 yrs post transplantation follow-up.

Conclusions: As shown in this study, the amount of viral load and respective mortality rate of PTLD patients was very high comparing with non-PTLDs (56% vs.3.5%) and we demonstrated the role of quantitative PCR and EBV monitoring as a prognostic marker in developing PTLD.
SUCCESSFUL TREATMENT OF DISSEMINATED NOCARDIOSIS IN LIVER TRANSPLANT RECIPIENT

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Introduction: Infections are considered to be the primary cause of death among liver transplant (LT) patients. Among the various infections in immunosuppressed transplant recipients, the frequent ones come from exogenous sources, such as those produced by Nocardia species. Nocardia spp. are Gram-positive, aerobic, slowly growing agents with a reported prevalence of 0.7 and 3.6%. They are uncommon but frequently fatal, with a related mortality up to 80%. Nocardia cyriacigeorgica, formerly known as Nocardia asteroides type IV, is now the most frequently detected pathogen in nocardiosis patients at worldwide. A high-dose corticosteroid regimen, like in a rejection case, is the most frequent risk factor for nocardia infection. The incidence is lowest in liver transplant recipients compared to other solid organ transplantations. Disseminated nocardiosis was defined as the isolation of Nocardia species from specimens from two or more noncontiguous organs such as lungs, lymph node, skin, brain or blood. We present a case of disseminated nocardiosis that was caused by N. cyriacigeorgica.

Case: A 42-year-old man underwent deceased-donor OLT for end-stage liver disease secondary to hepatitis B in January 2009. After 1 year follow-up, the patient presented with a acute cellular rejection episode which was treated with bolus steroid therapy. After a month, during follow-up, we observed a hepatic profile alteration, poor general health status, fever and painful swelling on his right scapula. He had no history of trauma or fall. Physical examination only revealed subcutaneous nodules on his scapula with no other findings. Among the complementary tests, superficial ultrasonography showed abscesses on the scapula. 3 mL of odor-free pale yellow pus was aspirated. A direct smear of the aspirate revealed gram-positive bacilli. After 3 days of incubation, Nocardia species was cultured from aerobic culture of the aspirate. Molecular characterization of Nocardia isolates was accomplished by sequencing of the 16S rRNA, identified as Nocardia cyriacigeorgica. Sequencing reactions were performed with BigDye cycle sequencing kit (Applied Biosystems) on an ABI 3730XL Automated DNA Sequencer (Applied Biosystems) by standard protocols. Susceptibility testing revealed good susceptibility to amikacin, imipenem, trimetoprim sulphamethaxazole and linezolid. Finally, abdominal and pulmonary CT scans were performed and there were no pathological findings determined. CMV DNA was also negative. We started treatment with intravenous TMP –SXT for 2 weeks. During this treatment he complained about headache. On physical examination we also detected two new subcutaneous nodules near umbilical area and on his left shoulder. We also detected an abscess on right parietal lobe with MRI. So we added imipenem and amicasin to TMP-SXT treatment. After a month pronounced healing on nodules which was disappeared and also improvement in headache determined. MRI control confirmed the disappearance of abscess in parietal lobe in fourth month. So therapy switched to oral form with TMP-SXT. And treatment completed to a year. There were no signs of relapse in follow up 2 years.

Conclusions: In disseminated nocardiosis, early diagnosis by means of microbiological and imaging examinations is the key to avoid complications that can jeopardize the posttransplantation course.
whole organ from deceased donor, and one patient received left lateral segment from split in situ graft from deceased donor. Alpha fetoprotein marker was high (>300) in five patients (50%) but unfortunately it was not checked in the remaining Patients. Alkaline Phosphatase (ALP) was high (>1100 mmol/l) in six patients (60%), and in one patient had borderline (281 mmol/l) and no data were available about ALP in the remaining two patients. Most of the patients had one lesion in the explanted liver six patients (60%), one patient had 2 lesions (20%) and two patients had multiple lesions (>5).

**Conclusions:** Tyrosinemia patients are very likely to harbor HCC in their cirrhotic livers, and it is much more likely if they have high ALP. Alpha fetoprotein level does not correlate well with the HCC incidence in these patients. Therefore, liver transplant should be offered for these patients as soon as the organs are available.

**P151**

**EVALUATION OF SAFETY AND EFFICACY OF LIVER BIOPSY FOLLOWING LIVER TRANSPLANTATION**

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**Introduction:** Liver biopsy is a diagnostic tool for liver pathology following liver transplantation (LT). However, biopsy can cause life threatening complications. There is limited knowledge about efficacy and complication of liver biopsy following LT. Our aim is to evaluate risk and benefit of liver biopsy after LT and quality of biopsy specimen.

**Materials and Methods:** We retrospectively analysed all liver biopsy performed after LT between January 2000- October 2014. All the patients were monitorised for at least 24 hours after biopsy.

**Results:** We performed 245 liver biopsy in 159 LT patients. Fifteen (6%) of them were reported as insufficient. In samples 102 (41%) acute rejection, 79 cholangitis (35%) and 49 (20%) cholestasis were seen. Complications following biopsy were seen in 23 patients (9%). Seven patients had severe abdominal pain followed by fever. We diagnosed 4 intercostal/subcapsular bleeding, 12 vasovagal reaction. All the patients were treated with anesthetic agents and monitorised for 24 hours. No blood transfusion or surgery was required.

**Conclusions:** Liver biopsy after LT is an invasive diagnostic tool for liver pathology. However it can safely be used in experienced centers.
THE EFFICACY OF CELL SAVER USAGE IN LIVING DONOR LIVER TRANSPLANTATION

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Introduction: Liver transplantation is currently the best treatment option for end stage liver disease. During liver transplantation there is serious amount of blood loss due to surgery and primary disease. By the usage of cell saver patients need for blood transfusion is significantly reduced. In this study we aimed to evaluate the efficacy of cell saver usage on mortality and morbidity in living donor liver transplantation (LDLT).

Materials and Methods: We retrospectively evaluated 178 LDLT, performed from 2005-2013 in our center. Child A patients, cadaveric donor LT and LT performed for fulminant hepatic failure were not included in this study. Intraoperative blood transfusion was done in all patients to keep hemoglobin levels between 10-12 gr/dl. Cell saver was used in all LT except patients with malignancy, hepatitis C and hepatitis B.

Results: We included 126 patients in the study. Cell saver was used in 84 LT (66%). In 42 patients (34%) LT performed without cell saver. In LDLT with cell saver use 10 cc/kg (range 2-50cc/kg) blood was transfused from cell saver. In addition to this 5-10 cc/kg allogenic blood was transfused. In LDLT without cell saver 20-25 cc/kg allogenic blood was transfused.

Conclusions: During LT, serious amount of blood transfusion is needed due to surgery and primary disease. Cell saver use significantly decreases the need of allogenic blood transfusion and avoids side effects of massive transfusion.

HCV LIVER TRANSPLANT RECIPIENT: DIFFICULT TASK BUT TO BE SOLVED


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Introduction: Liver transplantation for patients with hepatitis C virus (HCV) cirrhosis has been well established worldwide. It has been well known that HCV will re-infect liver allografts after liver transplantation. This study aimed to evaluate outcomes of liver transplantation in terms of HCV re-infection in patients transplanted for HCV cirrhosis.

Materials and Methods: A descriptive analysis of patients who underwent liver transplantation between November 2004 and December 2013 at Shiraz Organ Transplant Center, Shiraz, Iran, was performed in March 2014. Data of patients who were transplanted for HCV cirrhosis were reviewed. Patients’ Information was collected using a data gathering form.

Results: More than 2000 liver transplants were performed in the study time period. Among them 40 patients with HCV cirrhosis underwent liver transplantation. Mean age of patients was 48.5 (range 17 – 62). Three patients had combined HCV and HBV infection. Four patients had hepatocellular carcinoma (HCC), two of them were diagnosed before transplantation and in the remaining two patients HCC was discovered in their explants. All of HCC patients are within the Milan criteria. Only one patient received Right lobe from split in situ deceased donor, the remaining patients received whole graft. Macrosteatosis in the graft ranged from zero up to 30%. None of the patients experienced delayed or non-functioning grafts. In 22 patients (55%) HCV RNA was high (more than 1.000.000) post transplantation, in 2 patients (5%) HCV RNA was positive but low (less than 1.000.000), it was negative in 2 patients. Of whom who have high RNA eight patients (22 patients), eight patients (36%) were diagnosed as HCV recurrence in transplanted liver biopsy, fourteen (63.3%) showed no recurrence in liver biopsy. On the other hand, of the thirteen patients whom were diagnosed as HCV recurrence in their Biopsy (32.5%), eight patients (61.5%) had high HCV RNA and four patients (30%) had low or even non-detectable RNA in their serum. Acute rejection was diagnosed in 12 patients (30%), of them 6 patients were diagnosed as concomitant rejection and recurrence (50%). Liver biopsy revealed chronic rejection in one patient.

Conclusions: HCV recurrence is highly common in liver transplant recipient. HCV RNA will be detected in patient as soon as 1 month post transplantation. HCV recurrence in liver transplant recipient can accompany high or even low RNA viral load. It is difficult to differentiate between rejection and recurrence in HCV recipient patient but it is of quite importance and determinant for the type of therapy to be used. Pre Transplant treatment with antiviral ribavirin and interferon and follow up of rejection and recurrence will be studied further in our patients.
P155  
THE APPLICATION OF PORCINE GRAFT DURING LIVING DONOR LIVER TRANSPLANTATION WITH TYPE 2 TRIFURCATION OF PORTAL VEIN IN THE DONOR

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Introduction: The liver transplantation is modern approach of treatment of patients with end stage liver disease. The advantage of living donor liver transplantation is availability of donor during emergency cases. The case we presenting is sample when the portal veins of the right lobe liver graft from donor with portal vein trifurcation could be remodelled with xenograft. The goal of this presentation is to share our experience of application of porcine graft for the type 2 trifurcation donor.

Materials and Methods: A 43 years old man with alcohol related liver cirrhosis. Decompensation stage. Encephalopathy grade 2-3. Repeated bleeding from esophageal varices. Patient was prepared for operation. During routine investigation of his only donor (his sister) we identified type 2 trifurcation of portal vein. After right side donor hepatectomy it was clear that distance between anterior and posterior portal vein branches of graft is 3 sm.

Results: The porcine graft constructed to Y shape in the backtable used for interposition between graft and recipient veins to get single portal vein anastomosis. The INR was kept in the level of 2-3, and routine Doppler USI confirmed normal flow in the portal vein. 15 days after warfarin use the patient suffered from rare complication of warfarin induced skin necrosis. Warfarin changed to clopidogrel and patient discharged 22nd day of operation.

Conclusions: Vascular variations are one of the main problems of living donor liver transplantation. In this case our conclusion is type 2 trifurcation is not contraindication for the patient needed emergency OLT. And application of porcine graft is could be considered more logical than synthetic grafts in the respect of infection. It is advised this operation to be performed by the experienced team in the transplant centres.

P156  
OPTIMIZATION OF HAEMODYNAMIC CHANGES IN THE PERIOD OF GRAFT REPERFUSION DURING LIVING DONOR LIVER TRANSPLANTATION

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Introduction: To study the way of minimization of hemodynamic changes due to graft reperfusion at the early unhepatic stage of LDLT operation.

Materials and Methods: The patients undergone to OLT operation divided to two randomized groups according to their age, gender, peroperative hemodynamic performance and CP scoring. Interoperative monitoring includes: ECG, SpO2, InAP, CVP, MAP, T1, T2, capnography and other respiratory and hemodynamic dates.

Results: Izofuloran concentration decreased to MAK level and hemodynamic changes was corrected with dopamine (15-25 mkg/kg/min) and noradrenalin (0.5-0.7 mkg/kg/min) infusion in the first group (n 25). In the second group inhalation anesthetics are stopped fully 5 minute before reperfusion and Hi Flow ventilation is started. During this period anesthetic components were provided with bonus dose of ketamine 1mg/kg. And hemodynamic changes were corrected with inotropic agents shown in first group.

Conclusions: The study of the results identified decreased expression of hemodynamic changes in second group of recipients.

P157  
LIVER TRANSPLANTATION IN LEBANON: 15 YEARS EXPERIENCE

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Introduction: The aim of this study is to review all liver transplants performed at the American University of Beirut Medical Center from 1998 to the present.

Materials and Methods: From 1998 to present, 21 liver transplants were performed at our institution. Of these, 16 were adults and 5 were children. Indications for adult transplants were: 2 alcoholic liver cirrhosis, 4 cryptogenic, one hepatitis B, one hepatitis C with HCC, one subacute liver failure, one Budd Chiari syndrome,
one biliary cirrhosis secondary to iatrogenic common bile duct injury, one multiple hydatid disease of the liver, two Autoimmune hepatitis, one Vanishing Bile Duct Syndrome, one Hyper coaguable status secondary to genetic mutation. Pediatric transplant indications were: two cryptogenic liver cirrhosis, one extrahepatic biliary atresia, one familial hypercholesterolemia and one congenital hepatic fibrosis. Of the 21 transplants, 4 were living related liver transplants.

Results: The 10 years survival is 76% post transplant. There were 5 deaths at a median of 9 days (range 1–56) post-transplantation. The causes of death were: two primary non functions, one intraoperative cardiac arrest, one portal and hepatic artery thrombosis, and one severe cellular rejection. All 16 survivors are well, with normal liver function tests at a median follow-up time of 89 months (range 4 13–131 174) after transplantation.

Conclusions: Although the number of transplants performed in Lebanon is small, the 10-year survival rate is comparable to high load transplant centers. Cadaveric organ donations and transplantations should be encouraged to increase the rate of transplantation. Living related liver transplant is an important alternative source of organs, but should not replace cadaveric donation.

P158
OSTEOPOROSIS IN PEDIATRIC LIVER TRANSPLANTATION

Walid Faraj, Ghina El Nounou, Abdallah Abu Niaj, Farida Younan, Antoine Stephan, Ghattas Khoury, Samar Jabbour, Mohamed Khalife
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Introduction: Liver transplantation provides an important, often life-saving treatment for end-stage liver disease. Osteoporosis post liver transplantation has been described in adults however this has not been described in the pediatric population to date.

Case: We present a case of a 13 year old female patient who presented to our institution with liver failure in July 2011. She had a full investigation panel which didn’t reveal any etiology for her liver failure. A year prior to her presentation she was diagnosed to have psoriasis and was treated with Ultraviolet radiation as well as methotrexate. She was not given any steroid at that time. In January 2013, she underwent orthotopic liver transplantation for cryptogenic liver cirrhosis. Her immunosuppressant regimen was Tacrolimus and Prednisone (20 mg then tapered to reach 5 mg per day). Four months post-transplant she started complaining of bilateral lower limb pain and limping while walking. This progressed to a point where she was almost immobile. Magnetic Resonance Imaging of the pelvis showed bilateral avascular necrosis involving the weight bearing surfaces of both femoral heads with more than 50% involvement of the surface area, in addition to extensive edema involving both hip joints. Bone Mineral Densitometry (BMD) was below normal for her age at the hip and forearm (Bone density 0.63g/cm² -2.7 below the standard deviation). She was started on high dose calcium and vitamin D supplement as well as weekly zoledronic acid with a remarkable symptomatic and functional improvement.

Conclusions: Osteoporosis in pediatric patients post liver transplantation is a very rare entity that has not been well described in the literature. Osteoporosis should be excluded in pediatric patients presenting with lower extremity pain after liver transplantation with steroid as part of the immunosuppression regiment.

P159
SYNTHETIC GRAFT FOR RECONSTRUCTION OF MIDDLE HEPATIC VEIN TRIBUTARIES IN LIVING DONOR LIVER TRANSPLANTATION

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1Ein Shams University, 2 Fayoum University and 3Military Medical Academy, Egypt; 4Kyoto University, Japan

Introduction: Anterior segment congestion in the in right lobe liver graft without middle hepatic vein may lead to graft dysfunction. Draining the middle hepatic vein tributaries using autologous or cryopreserved vessels can be a good solution. However, these vessels are unavailable and their preparation is complicated procedure. An expanded polytetrafluorethylene (ePTFE) graft can be used for reconstruction of anterior segment tributaries.

Materials and Methods: Eighteen (ePTFE) grafts (8mm in internal diameter) were used to drain 15 segment V vein tributaries of the middle hepatic vein and 3 for drainage of segment VIII vein tributaries. Follow up of graft was done using Doppler study for patency and congestion and liver function tests including levels of liver enzymes.

Results: The one week and one month patency were documented in 17/18 cases without neither evidence of congestion nor infection.

Conclusions: Thus, we considered synthetic graft could be used to overcome the unavailability of vessel grafts and to make it simple procedure.
ASSOCIATION BETWEEN TH1 AND TH2 CYTOKINES AND HBV INFECTION IN LIVER TRANSPLANT PATIENTS

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¹Islamic Azad University, Larestan branch, Larestan, Iran, ²Shiraz Transplant Research Center, Shiraz University of Medical Sciences, Shiraz, Iran, ³Shiraz Transplant Center, Shiraz University of Medical Sciences, Shiraz, Iran, ⁴Shiraz HIV/AIDS Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

Introduction: Hepatitis B Virus (HBV) has an important role in introducing end stage liver diseases and need of liver transplantation. HBV recurrence is major issue in post liver transplant outcomes. Viral reinfaction may also lead to graft failure or death. The pre transplant HBV DNA status being the best accurate predictor of HBV recurrence post liver transplantation. HBV infection results in a broad spectrum of liver disease ranging from acute and chronic infections probably related to host immune factors including Th1 and Th2 inflammatory cytokines. Th1 cells produce cytokine such as IL-16, IL-2, IL-6, IFN-γ, TNFα , TGFβ and Th2 cells produce cytokines such as IL-4, IL-10. Cytokines produced in the liver are essential in defense against HBV infection and also evade cellular immune defense mechanisms. Therefore, in this study the possible association between Th1 and Th2 cytokines and HBV infection was evaluated in liver transplant patients.

Materials and Methods: The 69 orthotopic liver transplant patients enrolled in a cross sectional study. The EDTA-treated blood samples were also collected from each liver transplant patient pre and post-transplantation. The molecular presence of HBV DNA genome was determined using a qualitative HBV-PCR kit (CinnaGen, Iran) according to the manufacture instruction. Quantitative measurement of Th1 and Th2 plasma cytokines including: IL-2, IL-4, IL-6, IL-10, IL-16, TNFα, TGFβ and IFN-γ using ELISA Kits (Stressgen, USA) according to the manufactures instructions.

Results: The HBV DNA was detected in 20.8% and 39% of plasma samples in patients pre and post-transplantation, respectively. The levels of the Th1 cytokines including IL-2, IL-6, IL-16, TNFα, TGFβ, and IFN-γ were elevated in different time periods in HBV infected patient’s pre and post liver transplantation. The levels of the Th2 cytokines including IL-4, IL-10, were elevated in different time periods in HBV infected patients pre and post liver transplantation.

Conclusions: Diagnosis of the higher levels of Th1 and Th2 inflammatory cytokines in patients with HBV infection in both pre and post-transplant periods emphasized on continuing the immune related inflammatory response in HBV infected liver transplant patient’s pre and post-transplantation.

ASSOCIATION OF POLYMORPHISMS IN PRE-MICRORNA-149 AND -499 WITH THE OUTCOMES OF HCC LIVER TRANSPLANTATION

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¹Transplant Research Center, Shiraz University of Medical Sciences, Shiraz, Iran, ²NourDanesh Institute of higher education, Mymh, Isfahan, Iran

Introduction: Primary miRNAs (pri-miRNA) are transcribed by RNA polymerase II and processed into precursor miRNAs (pre-miRNAs) in the nucleus by the microprocessor complex (DGCR8/Drosha). Finally mature miRNAs recognize their mRNAs targets and impose their negative regulation on protein synthesis by degradation of matching mRNA or inhibition of translation. These single-stranded RNAs have essential roles in many biological and pathological processes and their aberrant expression is associated with disease initiation and/or progression which renders to regulation of inflammation, innate and adaptive immunity, fibrosis and in signaling mechanisms implicated in allograft rejections. Single nucleotide polymorphism (SNP) is the most common type of genetic variation in human genome that can potentially alter various biological processes by influencing the miRNA biogenesis and altering target selection. Recent studies have suggested that common genetic polymorphisms alter the processing of microRNA (miRNA) and may be associated with the rejecting allogeneic transplants liver. Hepatocellular carcinoma (HCC) is one of the most common malignant tumors, occurring primarily in chronically diseased livers. Currently, liver transplantation is the optimal cure for HCC limited to the liver. In this study, we analyzed a single-base polymorphism in a human miRNAs called miR-149 and mir-499 in HCC liver transplant patients.

Materials and Methods: in this study 30 patients with liver transplant rejection and 70 non rejected ones were used and matched on age, gender, and underline disease status. To determine the association of the miRNA149 (rs2292832) and miRNA499 (rs3746444) polymorphism on the risk of rejection in liver transplant polymerase chain reaction restriction fragment length polymorphism (PCR-RFLP) assay and also sequencing techniques were administrated. Also the odds ratio (OR) and its 95% confidence interval (95%CI) were used to assess the strength of the association.

Results: The study between the two common SNPs showed the CC genotype of the miR-149C>T and miRNA499 (rs3746444) polymorphism on the risk of rejection in liver transplant polymerase chain reaction restriction fragment length polymorphism (PCR-RFLP) assay and also sequencing techniques were administrated. Also the odds ratio (OR) and its 95% confidence interval (95%CI) were used to assess the strength of the association.

Results: The study between the two common SNPs showed the CC genotype of the miR-149C>T rs2292832 polymorphism showed association with increased risk of liver transplant rejection in HCC patients (CC:OR=5.84, 95% CI: 2.00-17.43, P=0.00017). In addition A allele of miRNA499 A>G rs3746444 polymorphism were significantly more frequent in liver transplant rejected patients with (A:OR=5.56, 95% CI: 2.68-12.03, P=0.000003).
Conclusions: This study suggests a significant association between miR-149C>T and miR-499A>G with the rejection in liver transplant patients and may have effect on the outcome of transplantation in HCC liver transplant recipients. Though recent research had benefited from these comprehensive studies and resources, there were still gaps in our knowledge about the polymorphisms involved in miRNA regulation, and future investigations were expected to address these questions. Further studies on larger populations will need to be conducted to confirm these results to help us better understand the relationship between these polymorphisms and rejection in HCC liver transplant patients.

P162 COMBINATION THERAPY OF SIROLIMUS AND SORAFENIB FOR RECURRENT HEPATOCELLULAR CARCINOMA AFTER LIVER TRANSPLANTATION

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Department of Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

Introduction: Sirolimus and sorafenib have both been used in recurrent hepatocellular carcinoma (HCC) patients after liver transplantation (LT). In the present study, we evaluated the side effects and efficacy of a combination therapy consisting of sirolimus and sorafenib.

Materials and Methods: We retrospectively reviewed patients who had recurrent HCC after LT between 2005 and 2012. Toxicity was evaluated by reviewing medical records for each follow-up visit. Efficacy was evaluated according to the modified RECIST guidelines.

Results: A total of 24 patients who received combination therapy were evaluated to evaluate drug toxicity. Side effects included hand-foot syndrome (n=12, 50%), diarrhea (n=7, 29.2%), fatigue (n=2, 8.3%), and alopecia (n=1, 4.2%). Among the 24 patients enrolled in this study, 19 were evaluated for efficacy. A complete response was observed in only 1 case (5.3%), while a partial response was observed in 2 cases (10.5%). Five cases (26.3%) showed disease stabilization. The median overall survival after initiation of the combination therapy was 21.6 months. In comparison, 26 recipients with recurrent HCC received non-combination therapy. The median survival of patients receiving a non-combination therapy was 12.0 months. However, there was no statistically significant difference in patient survival rate between the combination and non-combination therapy groups (P=0.101).

Conclusions: Combination therapy of sorafenib and sirolimus for recurrent HCC LT recipients may be useful for disease management. However, controlled prospective study is needed to further evaluate the safety and efficacy of combined sorafenib and sirolimus therapy.

Table 1. Clinical Characteristics of Patients Treated with Either Combination Therapy or Non-combination Therapy.

<table>
<thead>
<tr>
<th></th>
<th>Combination Therapy (n=24)</th>
<th>Non-combination Therapy (n=26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age [median (range)]</td>
<td>57 (25 – 77)</td>
<td>49 (29 – 74)</td>
</tr>
<tr>
<td>Gender [Male: Female n (%)]</td>
<td>22 (91.7) : 2 (8.3)</td>
<td>19 (73.1) : 7 (26.9)</td>
</tr>
<tr>
<td>Diagnosis [n (%)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCC with HBV</td>
<td>21 (87.5)</td>
<td>24 (92.3)</td>
</tr>
<tr>
<td>HCC with HCV</td>
<td>1 (4.5)</td>
<td>1 (3.3)</td>
</tr>
<tr>
<td>HCC with NBNC</td>
<td>1 (4.5)</td>
<td>1 (3.3)</td>
</tr>
<tr>
<td>HCC with cholangiocarcinoma</td>
<td>1 (4.5)</td>
<td></td>
</tr>
<tr>
<td>Beyond Milan criteria [n (%)]</td>
<td>15 (62.5)</td>
<td>18 (69.2)</td>
</tr>
<tr>
<td>Time of recurrence from LT [median (range)]</td>
<td>9.50 (2.8 – 40.2)</td>
<td>10.91 (3.0 – 32.4)</td>
</tr>
<tr>
<td>Child-Pugh class [n (%)]</td>
<td>A 15 (62.5)</td>
<td>21 (80.7)</td>
</tr>
<tr>
<td></td>
<td>B 7 (29.2)</td>
<td>5 (19.3)</td>
</tr>
</tbody>
</table>

Abbreviations: HBV, Hepatitis B virus; HCC, hepatocellular carcinoma; HCV, Hepatitis C virus; LT, liver transplantation; NBNC, non hepatitis B or C virus

Table 2. Site of Hepatocellular Carcinoma Recurrence after Liver Transplantation in the Combination Therapy Group

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra-hepatic recurrence without liver involvement</td>
<td>15</td>
<td>62.5</td>
</tr>
<tr>
<td>Hepatic recurrence</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>Extra-hepatic and hepatic recurrence</td>
<td>8</td>
<td>33.3</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100.0</td>
</tr>
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</table>

Table 3. Response to Combination Therapy

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete response</td>
<td>1</td>
<td>5.3</td>
</tr>
<tr>
<td>Partial response</td>
<td>2</td>
<td>10.5</td>
</tr>
<tr>
<td>Stable disease</td>
<td>5</td>
<td>26.3</td>
</tr>
<tr>
<td>Progression</td>
<td>8</td>
<td>42.1</td>
</tr>
<tr>
<td>Not evaluated</td>
<td>3</td>
<td>15.8</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 1. Overall Survival after Treatment (P =.101)
P163

TRANSCRIPTION FACTOR-7-LIKE 2 (TCF7L2) GENE AND DIABETES AFTER LIVER TRANSPLANTATION

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Introduction: Diabetes after transplantation is a serious complication in transplant recipients. TCF7L2 is a Wnt signaling-associated transcription factor that plays an important role in β-cell proliferation and insulin secretion. In the present study, we assessed the association between TCF7L2 rs7903146 variants and the risk of NODAT after liver transplantation.

Materials and Methods: One hundred forty liver transplant recipients that received tacrolimus-based immunosuppressive drug were participated. Patients was divided into NODM group (n=70) and non- NODM (n=70) group and genotyped using PCR-RFLP method. One hundred normal subjects were also considered as control group.

Results: Mean patient age, BMI acute rejection episode, and total steroid dose were higher in NODAT group compared to non- NODAT patients. The TCF7L2 rs7903146 genotypes had no association with NODAT within the studied subjects. The genetic TT variants in TCF7L2 rs7903146 gene variants between normal subjects and transplanted recipients was found. The genetic TT variants in TCF7L2 rs7903146 increased the risk of liver cirrhosis, with odds ratio ranging 3.62.

Conclusions: Although no correlation was found between TCF7L2 genotypes and NODAT, but it seems that TT genotype predispose the patients to end stage liver disease. Further studies with larger samples are necessary to confirm our observation.

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PREVENTION OF PORTAL VEIN RE-THROMBOSIS AFTER ORTHOTOPIC LIVER TRANSPLANTATION: ASPIRIN OR WARFARIN?

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Introduction: Portal vein thrombosis (PVT) is a complication of chronic liver disease that may adversely affect liver transplant survival. We evaluate the risk of PV re-thrombosis in patients receiving warfarin and aspirin therapy post transplantation.

Materials and Methods: Among 1450 [522 (36%) female and 928 (64%) male] adult orthotopic liver transplantation between 2009 and 2013 that were performed in our transplant center, patients with PVT were selected. The etiology of cirrhosis, patients’ operative and imaging findings and MELD score were recorded and PVT grading was done based on Yerdel classification. The patients with extensive PVT in whom thrombectomy was impossible and the patients with Budd-Chiari syndrome were excluded from the study. After PV thrombectomy, ensuring the patency of PV blood flow by color Doppler ultrasonography and heparin therapy during hospital admission, the patients’ were randomly divided in two groups: the patients receiving Aspirin and the ones receiving warfarin therapy irrespective of their diagnosis and grading of PVT and the risk of PV re-thrombosis and complications were compared in these two groups within 3 months post transplantation. Informed consent was taken from all the patients and medical ethics committee of Shiraz University of Medical Sciences approved the study.

Results: 139 patients showed PVT at the time of transplantation. They were 92 (66%) male and 47 (34%) female with age range of 15-65 years. The most common etiologies of liver cirrhosis among PVT patients were cryptogenic cirrhosis (31%) and HBV hepatitis (29%). The mean MELD score of the PVT patients was 21. Compared to mean MELD score of all transplanted patients (score 18) the PVT patients had higher MELD score at the time of transplantation. Frequency of PVT grading were as follows: 60 % grade 1, 25% grade 2, 10% grade 3 and 5 % grade 4. PV re-thrombosis did not recur in either groups but two patients who received warfarin therapy were died due to uncontrolled bleeding (one with intracranial hemorrhage and one with internal bleeding).

Conclusions: Aspirin can effectively prevent PV re-thrombosis after liver transplantation and it may have lesser bleeding complications comparing to warfarin therapy.
BILIARY COMPLICATIONS MANAGEMENT AFTER LIVER TRANSPLANTATION

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Introduction: Although patient and graft survival rate has been increased, biliary complications after liver transplantation associated with significant morbidity and mortality. There is a multidisciplinary approach to solve this problem. We reviewed our experience in management of biliary complications after deceased donor liver transplantation in 105 patients over a 13-year period.

Materials and Methods: We reviewed database of 105 patients who underwent deceased donor liver transplantation at Nemazee Hospital (Shiraz, Iran), and presented with clinical or biochemical signs of biliary complications between January 2000 and September 2013. All patients presented with abnormal results on liver function tests and a variety of clinical symptoms such as fever, icterus and cholangitis. In addition, if the findings of a liver biopsy were not conclusive for rejection or for recurrent hepatitis C virus infection, sonography or MRCP was performed to rule out any biliary complication. If we suspect to any biliary problem, ERCP or PTC was performed for the patients. If the complication was not resolved by the mentioned procedures, exploration of common bile duct and Roux-en-Y choledochojejunostomy was done for the patients. Descriptive test were performed for analysis of data. All the analyses were performed using SPSS 16.0 (SPSS Inc, Chicago, IL).

Results: Our study group comprised 105 patients; 64(61%) men and 41(39%) women with a mean age of 33.6 ±14.8 years (range, 3 to 66 years). The interval between orthotopic liver transplantation and the clinical onset of biliary complications ranged from 1 to 122 months (mean 18.8± 28.2 months). The most prevalent indications for liver transplantation were as follows: cryptogenic (n = 29), hepatitis B liver cirrhosis (n = 15), primary sclerosing cholangitis (n = 13), autoimmunohepatitis (n = 13), Wilson (n=11). The biliary tract was reconstructed with choledochocholedochostomy (duct to duct anastomosis) in 87 (87%) and Roux-en-Y choledochojejunostomy (RYCJ) in 13 (13%) in liver transplant procedure. Endoscopic retrograde cholangiopancreatography (ERCP) and percutaneous transhepatic cholangiography (PTC) was performed in suspected patients with biliary complication in 73(69.5%), 25(23.8%) respectively. Secondary operation and biliary exploration was performed in 39(37.1%) of patients. Among patients underwent ERCP, 21 (28%) and PTC, 12(48%) need biliary exploration.

Conclusions: In our study about 70% of patients with biliary complications after liver transplantation, responded to interventional procedure (ERCP, PTC) completely and only 30% of them need exploration, so these procedures are effective management for biliary complications after liver transplantation.
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1Ilia State University and 2Tbilisi State Medical University, Tbilisi, Georgia

Introduction: The overall goal of our research group is development of novel therapies. Particularly we are interested in combining the principles of tissue bioengineering and surgical sciences to create auxiliary organs. These principles are applicable to developing therapies for diseases characterized by organ failure, especially in the context of metabolic deficiencies, tissue injury and genetic disorders, as exemplified by acute or chronic liver failure, coagulation disorders, inherited jaundice, and type-1 diabetes mellitus. At the present time, we are investigating the potential of creating auxiliary organs in supplementary sites, such as decellularized human placenta and cow placentomes.

Materials and Methods: To determine the possibility of using placenta as an auxiliary liver it was necessary: to study an anatomic structure of the placenta and placentome, and its vascular system before and after a decellularization; to define a place and method for liver tissue microfragments transplantation in a decellularized placenta; to establish a method of lyophilization of the whole decellularized placenta and its prospective rehydration; to determine the most suitable place for transplantation of an auxiliary liver in the recipient on human cadavers, and also to study functionality of temporary auxiliary liver in experimental animal models of acute liver failure.

Results: Heterotopical transplantation of the temporary auxiliary liver from human placenta or animal placentome can be used as a supporting liver during the acute failure of the organ.

Conclusions: Further development of this auxiliary liver system will provide insights into mechanisms concerning neo-organogenesis and into potential therapeutic applications of heterotopic liver in specific diseases.

P169
PROSPECT OF HUMAN AND ANIMAL PLACENTA FOR CREATION OF NEW ORGANS: PART I - ANATOMICAL STUDY

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Introduction: Acute liver failure (ALF) is a syndrome that can lead to polyorgan failure of the patient and death. Currently liver transplantation is used for the treatment of such patients. However, most patients with rapidly progressive ALF do not have enough time to wait for the organ. One of the attractive therapeutic solutions could be formation of the supporting system, which can grant patient with time and facilitate recovery of native liver. Our aim was to analyze placenta as a potential host for auxiliary liver creation.

Materials and Methods: The study was conducted on 30 full-term placentas. 15 placentas were injected with 50% Latex and were dissected macroscopically in order to visualize the umbilical vessels and their chorionic and subchorionic branches; 15 placentas were injected with 50% Latex and were digested in 80% HCl. Similar experiments have been performed on cow placentomes of 8 cows. To identify the optimal site for transplantation, formalin prepared four human cadavers were investigated.

Results: Human umbilical cord contains two arteries and vein. However, cow umbilical cord is formed by two arteries and two veins. In both cases, vascular distribution is strongly dependent on the shape of placenta. Round shape human placenta demonstrates discoid, roundish and globular villoss tree, in contrast to cow placenta which resembles to fir tree with cones. Placenta of cow has approximately 120 placentome, whereas human placenta contains 15 to 20 cotyledons.

Conclusions: Structure of the human and cow placenta
can be used in the bioengineering of organ and tissue. Placentome of the cow has long isolated arteries and veins, which can be easily used for the vascularisation of the graft into the body of recipient.

P170
SPONTANEOUS CLEARANCE OF HEPATITIS C INFECTION AFTER LIVER TRANSPLANTATION

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Introduction: Hepatitis C (HCV) cirrhosis remains the most common indication for liver transplantation worldwide. Graft re-infection is nearly universal causing significant morbidity and mortality, spontaneous clearance of HCV after liver transplantation and re-transplantation is extremely rare. We report two cases of spontaneous clearance happened shortly postoperatively.

Case 1: 32 year old lady received cadaveric liver transplantation for de-compensated HCV related liver cirrhosis in 2007. The patient developed HCV recurrence, and did not tolerated antiviral treatment in form of pegulated interferon and ribavirin. Liver biopsy on October 2011 showed recurrent hepatitis C, grade 2/4 and stage 3-4/4. She developed ascites and massive right hepatic hydrothorax in September 2012, HCV RNA was 65553 IU/ml, genotype 4, she was relisted and received cadaveric liver transplantation on March 13 2013, and she was on prograf and tapering steroids, but was switched to cyclosporine after she developed seizure at post-operative day 5. On March 26, liver enzymes increased, ALT 144 U/L, AST 136 U/L, GGT 680, ALP 496, Bilirubin 54 umol/L, cyclosporine level 46, and normal liver sonogram. Liver enzymes normalized 3 days after increasing the cyclosporine level. HCV RNA was negative on April 13 with a repeat test on May 18 confirmed the results. The liver enzymes remain normal. to our knowledge, this is the first case of HCV genotype 4 spontaneous clearance after liver retransplantation.

Case 2: 69 y old lady with treatment naïve HCV cirrhosis received living related liver transplantation in April 7 2013, complicated with anastomotic stricture treated with percutaneous transhepatic cholangiogram (PTC). Liver enzyme improved but did not return to normal, Immunosuppression included prograf, cellcept and steroids. ALT was 148 U/L, AST 136 U/L and bilirubin 58umol/L and prograf level 11. Liver biopsy on April 30, showed steatosis (15%), no evidence of rejection or HCV recurrence. The HCV RNA before liver transplant was 2873 IU/ml, genotype 1b, and repeat on April 27 and May 2nd was undetectable. Currently liver enzyme normalized.

Both patients had low HCV RNA before liver transplantation, IL28 B of the donors and recipients are not available.

Conclusions: Spontaneous clearance of hepatitis C rarely occurs after liver transplantation and extremely rare after retransplantation. This finding may be explained by alterations in the host immune responses to HCV after transplantation.

P171
STUDY OF ASPARTATE AMINOTRANSFERASE TO PLATELETS RATIO INDEX AS A NON INVASIVE METHOD FOR DIAGNOSING LIVER FIBROSIS IN CHRONIC HCV PATIENTS

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Introduction: Hepatitis C accounts for a sizable proportion of cases of chronic liver disease, and cases of hepatocellular carcinoma and represents the most common indication for liver transplantation.

Materials and Methods: Determining the presence or absence of significant fibrosis is essential in deciding protocol of management of patients infected with HCV, however liver biopsy is an invasive procedure with an occasional complications, for this reason, a non invasive method for assessing hepatic fibrosis is needed. The study aimed to assess the performance of AST to Platelets Ratio Index (APRI) consisting of routine laboratory tests derived from AST and Platelets as one of the non invasive markers in diagnosing the degree of liver fibrosis in 31 Egyptian patients with chronic geno type 4 HCV.

Results: The study revealed that there was a significant positive correlation between APRI and fibrosis stage in the studied patients. Using ROC curve for APRI in patients with different fibrosis stage (F1), (F2),(F3) and (F4) versus (F0), AUC was 1 and the best cutoff value was > 0.08 at which sensitivity was 100 % and specificity was 100 %.

Conclusions: The study revealed that APRI was a reliable, simple and non invasive test in predicting HCV related fibrosis compared to liver biopsy being the gold standard for diagnosis of hepatic fibrosis.
P172
EVEROLIMUS IN HCC WITH EXTENDED MILAN CRITERIA

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Introduction: To evaluate everolimus monotherapy.

Materials and Methods: We did 100 liver transplantation during last two years. There were 10 patients with extended Milan Criteria.

Results: Only 2 patients had acute rejection episodes. Mean Certican level was 3.8ng/ml. Postoperative follow up period was 15.7 months. Patient survival rate was 80% and recurrence free survival was 70%.

Conclusions: Everolimus monotherapy is effective to prevent acute rejection but tumor recurrence were not uncommon

P173
NEW ONSET DIABETES MELLITUS AFTER RENAL TRANSPLANTATION: ARE THE NEW IMMUNOSUPPRESSION DRUGS TO BE BLAMED?

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Introduction: To determine the frequency and correlates of new onset diabetes after transplantation (NODAT) in patients receiving Tacrolimus versus Cyclosporine immunosuppression after renal transplantation.

Materials and Methods: It was a retrospective observational study to assess the frequency of NODAT in transplanted patients receiving either Tacrolimus or Cyclosporine for immunosuppression. Patients subjected to a primary live related renal transplant at SIUT during the period 2007 to 2008 between ages 16 and 60 years and those who were non Diabetics prior to renal transplantation and with no hepatic or cardiac dysfunction were included. The minimum follow up period was one year post transplant. HLA matching status was defined as ‘poor’ for types 0H/0Ag, 0H/1Ag, 0H/2Ag; while types 0H/3Ag 0H/4Ag, 0H/5Ag, 1H/3Ag, 1H/4Ag, 1H/5Ag, 1H/6Ag, 2H/6Ag, 0H/4Ag, 0H/5Ag or identical HLA types were coded as ‘good’. Patients receiving Tacrolimus due to a poor match initially or later due to rejection and others on Cyclosporine were identified. Variables studied were BMI, high blood pressure, age, hepatitis status, HLA match status, and use of Tacrolimus. Diabetes was diagnosed according to the International Diabetes Federation (IDF) and American Diabetes Association (ADA) criteria. Crude odds ratios were calculated to determine the strength and direction of association between developing diabetes after transplant and each of the variables studied. Variables found to be statistically significant at the level of p < 0.05 were used in the multiple logistic regression model.

Results: Cumulatively, 506 patients underwent kidney transplant during the study period. Twenty-three (4.5%) patients were diabetic prior to transplant, and were excluded. Of the remaining 483 patients, 8 (1.7%) were started on new medicines i.e. Tacrolimus immediately after transplant, whereas 103 (21.3%) were switched over to the new medicines later for other indications. A total of 111 (23.0%) patients received Tacrolimus, of whom 75 (26%) developed NODAT. Cyclosporine recipients numbered 367 and 50 (13.6%) of them developed NODAT. The mean duration between transplant and development of NODAT was 143 ± 181.5 days, (range 1 – 818 days). Hypertension was present in 324 (67.1%) patients and raised BMI in 32 (6.6%). Based on crude odds ratios, no statistically significant association were found between development of NODAT and high blood pressure or hepatitis. The highest odds (3.25) was determined for the use of Tacrolimus in the development of diabetes. In this study patients receiving Tacrolimus were 3.25 times more likely to develop NODAT versus those patients who received Cyclosporine, while controlling for high BMI, poor HLA match, and age.

Conclusions: In the present observational study, Tacrolimus was found to be a statistically significant risk factor for development of NODAT compared to Cyclosporine.

P174
BACTERIAL INFECTION MONITORING IN THE EARLY PERIOD AFTER LIVER TRANSPLANTATION

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Introduction: Infection and acute rejection episodes are still the main causes of morbidity and mortality in liver transplant recipients. Infections in this patient population are notoriously difficult to diagnose because the usual signs and symptoms of infection may be masked or absent. The study comprises an analysis of bacterial infections in the early period after liver transplantation.

Materials and Methods: The study of 129 adults who underwent Liver transplantation from Jan 2013 to Dec 2013, included patients followed prospectively from the day of transplantation to 1 week after the procedure by bacteriological cultures. Samples comprised mainly blood, urine, sputum, and JP drain.

Results: Among the 129 consecutive liver transplant recipients, we performed Living donor liver transplantation 88(68.2%) and Deceased donor liver transplantation...
P175
PERFORMED EVERY DAY.
we could reduce the number of bacterial culture testing to be
the effect of immunosuppression is not yet present. We suggest
during the first month after transplantation, since the full
From the day of transplantation to 1 week after the procedure
by bacteriological cultures every day. The data revealed that
the following factors were significantly different between
culture positive, and culture negative groups: LDLT vs.
impact of bacterial infection such as fever, leukocytosis. But culture positive
had significantly different in infectious event in weeks
and most of infection events were due to surgical problem
most of infection events were due to surgical problem
(75%).

P176
SEIZURE AS A NEUROLOGIC COMPLICATION AFTER LIVER TRANSPLANTATION

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Introduction: Seizure is a common complication after liver transplantation (LT). Seizure has been reported up to 25% of the patients in different case series. Multiple factors such as immunosuppressive toxicity, sepsis, metabolic imbalance, structural lesions can be trigger seizures. The aim of this retrospective study was to evaluate the seizure type and associated factors in adult liver transplant patients.

Materials and Methods: We retrospectively evaluate the medical records of 142 adult patient who undergone LT between 2005 and 2013. We record demographic data, immunosuppressive treatment, seizure type, etiology, recurrence and treatment.

Results: Of the 146 patient, 23 (15.7%) had seizure after LT. We analyzed the data of 23 patients who had seizure. In our study group there was 11 female and 12 male, ages ranged from 18-63 (39.9±14.8). Most common seizure type was generalized tonic-clonic seizure and occurred in 87% (20/23) of the patient. We observed complex partial seizure in one, generalized tonic-clonic seizure and occurred in 87% (20/23) of the patient. We observed complex partial seizure in one, and status epilepticus in two patients. Immunosuppressive drug related seizure was occurred in 8(34.8%) patient, the drug blood level was normal in all and most of the patient (7/8) experienced seizure within the first week after the surgery. Multiple factors (26.1%), metabolic imbalance (17.4%), structural lesion (13%) and sepsis (8.7%) were the other factors that were established as underlying conditions.

Conclusions: In conclusion, seizure is seen in significant proportion of patients who undergo liver transplantation. Immunosuppressive drugs are the most common factor that

P175
USE OF METFORMIN IN LIVER TRANSPLANT RECIPIENT WITH HEPATOCELLULAR CARCINOMA

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Introduction: It has become apparent that the diabetes after transplantation has serious consequences for the patient, being associated with reduced graft function, patient survival, and increased risks for cancers. But there is no clear rationale to deny vast numbers of recipients the assemblage of clinical benefits attributed to metformin therapy in the absence of definitive contraindications.

Materials and Methods: Between May 1996 and November 2013, total 641 HCC patients treated by LT in our institution. Forty three recipients had medication history of metformin and 21 of these recipients were NODAT. We analyze these recipients retrospectively. Safety is estimated by history of drug complication and outcome is estimated by disease free survival (DFS) and overall survival (OS).

Results: 7 recipients underwent deceased donor liver transplantation (DDLT) and 36 recipients underwent living donor liver transplantation (LDLT). Preoperative eGFR (estimated glomerular filtration rate) of recipients of NODAT and non-NODAT were 92.1 (32.8 – 129) and 101.4 (55.6 – 211.9) respectively, and eGFR before medication of recipients of NODAT and non-NODAT were 87 (56.2 – 130.2) and 99.05 (43 – 232.9). Median duration days of medication was 885 (50 - 3794) and most frequent drug complication was hypoglycemia (14 %). 5 recipients had history of renal function impairment and these recipients had metformin withdrawal and there was no recipients had history of lactic acidosis. Disease free survival and overall patient survival rates at 1 and 2 year were 97.7, 94.7 % respectively.

Conclusions: Metformin-associated lactic acidosis is extremely rare complication in LT recipients because their short-term, regular follow up. And metformin can be a promising agent for the HCC related LT recipients with or without NODAT, and we suggest that this warrants further testing for chemopreventive effect of metformin in case control trial.

P176
SEIZURE AS A NEUROLOGIC COMPLICATION AFTER LIVER TRANSPLANTATION

Eda Derle¹, Seda Kibaroğlu¹, Ruhsen Öcal¹, Mahir Kırnap², Münire Kılınç⁴, Sibel Benliⁱ, Mehmet Haberal²

Introduction: Seizure is a common complication after liver transplantation (LT). Seizure has been reported up to 25% of the patients in different case series. Multiple factors such as immunosuppressive toxicity, sepsis, metabolic imbalance, structural lesions can be trigger seizures. The aim of this retrospective study was to evaluate the seizure type and associated factors in adult liver transplant patients.

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Conclusions: In conclusion, seizure is seen in significant proportion of patients who undergo liver transplantation. Immunosuppressive drugs are the most common factor that
associated with seizure occurrence, and the cessation of the related drug can prevent the recurrent seizures.

P177
NEUROLOGIC COMPLICATION AFTER LIVER TRANSPLANTATION: SINGLE CENTER EXPERIENCE
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Introduction: Neurologic complications (NCs) occurred frequently after liver transplantation (LT). Up to 943 of patients experienced NCs after LT. Those complications were associated with significant patient morbidity, mortality and longer hospital stay. The aim of this retrospective study was to evaluate the type and incidence of NCs after LT in adult patients.

Materials and Methods: We retrospectively evaluate the medical records of 176 adult patient who undergone LT between 1995 and 2013. We record demographic data, NCs type, type and level of immunosuppressive treatment, etiology of liver failure.

Results: Our study group was consists of 176 patients (48 cadaveric liver transplantations, 128 living donor transplantations), 53 (30.1%) female, and age ranged between 18 and 66 (mean age 43.1 ± 13.7). Most of our patient received tacrolimus alone (52%) or combined with mycophenolate mofetil (33%) as immunosuppressive treatment. NCs occurred in 42% (n=74) of patients. The most common NCs were diffuse encephalopathy (39/176) and seizure (25/176). Other NCs were posterior reversible encephalopathy (3/176), peripheral neuropathy (3/176), cerebrovascular disease (2/176) and central nervous system infection (2/176). Age, etiology of liver failure, type of transplantation was not associated with occurrence of NC.

Conclusions: In conclusion, there was a high incidence of neurologic complications after LT. Diffuse encephalopathy and seizure were common NCs after LT. Physicians should be aware of high risk of NCs and evaluation of predisposing factors, such as immunosuppressive toxicity and metabolic imbalance, should be made immediately and initiate treatment as early as possible.

P178
INFECTIOUS COMPLICATIONS IN ICU-BOUND PEDIATRIC CASES AFTER LIVING DONOR LIVER TRANSPLANTATION
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Introduction: Infection after pediatric living donor liver transplantation (LDLT) is a major cause of morbidity and mortality. Herein, we aimed to determine the incidence, timing, location for infection.

Materials and Methods: We retrospectively investigated infection for 3 post-operative months in 551 consecutive pediatric patients, who underwent primary LDLT in Kyoto university hospital.

Results: A total of 551 patients met the inclusion criteria. Patients were divided into 3 groups according to the preoperative status, Group A (Gr. A) included 31 patients who had been admitted to the ICU before LDLT, group B (Gr. B) had 295 children who were hospitalized but did not require ICU admission while group C (Gr. C) consisted of 225 patients who were living at home and underwent an elective transplant. The mean age of patients was 4± 6; 3± 4 and 5± 5 in Gr. A, B and C respectively P (<0.001); Females representing (67%, 64% and 58%) of Gr. A, B and C respectively. Analysis of the incidence of Hospital acquired infection (HAI) in those patients Showed the incidence of HAI was 58%, 60% and 67% Gr. A, B and C respectively. Bacterial infection contributed to 26%, 52% and 36% of patients in Gr. A, B and C respectively. Gr. A infected patients had highest incidence of multidrug resistant organisms 63% comparing to 27% and 28% infected patients in Gr. B and C respectively. While viral infections were detected by PCR in 91/545 episodes. The comments isolate was MRSA, MRSA and Enterococcus in Gr. A, B and C respectively. Fungal infection occurred in 13% of Gr. A patients comparing to 10% and 4% in Gr. B and C respectively. While viral infections were detected by PCR in 25%, 26% and 26% of Gr. A, B and C respectively. During the study period the Gr. A infected patients were complicated by 20 episodes of infection with an infection rate of 1.2 per patient. Gr. B infected patients were complicated by 263 episodes of infection with an infection rate of 1.3 per patient. Gr. C infected patients were complicated by 164 episodes of infection with an infection rate of 1.2 per patient. Bacterial and fungal infections were polymicrobial in 3 episodes and monomicrobial in 8 episodes in Gr. A; polymicrobial in 69 episodes and monomicrobial in 97 episodes in Gr. B and polymicrobial in 40 episodes and monomicrobial in 59 episodes in Gr. C. From bacterial episodes 13 organisms,186 organisms and 107 organisms in Gr. A, B and C respectively. The comments isolate was MRSA, MRSA and Enterococcus in Gr. A, B and C respectively. The site was showed in table 1.Viral infections were detected by PCR in 91/545 episodes.
Our study also included 10 cases that were diagnosed as infection by clinical examination and CT without any defined organism; 8 of them were diagnosed as pneumonia, one was diagnosed as cholangitis, one was diagnosed as lung abscess.

**Conclusions:** Fungal and multi-drug resistant infections usually complicate ICU bound patients after LDLT.

table 1. The Site of Infection

<table>
<thead>
<tr>
<th>Patients</th>
<th>SSI No (%)</th>
<th>UTI No (%)</th>
<th>GIT No (%)</th>
<th>RTI No (%)</th>
<th>BSI No (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 No (%)</td>
<td>58 (62)</td>
<td>16 (17)</td>
<td>11 (11)</td>
<td>6 (16)</td>
<td>13 (14)</td>
<td>94</td>
</tr>
<tr>
<td>Group 2 No (%)</td>
<td>34 (49)</td>
<td>20 (20)</td>
<td>4 (2)</td>
<td>14 (14)</td>
<td>15 (15)</td>
<td>168</td>
</tr>
<tr>
<td>Group 3 No (%)</td>
<td>6 (7)</td>
<td>1 (1)</td>
<td>0 (0)</td>
<td>1 (1)</td>
<td>1 (1)</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>146</td>
<td>51</td>
<td>16</td>
<td>30</td>
<td>49</td>
<td>271</td>
</tr>
</tbody>
</table>

**P179**

**ROLE OF BRONCHOALVEOLAR LAVAGE IN DIAGNOSIS OF FUNGAL INFECTIONS IN LIVER TRANSPLANT RECIPIENTS**

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**Introduction:** Bronchoscopy with bronchoalveolar lavage (BAL) is useful tool in the diagnosis of pulmonary infections in immunocompromised patients such as liver transplant patients. Several factors might predict pulmonary infections in liver transplant recipients, especially immunosuppressive regimen, age, sex and accompanying systemic disease. The aim of this study was to analyze the effectiveness of BAL in establishing the diagnosis of pulmonary infections in liver transplant recipients.

**Materials and Methods:** Patients who underwent BAL were selected among 408 liver transplant recipients from January 1990 to December 2012 in Başkent University. Clinical findings of these patients, including age, gender, immunosuppressive therapies, clinical symptom, thorax computed tomography results, bronchoscopic findings, culture results of BAL fluid, total blood count, treatment regimen, age at transplantation and the time between transplantation and BAL were examined.

Conventional cytology and BAL culture was performed.

**Results:** There were 18 patients who underwent BAL after liver transplantation. The median age was 49.5 (age range: 10-72). 16 of patients were male. Eight patients had diabetes mellitus. 9 patients had received tacrolimus while 6 patients received cyclosporine and 3 patients received sirolimus. In 5 (27.8%) patients, fungal microorganism were observed in bronchoalveolar lavage material. Three of them were Aspergillus fumigatus and two of them were Candida albicans.

**Conclusions:** Solid organ transplant recipients are at high risk of infectious complications and the most common manifestations of these infections is pulmonary fungal infection. These infections are associated with a considerable morbidity and mortality, so the rapid diagnosis is notably important. As an extremely useful tool, flexible bronchoscopy with bronchoalveolar lavage (BAL) is simple, safe, fast and reliable method for detecting fungal infections in liver transplant recipients.

**P180**

**IMPROVED SEVERE HEPATOPULMONARY SYNDROME AFTER LIVER TRANSPLANTATION (CASE REPORT)**

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**Introduction:** Hepatopulmonary syndrome is a severe complication of liver cirrhosis, which is characterized by chronic hypoxia, intrapulmonary vascular dilatation and shunt. Liver transplantation is the only therapeutic cure for these patients. This case report describes a patient with typical findings of a severe Hepatopulmonary syndrome, and clubbing fingers, who had correction of HPS by deceased donor LT.

**Materials and Methods:** The patient was a 32-year-old male with diagnosis of auto immune hepatitis since 13 years ago. His Child-Turcotte-Pugh classification was C and MELD (Model of End-Stage Liver Disease) score was 22. He had been suffered from progressive liver failure with dyspnea, clubbing fingers, and cyanosis. Preoperative arterial blood gas analysis revealed hypoxia (arterial O2 tension of 52mmHg and O2 saturation of 83%) with a severe extracardiac right-to-left shunt in echocardiography with agitated saline bubble, which suggested an intrapulmonary arteriovenous shunt.

**Results:** The patient recovered effectively after liver transplantation. The partial pressure of arterial oxygen improved progressively during two week postoperative follow up period. (his PaO2 after discharge was 207 mmHg) and his dependency on oxygen was removed rapidly after about one month.

**Conclusions:** There are no effective medical therapies for severe Hepatopulmonary syndrome, and liver transplantation is the only consistent treatment for these patients. Prognosis of HPS patients who did not undergo liver transplantation showed significantly poor. Many transplant centers have considered Hepatopulmonary syndrome as a contraindication to liver transplantation in past, however, it is now considered as an indication for liver transplantation because of, perioperative care, post operative ICU care and improvement in surgical techniques. In this report, we presented a patient of severe Hepatopulmonary syndrome.
who had typical findings of intrapulmonary shunt detected by echocardiography and clubbing fingers with low PaO₂, which was successfully treated by liver transplantation.

P181
THE EFFECT OF BOLUS ADMINISTRATION OF TRANEXAMIC ACID AT PRENAHEPATIC OR ANHEPATIC PHASE DURING LIVER TRANSPLANTATION

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Introduction: Hyperfibrinolysis is common during liver transplantation (LT), and tranexamic acid is frequently used as antifibrinolytics. Although there were many studies about continuous infusion of tranexamic acid after bolus administration, there was no study about the bolus administration of tranexamic acid at preanhepatic or anhepatic phase during LT.

Materials and Methods: With IRB approval, we retrospectively reviewed adult LT recipients who received bolus administration of 500 or 1,000 mg tranexamic acid at preanhepatic (group I) or anhepatic phase (group II) due to oozing of surgical field or anticipation of massive bleeding from May 2010 to December 2013. We diagnosed hyperfibrinolysis when LY60 of thromboelastograph was greater than 15 at following time points during LT: after anesthetic induction (T1), at the beginning of anhepatic phase (T2), and 5 minutes after reperfusion (T3).

Results: Among 443 LT recipients, 38 recipients were included in final analysis (group I 28, group II 10). In group I, 9 recipients received 1,000mg tranexamic acid, and 19 recipients received 500mg tranexamic acid. Hyperfibrinolysis was not observed at T1, and T2. Hyperfibrinolysis was observed at T3 in two recipients who were given 500 mg of tranexamic acid. However, two hyperfibrinolysis were not severe (LY60 18.5 and 54), and disappeared one hour after reperfusion. In group II, 3 recipients received 1,000mg tranexamic acid, and 7 recipients received 500mg tranexamic acid. Hyperfibrinolysis was observed in 50% (5/10) of recipients at T2, but not at either T1 or T3. There was no case of intraoperative pulmonary thromboembolism. However, there were 2 cases of hepatic artery thrombosis, and 2 cases of portal vein stenosis in group I.

Conclusions: Bolus administration of tranexamic acid effectively suppressed fibrinolysis during adult LT. Further study about the effect of bolus administration of tranexamic acid on hepatic artery thrombosis or portal vein stenosis is needed.

P182
THE IMPACT OF INTRAOPERATIVE HYPERGLYCEMIA ON POSTOPERATIVE OUTCOMES IN LIVER TRANSPLANTATION

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Introduction: The aim of this study was to determine the effects of intraoperative hyperglycemia on postoperative outcomes in orthotopic liver transplantation (OLT) recipients.

Materials and Methods: We retrospectively analyzed the records of patients who underwent OLT from January 2000 to December 2013. A total of 389 OLT were performed in our center but those patients younger than 15 years (n=179) were not included in the analyses. The study was completed by 154 patients. Recipient demographics, intraoperative variables, and outcomes were collected. Intraoperative glucose measurements were performed by the anesthesiology team and treated by insulin infusion. Patients were divided in two groups based on their maximum intraoperative blood glucose levels. Those with an intraoperative blood glucose higher than 200 mg/dL were assigned to Group >200 mg/dL and those with intraoperative blood glucose levels lower than 200 mg/dL were assigned to Group <200 mg/dL. Postoperative complications between the two groups were compared. We noted the length of stay in the intensive care unit and the hospital, time to extubation, infectious complications, mortality rates, and the need for dialysis.

Results: Fifty eight patients (37.6%, group <200 mg/dL) had controlled blood glucose while 96 patients (62.3%, group >200 mg/dL) had uncontrolled blood glucose. The mean age and weight for Groups <200 mg/dL and >200 mg/dL were 41.7 ± 13.7 years versus 45.2 ± 13.1 years (p=0.09) and 69.4 ± 13.1 kg versus 70.4 ± 13.4 kg (p=0.86), respectively. There were more diabetics patients in group >200 mg/dL. Postoperative complications between the two groups were compared. We noted the length of stay in the intensive care unit and the hospital, time to extubation, infectious complications, mortality rates, and the need for dialysis.

Conclusion: The aim of this study was to determine the effects of intraoperative hyperglycemia on postoperative outcomes in orthotopic liver transplantation (OLT) recipients.
3.4%, p=0.91), and cholangitis (n=1, 1.7% versus n=3, 3.7%, p=0.59). There were no significant differences in frequency of acute kidney injury (n=31, 53.4% versus n=45, 46.9%, p=0.43) and need for hemodialysis during the postoperative period (n=13, 22.4% versus n=25, 26%, p=0.61). Mortality rates after the OLT were similar between the groups <200 mg/dL and >200 mg/dL (n=18, 31.0% versus n=28, 29.2%, p=0.81, respectively).

Conclusions: According to this study intraoperative hyperglycemia during OLT was not associated with an increased risk of postoperative infection, acute renal failure, and mortality.

P183
POSTOPERATIVE PULMONARY COMPLICATIONS OF LIVING LIVER DONORS: A RETROSPECTIVE ANALYSIS OF 188 PATIENTS

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Introduction: Living-donor liver transplantation, has become a viable option and an important source of hepatic grafts. Pulmonary and extrapulmonary complications of liver transplantation have already been documented in various studies in the literature. The goal of this study is to establish complications of liver donation surgery in our center.

Materials and Methods: Data of 188 subjects (median age 33.7 ± 8.4 years, M/F (%):51.1/48.9) who have undergone liver donation surgery between the years 1988 and 2013 were retrospectively analyzed. Patients’ demographics, smoking status, co morbidities, pulmonary function tests, chest X rays, type of inhaled anesthetic agents used during surgery, side of liver resection, duration of surgery, early (within 1 month) and late (1 month after) pulmonary complications, computed tomography findings of the patients who had postoperative pulmonary complications (PPCs), length of stay on mechanical ventilation and in intensive care unit, duration of hospitalization were recorded. Postoperative complications and the correlation of risk factors with PPCs were investigated.

Results: Smoking history was noted in 104 patients(55.3%), 67 of the patients were active-smokers in course of hospitalisation for donation surgery(35.6%). PPCs were detected in 7 of the active smoker patients (10.4%), 7 of the never-smoked patients(8.3%). There were various comorbidities in 13 patients including COPD, asthma, hypertension, rheumatoid arthritis, and diabetes mellitus (6.9%). Total hospitalization length was 7,02± 4.5 days. 176 of the patients were moved from intensive care unit to the service within less than 24 hours. Early mobilization and respiratory physiotherapy strategies were performed starting from the first day after surgery in 186 patients (98.9%). The incidence of early postoperative complications was 17% (n=32), 16 of these patients had PPCs (8.5%), two of the PPCs were detected on the day of surgery and other 14 were detected between second and seventh days after surgery. Most of the PPCs were minor complications. Atelectasis accompanied by pleural effusion was the common PPC (n=5), solely atelectasis(n=3) and solely pleural effusion (n=3) were the second most common PPCs. Pneumonia (n=2), pneumonia accompanied by pleural effusion (n=1), pneumonia accompanied by atelectasis(n=1), pulmonary embolism accompanied by both pneumonia and effusion (n=1) were the other early PPCs. There was one major PPC, pulmonary embolism occured on the fourth day after surgery, in one patient. Late pulmonary complications are also reviewed and no late PPCs were found. There was no significant difference in early and late PPCs between exsmoker and smokers (p>0.05).Postoperative atelectasis was significantly higher in patients whose body mass index is under and equal to 20 than the patients with body mass index above 21 (p=0.027). Comorbid diseases, type of inhaled anesthetic agent used during surgery and side of liver resection were not risk factors for PPCs. In our study population, no postoperative mortality was recorded.

Conclusions: In our study, a lower PPCs rate (n=16 and 8.5%) was found among liver donors than the literature. We believe that weight reduction strategies in preoperative period and early mobilization with respiratory physiotherapy in postoperative period could be important factors to reduce PPCs in liver donors.

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RENAL FUNCTION IN PATIENTS WITH AUTOIMMUNE HEPATITIS EARLY BEFORE AND AFTER LIVER TRANSPLANTATION

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Introduction: To the best of our knowledge there is no study to analyze renal function in patients with autoimmune hepatitis (AIH) after liver transplantation (LT). The goal of this study was to determine the renal characteristics of the liver recipients in our center who underwent LT for AIH compared to our overall liver recipients.

Materials and Methods: Patients underwent LT were enrolled in the study. Estimated glomerular filtration rate (eGFR) was calculated using Cockcroft-Gault formula.

Results: 141 recipients (AIH=41 and non-AIH=100) were
enrolled in the study. In comparison between AIH vs. non-AIH group, females were 82% vs. 36% (P<0.001), mean age was 31±9.4 vs. 43±12.6 years (P<0.001), mean weight was 64±11 vs. 69±14.7 Kg (P=0.01). There was no significant difference between two groups in immunosuppression drugs and child and MELD scores. The mean pre-transplant eGFR was 100.7±46.2 vs. 114.4±36 ml/min (P=0.014). Trend of post-transplant eGFR is shown in Figure 1. There was no significant difference in post-LT renal failure (33% vs. 49%, P=0.16) and need for dialysis (0 vs. 4%, P=0.56) between two groups.

Conclusions: AIH develops more frequently in women in lower ages. AIH patients reveal better renal function before and early after LT than non-AIH patients probably because of better general condition of the patients due to lower age at transplantation.

Results: Seven hundred-forty transplantations were performed between October 2006 and May 2011 (on 258 females, 482 males, mean age: 36.8 years). The lower limit of detection for this Real-time PCR (sensitivity level) assay was 1 colony forming unit/mL of serum. Invasive aspergillosis was diagnosed in 19 recipients (2.5%). The etiologic agents were Aspergillus flavus, Aspergillus niger and Aspergillus fumigatus.

Conclusions: As invasive aspergillosis is associated with increased morbidity and mortality rates in liver transplant recipients, the best management strategies involve early diagnosis and earlier initiation of antifungal therapy in the recipients.

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ACINETOBACTER INFECTION AFTER LIVER TRANSPLANTATION CLINICAL FEATURES AND EFFECT SURVIVAL

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Introduction: Despite advances in surgical technique and postoperative care, infectious complications are associated with high mortality rates. Acinetobacter types around the globe have become increasingly important nosocomial pathogens which cause infection. Liver transplant patients with Acinetobacter types can lead to peritonitis, bacteremia, pneumonia, urinary tract infection, which has a wide range of infection.

Materials and Methods: Between January 2001 and May 2013 in our clinic 355 patients had liver transplantation. We retrospectively evaluated the patients data (including; age, etiology, Child score, duration of stay in the intensive care unit, surgical complications, presence and type of catheter, and which is taken from the cultures and antibiograms were antibiotic treatments). Multidrug-resistant Acinetobacter types were identified as resistant to all antibiotics except colistin.

Results: Because of Acinetobacter types total 11 patients (3%) acinetobacter infections refractory to everything produced in 88 different cultures. Acinetobacter baumannii and Acinetobacter Iwoffiii. Acinetobacter types were identified. Cause of bile duct infection (8 patients, 45 times), lung (1 patient, 4 times), intra-abdominal drain (4 patients, 15 times), blood culture (11 times in 4 patients), urinary tract (3 patients, 13 times). Age, length of stay in intensive care, Child-Pugh score, and etiology of patients infected with Acinetobacter important risk factors for morbidity and mortality were not. However, mortality among the patients infected with Acinetobacter types, respectively, when we

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MOLECULAR DIAGNOSIS OF INVASIVE ASPERGILLOSIS IN LIVER TRANSPLANT PATIENTS IN SHIRAZ, SOUTH OF IRAN

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Introduction: Invasive fungal infections are common following liver transplantation, and may cause 25 to 69% of deaths in the recipients. The aim of the present study was to determine the incidence of fungal infections in liver transplant recipients, in the sole center of liver transplantation in Nemazi hospital, Shiraz, Iran.

Materials and Methods: Recipients undergone liver transplantations were followed for invasive aspergillosis. All clinical samples were examined by routine methods (i.e., direct smear and culture). Whole blood specimens were collected and examined by Real-time PCR in the case of suspected Aspergillus infections.
Compared with other patients, mortality (27%, 11.5%), (p > 0.05) were found to be significantly higher. **Conclusions:** Acinetobacter types infection after liver transplantation in patients with significantly worse prognosis. Everything has been a major problem in center multidrug-resistant Acinetobacter types.

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**PORTAL VEIN THROMBOSIS AFTER SPLENECTOMY IN A LIVER TRANSPLANT PATIENT: A CASE REPORT**

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**Introduction:** Splenectomy is indicated after liver transplantation for various reasons like hypersplenism and trauma. Portal vein thrombosis after splenectomy is an uncommon clinical situation. Incidence of symptomatic portal vein thrombosis after splenectomy is 0.7-2%. In this study we describe a case of acute postsplenectomy portal vein thrombosis in a liver transplant patient.

**Case:** The patient was a 16 years old female who underwent living donor liver transplantation (LDLT) due to Wilson’s disease on July 12, 2012. After LDLT, during her follow-up there wasn’t any complication about liver graft accept the presence of enlarged spleen and hypersplenism. Splenectomy was performed due to thrombocytopenia at the 19th month of LDLT. There was no complication observed postoperatively and she was discharged at the fourth day of operation. After ten days she admitted to hospital with abdominal pain and fever. Abdominal computed tomography showed no pathology accept thrombosis in splenic vein stump. Under antibioticotherapy, her liver function tests were elevated. Inventional radiologic examination was held for any possible biliary stricture. During her radiologic examination portal vein thrombosis was detected at the fourth day of hospitalisation. Under heparin infusion patient was operated and we performed thrombectomy from the splenic vein stump. One day later, ultrasonography did not show any flow in the portal vein. At the interventional radiology unit, microcatheter was introduced into the portal vein and we performed thrombectomy than started t-PA infusion by microcatheter. Ultrasonographic findings showed flow in the portal vein. Intravascular stents were installed 5 days after operation. The patient was discharged with normal liver functions two months after administration.

**Conclusions:** Mechanic trombectomy and percutaneous trombolysis is safe and effective in the management of these patients with portal vein thrombosis. However, it requires a multidisciplinary approach involving surgeons, hepatologists, and interventional radiologists.

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**UNCOMMON VARIATIONS OF CELIAC TRUNK AND HEPATIC ARTERY IN 420 LIVER GRAFTS**

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**Introduction:** Different anatomical variations of superior mesenteric and celiac trunk and hepatic artery can be found in articles. The purpose of this investigation was to identify rare and important anatomical variations of celiac trunk and hepatic arteries in liver grafts.

**Materials and Methods:** In this study, surgical anatomy of celiac trunk and hepatic artery was investigated in 420 livers from deceased donors during back table procedure during 11 months (March 2013 to February 2014), common variations (left. Accessory Hepatic a. from left gastric artery and right accessory hepatic artery from superior mesenteric artery) excluded.

**Results:** We found 18 cases of rare variations in surgical anatomy of celiac trunk and hepatic artery in 420 liver grafts which were divided into six categories.

A. common hepatic artery originated from superior mesenteric artery trunk in 5 cases.
B. common hepatic a. Originated directly from aorta in 2 cases.
C. celiac trunk and superior mesenteric originated from aorta as a common trunk in 2 cases.
D. early bifurcation of hepatic artery (left and right branch) in 4 cases.
E. early trifurcation of hepatic artery (two branches for right lobe and one branch for left lobe) in 1 case.
F. left hepatic artery originated directly from celiac trunk and right hepatic artery from superior mesenteric artery in 3 cases.

**Conclusions:** This data is useful for safe dissection and also perfect anastomosis of hepatic artery during liver transplant and also important for interventional radiology investigations (figures of these types are in full text article).
POST TRANSPLANTATION CHYLOS ACDITES IN PEDIATRIC PATIENT: CASE REPORT

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Introduction: Chylos ascites is very seldom seen complication of liver resection and liver transplantation.

Case: The girl of 4.5 years old with developmental retardation attended to hospital with complaints of shortness of breath and distended abdomen. Clinical examination revealed delayed height and weight compared with age, hepatomegaly, and hypoglycemia. Biopsy of the liver confirmed diagnosis of glycogen deposit disease. The living donor liver transplantation is performed. First postoperative day the feeding is started and then we observed white colored fluid of 300-600 mL drained from abdomen. Biochemistry analysis was done, NPO and total parenteral nutrition is started and patient was observed for 21 days. During these days the discharge was decreased to 80-100 ml. Literature advising to stop per oral intake, start octreotid and orlistat and surgery in refractory cases. Octreotid causes hepatic artery spasm that was reason we did not used it in our pediatric patient. Orlistat is not studied well for pediatric patients. So surgery was the way to treat patient. And surgical exploration of abdomen was carried out. Oral intake was stopped for a month postoperatively. And discharge from drainage not observed anymore. After 1.5 month oral feeding was started. Patient was advised to take food rich with short and long chain acids.

Conclusions: Chylos ascites is one of the rare complication of living donor liver transplantation. The level of triglycerides was more than 110mg/dL in drained fluid. We are not advising surgical intervention on this kind of cases. And laparotomy and exploration was unnecessary in our patient. Per oral intake must be stopped for 1-1.5 month period which is cornerstone of treatment.

SIMULTANEOUS PERCUTANEOUS LARGE PROFILE MULTIPLE PLASTIC STENTS FOR BILIARY ANASTOMOTIC STRICTURES AFTER LIVER TRANSPLANTATION

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Introduction: Our objective was to evaluate the management of biliary anastomotic strictures with simultaneous multiple percutaneous plastic stents for liver transplants

Materials and Methods: Between 2004 and 2013, 13 patients with recurrent biliary anastomotic stenosis in whom prior balloon dilation and single plastic stent placement had failed and 19 patients with biliary anastomotic strictures with no previous intervention were included in this study. The patients were 18 females and 14 males, ages ranged from 8 to 66 years (mean age: 34). Percutaneous biliary drainage was performed then, 1 to 3 times, sequential dilation with conventional balloon was performed, then, two plastic stents were placed percutaneously through one tract. The size of the two plastic stents were 16F (n=6), 20F (n=21), 24F (n=4) and 28F (n=1).

Results: The median indwelling stent period was 5.8 months (3 months-12 months). In two patients, plastic stents were removed endoscopically at 25 days, and 3 months because of cholangitis. In 30 patients, no cholangitis or obstruction were observed and stents removed endoscopically. Stent free median follow up of these patients were 4 years.

Conclusions: Sequential percutaneous insertion of two plastic biliary stents through one percutaneous access, affords effective treatment of the anastomotic strictures that occurred after liver transplantation. This technique enables large profile internal stent placement through a single small percutaneous hole. This technique has a high success rate and decrease the number of interventions and also the cost of the procedure.
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APPLICATION OF VOLUMETRY ON 3D CT FOR LIVING DONOR LIVER TRANSPLANTATION

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Introduction: The purpose of this study was to evaluate 3D CT volumetry in the assessment of living donor livers for transplant and to compare this technique with manual volumetry.

Materials and Methods: Liver CT scan of 16 consecutively prospectively liver donors were obtained under a liver transplant protocol. We compared Rt. liver volume on the 3D CT volumetry and Rt. liver volume calculated on 2D CT with actual Rt. liver volume after hepatectomy.

Results: Error was calculated by a formula which was (measured volume – actual volume)/actual volume. The average error of volumetry on 3D CT was smaller than that on 2D CT (8.1% vs 9.4%). Remnant left liver volume on 3D CT was bigger than that on 2D CT, average 12%.

Conclusions: Measured volumetry on 3D is more accurate for measuring Rt. liver volume for donation. However, careful application of volumetry on 3D CT is needed for possibility of overestimating remnant liver volume.

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THE FATE OF ESOPHAGEAL VARIX AFTER LIVER TRANSPLANTATION

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Introduction: Most cirrhotic patients develop esophageal varices. Approximately one third of cirrhotic patients with esophageal varices develop an episode of esophageal bleeding, which has a high morbidity and mortality. Esophageal varices bleeding is an important indicator of liver transplantation. In this study we have analyzed the efficacy of liver transplantation in esophageal varix bleeding patients.

Materials and Methods: between 2009 Jan. and 2011 Dec. we reviewed medical records of the liver transplant patients who had a history of esophageal bleeding before liver transplantation at Samsung medical center. A total 46 patients were included in this study. We evaluated the patients’ esophageal varice grade, paraesophageal varice grade, portal peak velocity, the maximum area of spleen etc.

Results: There is no episode of esophageal varice bleeding after liver transplantation. The mean pretransplant maximum area of spleen was 112.1 mm². Post transplant 2 week and post transplant 3 month were 88.2 84.1 mm² (p=0.001, repeated ANOVA). Portal vein peak velocity were 21, 69, 44 cm² at pre-transplant, post transplant 1 week and 3 month (p=0.000, repeated ANOVA). In CT scan at 2 week after liver transplantation, esophageal varice and paraesophageal grade had reduced average 1.14 to 0.57, 0.9 to 0.67 (p=0.0001, 0.001)

Conclusions: liver transplantation has a good effect of decompression esophageal varice. The timing of maximum decompression is immediate of post transplant within post transplant 2 weeks.

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SIMPLIFIED UNIFICATION PATCH VENOPLASTY AS RECONSTRUCTION FOR ANOMALOUS PORTAL VEIN BRANCHING IN RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION

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Introduction: Living donor liver transplantation (LDLT) using donors with anomalous portal vein branching (APVB) has been considered a challenging procedure in terms of the donor’s safety and the complexity of vascular reconstruction in the recipient. Especially, double portal vein (PV) orifices are one of the most common anatomic variation encountered in right lobe grafts. Herein, we describe our experience in 12 adult LDLTs using unification patch venoplasty for reconstruction in right lobe graft with double portal vein orifices.

Materials and Methods: From January 2010 to April 2013, we performed 12 cases of adult LDLT using unification patch venoplasty for APVB in LDLT with right lobe grafts. The donor’s anomalous portal vein branches were type II in 3 cases (25%), type III in 8 cases (66.7%), and type IV in 1 case (8.3%). Moreover, we compared clinical outcomes with 85 recipients who underwent adult LDLT using right lobe graft with normal PV anatomy in the same period.

Results: Intraoperative PV stenting was necessary in only one patient (8.3%) among 12 cases with unification patch venoplasty due to thrombosis. During a mean follow-up of 25.8 ± 12.2 months, all PVs remained patent until patient’s death or censoring. No significant difference to vascular complications was observed between two groups in postoperative period. Biliary stricture developed in only one patient (8.3%) in spite of the higher probability to biliary
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HEPATIC INJURY INDUCED BY UNILATERAL LUNG ISCHEMIA AND REPERFUSION IS ATTENUATED BY SELECTIVE NITRIC OXIDE SYNTHASE INHIBITOR THROUGH SUPPRESSING MATRIX METALLOPROTEINASE-9 ACTIVITY IN THE LIVER

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Introduction: Potential liver injury subsequent to ischemia and reperfusion (I/R) of a lung is a frequent clinical problem. In addition to production of reactive oxygen species, activation of matrix metalloproteinase-9 (MMP-9) activity and inducible nitric oxide synthase (iNOS) activity may play an essential role in lung I/R associated remote organ injury. In this study, we examined the effects of pretreatments with L-NAME (a non-specific NOS inhibitor) and 1400W (a highly selective iNOS inhibitor) against lung I/R induced liver injury, and the association with MMP-9 activity.

Materials and Methods: Studies were conducted on male Sprague-Dawley rats divided in four groups: sham-operated, lung I/R injury, and pretreatments with L-NAME (30 mg/kg, intraperitoneally [i.p.]) or 1400W (20 mg/kg, i.p.) 15 min prior to ischemia. Unilateral lung ischemia was established by occluding the left lung hilum for 60 min, followed by 4 hrs of reperfusion. Serum levels of lactate dehydrogenase (LDH), aspartate transaminase (AST) and alanine transaminase (ALT) were examined at baseline and the end of study for lung and liver injury, respectively. Levels of malondialdehyde (MDA), myeloperoxidase (MPO), and tumor necrosis factor-a (TNF-a) were examined in the liver tissue for the severity of lipid peroxidation, leukocyte sequestration and hepatic inflammatory response. MMP-9 activity in the liver was examined using gelatin zymography techniques.

Results: Lung I/R induced apparent liver injury, evident by marked increases in AST and ALT, along with increases in MMP-9 activity and elevated TNF-a, MDA and MPO concentration in the liver tissue versus the sham group (P<0.05). L-NAME pretreatment did not reduce liver injury, but increased tissue levels of MDA (P<0.05) and MMP-9 activity. In contrast, 1400W pretreatment demonstrated apparent liver protection, by reducing degrees of MDA, MPO (P<0.05) and MMP-9 activity in the liver tissue.

Conclusions: 1400W demonstrated protective effect of liver injury induced by lung I/R, through reducing tissue levels of lipid peroxidation, leukocyte activity and MMP-9 activity in the liver.

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SUCCESSFUL RECOVERY FROM PRIMARY GRAFT FAILURE AFTER HEART TRANSPLANTATION WITH SHORT-TERM ECMO AND IABP SUPPORT: 2 CASES

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Introduction: Primary graft failure (PGF) is the cause of early mortality and a disastrous complication that occurs in the immediate postoperative period in heart transplantation. Multiple risk factors for PGF such as increasing donor and recipient age, donor heart ischemic time, donor recipient weight mismatching, donor inotropic dependence and cause of donor death have been identified. Despite of the intensive pharmacological and mechanical circulatory support (IABP, ECMO, VAD) for PGF, a substantial one month mortality rate is seen. We report two cases of successful recovery from PGF after heart transplantation with short-term ECMO and IABP support.

Case 1: A 44-year-old man diagnosed with dilated cardiomyopathy with severe left ventricle dysfunction had a heart transplant in our medical center. The donor was 35-year-old male and cause of death was head trauma. The donor had been managed with high inotropic support (dopamine >30ug/kg/min, norepinephrine 1.7ug/kg/min, epinephrine 0.03 ug/kg/min). A donor-recipient weight ratio was 1.1. After head trauma, the heart was harvested in 42hours and 30minutes. The donor heart ischemic time from the arrest of donor death have been identified. Despite of the intensive pharmacological and mechanical circulatory support (IABP, ECMO, VAD) for PGF, a substantial one month mortality rate is seen. We report two cases of successful recovery from PGF after heart transplantation with short-term ECMO and IABP support.
was 15%, but right and left ventricle cavities were not dilated. About 24 hours later, EF improved to 30% and systolic BP was maintained at 120 mmHg with very low dose catecholamine. On postoperative 42 hours, EF increased to about 45%. On POD 2, weaning was started and hemodynamics after the removal of ECMO remained stable. IABP was weaned off 91 hours after commencement. The patient was discharged from the hospital on POD 30 without complications and echocardiography on discharge day showed normal LV function (EF >70%).

**Case 2:** A 39-year-old male diagnosed with dilated cardiomyopathy with severe LV dysfunction was admitted for heart transplantation. The donor was 29-old-male and cause of death was traumatic subarachnoid hemorrhage. Donor has been managed with high dose catecholamine (dopamine >20 ug/kg/min, norepinephrine 5.56 ug/m/kg/min). Donor-recipient weight ratio was 1.4. The donor heart harvesting was performed in 65 hours and 25 minutes after head trauma. A donor heart ischemic time was 4 hours and 21 minutes.

**Conclusions:** We could not wean off CPB after finishing all procedures. The ejection fraction was 10%. So standard CPB was converted in ECMO through femoral vessels and IABP was inserted via femoral artery. About 70 hours later, the EF improved to 40%. We could wean off an ECMO and IABP in 40 hours and 105 hours after commencement. The patient was discharged from the hospital on POD 26 without any complications and echocardiography showed normal LV function (EF >66%).

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**INTESTINAL OBSTRUCTION FOLLOWING LUNG TRANSPLANTATION IN A PATIENT WITH CYSTIC FIBROSIS**

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**Introduction:** Patients with cystic fibrosis are at the risk of distal intestinal obstruction syndrome (DIOS) after lung transplantation. Management of DIOS in early post-operative period after lung transplantation is challenging. We report a patient with cystic fibrosis complicated three times by DIOS early after lung transplantation.

**Case:** A 27 years old female with cystic fibrosis underwent bilateral lung transplantation. On 15th post operative day, she presented complete intestinal obstruction. We performed laparotomy and found obstructed 30 cm of distal ileum with impacted food bezoars. Thickened food bezoars were extracted through entrotomy. Post laparotomy course was uneventful. Two weeks later, she came back to hospital again with DIOS. We started conservative management with 100 cc gastrografine in first day and another 50 cc in second day, acetyl cysteine, lactulose and Creon but she didn't improved. On third day because of failed conservative management, laparotomy was done. Again distal ileum was obstructed with food bezoars which were extracted through entrotomy. She was discharged from hospital. One week later she came back to hospital with the same presentation and abdominal x-ray showed complete obstruction with a loop filled with food bezoars. After 2 days despite gastrografin gavage, she didn't improve. On 4th day of admission, we started liquid diet and polyethylene glycol (PEG) although colicky abdominal pains had not resolved. She received Vitamin B6 injection once a day and metoclopramide tablet TID. Next day she experienced defecation and all symptoms were relieved. She was discharged and ordered to use 2 Creon capsules and one metoclopramide tablet with each meal and vitamin B6 tablet once daily.

**Conclusions:** Interesting points of our case is management challenge after lung transplantation with its own difficulties and considering both pancreas insufficiency and ileum dismotility in successful management. In our case combination of liquid diet, PEG, metoclopramide and vitamin B6 resolved DIOS.
62 y. The most frequent reason for heart transplant were dilated cardiomyopathy (40 patients). A biventricular anastomosis technique was performed and then posttransplant triple immunosuppressive therapy was used, in all patients. Posttransplant early mortality rate was 17.9 % (15 patients). Other 69 patients were followed; 23 of them were died and the other 46 patients (66.7%) were alive at mean 69.3 +/- 7.2 months after heart transplant. Mean follow-up time was 35.4 +/- 29.8 months (0.07 to 117.5). The mean number of endomyocardial biopsies were performed per patient was 8.4 +/- 4.2 (1 to 19) in this period. The frequency of posttransplant ACRs were diagnosed histopathologically was 63.8% (44 of 69 patients). Eighty six percent of these patients experienced their first episode of ACR in posttransplant early (first 6 months) phase. There were 18 patients who had ACRs ≥ grade 2 on ≥ 1 endomyocardial biopsy among 44 patients with ACR. No significant difference was found between survival rates of patients with grade 1 ACR and those with ACRs ≥ grade 2 or between survival rates of patients who had diagnosis of ACR and patients who had not, on their endomyocardial biopsies. 

Conclusions: In our study we have observed that ACR had no significant negative effect on heart recipient survival. This can be explained by improved immunosuppressiveadjustments. We concluded frequent first-6 months endomyocardial biopsies may allow early ACR-detection, thereby improving survival.

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CORONARY ANGIOGRAPHY FOR FOLLOW-UP OF CHILDREN WITH POSTTRANSPLANT CORONARY ANGIOGRAPHY

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Introduction: Allograft vasculopathy is a major late complication in cardiac recipients and has a severe impact on outcome. It is the leading cause of late death after cardiac transplantation in children. Despite of promising advances in less invasive imaging modalities, conventional coronary angiography with or without intravascular ultrasound is still the usual method to detect allograft vasculopathy.

Materials and Methods: Since 2003, 35 pediatric heart transplantations were done in our institution. Twenty-nine recipients were discharged. Twenty-one of these patients are still alive. These patients’ long term follow-up schedule consisted of routine endomyocardial biopsy every year and conventional coronary angiography every other year. Immediate invasive investigation became feasible whenever signs and symptoms of a rejection period is overt or in the presence of echocardiography findings suggesting rejection.

Results: All coronary angiographies were normal except for one patient who had a minor coronary lesion which required no intervention. No patients experienced any adverse events related to coronary angiography.

Conclusions: Coronary angiography is still the feasible method for detecting allograft vasculopathy offering additional information gathered by endomyocardial biopsy done at the same time.

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HUMAN UMBILICAL CORD ARTERIES AS POTENTIAL ARTERIAL GRAFTS: A PROTEOMIC VALIDATION OF DECELLULARIZATION PROTOCOLS

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Introduction: Nowadays, major achievements in creating decellularized whole tissue scaffolds have drawn considerable attention to decellularization as a promising approach for tissue engineering. For patients requiring vascular grafts, vessels that have been decellularised and stored could be used as replacement conduit. In this study human umbilical arteres were decellularised using two different protocols and for the first time in literature proteomic analysis was performed to quantify the effects.

Materials and Methods: In decellularization protocol A, umbilical arteries (n=20) were incubated in CHAPS and sodium dodecyl sulfate followed by incubation in a-MEM with foetal bovine serum. In decellularization protocol B the umbilical arteries (n=20), were incubated in Hypotonic Tris and SDS followed by incubation in Nuclease solution. Native and decellularized umbilical arteries were stained with H&E, Toluidine blue, Masson’s trichrome and elastin van Gieson’s stain. Immunofluorescence was also performed for collagen I and fibronectin. Native and decellularized arteries were digested using Proteinase K and DNA content was measured at an excitation wavelength of 260 nm and an emission wavelength of 280 nm. For the proteomic analysis the umbilical arteries were snap frozen in liquid nitrogen and trimmed. The protein content was measured using Bradford assay and analyzed by 2D Electrophoresis. Second dimension analysis was performed on 12% SDS-PAGE. Protein spots were excised manually and tryptic digestion and Peptide Mass Fingerprinting was performed.

Results: Histological analysis of umbilical arteries decellularised with protocol A and B revealed good...
preservation of ECM proteins without cellular and nuclear materials when compared with native umbilical arteries. Immunofluorescent staining detected collagen I and fibronectin before and after both decellularization protocols indicating preservation of these proteins. The DNA content within the umbilical artery after decellularization with protocol A was measured 79,547±10,092 ng DNA/ mg (dry weight) and with protocol B 125,149±12,890 ng DNA/ mg (dry weight), while in the native was 782,888±68,763 ng DNA/ mg (dry weight). Thus, only 10.2% of the DNA remained with protocol A and 15.9% with protocol B. Proteomic analysis identified 52 proteins for the native umbilical artery and 41 for decellularized umbilical arteries. Cytoplasmic enzymes such as dehydrogenase X, a-enolase and peptidyl-prolyl cis-trans isomerase A were found only in native samples. However, cytoskeletal proteins such as a-actin, filamin and ECM proteins like collagens were found both in native and decellularised arteries.

Conclusions: Both decellularization protocols effectively removed the cellular material while the ECM remained intact. Future studies are warranted to elucidate the specific effects of altered structure–function relationships on the overall fate of decellularized umbilical arteries.

P200
DEVELOPMENT OF A MULTIDIMENSIONAL EVALUATION OF THE IMMUNE RESPONSE AFTER HEART TRANSPLANTATION

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Introduction: Rejection and infection are the common complications after Heart Transplantation, and a major challenge is to assess the immune status of each patient to minimize these risks. The limitations of immune monitoring in heart transplantation are well known and while individual parameters are contributory, none of them are free from limitations. Research was conducted to create a nomogram of the ideal immune function against which individual patients' immune status can be compared to predict their risk for developing rejection, infection or other major outcomes. We hypothesize that a nomogram of the ideal immune response could be developed for the management of heart transplantation utilizing a combination of multiple individual parameters and to develop a nomogram of the response to immunosuppression.

Materials and Methods: We retrospectively analyzed, prospectively collected immune related variables from every clinical encounter of 69 adult heart transplant recipients at University of California Los Angeles Medical Center Heart Transplant program between January 2010 and May 2013 who had been followed with the comprehensive immune monitoring panel consisting of brain natriuretic peptide, anti-HLA Class I and II antibodies, AlloMap' molecular expression testing, and Cylex' immune function test assay. This data was then evaluated in the context of immunosuppression management over time along with rejection and allograft function parameters. Data was normalized and HeatMap was used to visualize the data.

Results: Our results showed reduction in immunosuppression, BNP and prednisone levels over time that mimics the clinical practice pattern. These initial results are very promising and suggest that development of a nomogram will allow us to individualize immunosuppression management as well as predict patient outcome based on individual patient's response and the area that the patient falls on the nomogram.

Conclusion: Developing a nomogram of the normal immune response is currently possible within the current era of immune monitoring and will further benefit from incorporation of new markers including proteomics, metabolomics, multiplex cytokine, T-cell immunophenotyping, and gene expression profiling which is currently evolving in our labs.
Increased matrix metalloprotease-9 (MMP-9) activity and protein overexpression were implicated in I/R associated lung injury. Superoxide dismutase (SOD) is an essential antioxidant presented in most tissues exposure to oxygen. In this study, we aim to investigate whether intravenous SOD treatment during the first hour of reperfusion can reduce single lung I/R induced contralateral lung injury, and its association with MMP-9 activity and protein expression of the lungs.

Materials and Methods: Twenty-two male Sprague-Dawley rats were divided into sham group (n=6), lung I/R group (n=8), and lung I/R+SOD (n=8) group. The single lung ischemia was conducted by occluding the left lung hilum for 60 min subsequent to a thoracotomy operated at the 4th intercostal space, followed by 48 hours of reperfusion through releasing the occlusion of left lung hilum and closing the chest using double layer suturing. The sham group went through exact surgical procedures except occluding the left hilum. In the lung I/R+SOD group, SOD was administered intravenously (10000 U/kg body weight/hr) during the first hour of reperfusion via the left femoral vein, while the exact amount of saline was administered in the sham and the lung I/R group during the same phase of study. Rats were then released to the cage and sacrificed at the 48th hr. The lung permeability was assessed by protein contents in the bronchoalveolar lavage fluid (PCBAL), and lung water contents by lung wet to dry weight ratio (W/D) and lung weight to body weight (LW/BW). We also assessed levels of lung injury and lipid peroxidation and MMP-9 activity and protein expression, by means of serum lactate dehydrogenase (LDH), tissue malondialdehyde (MDA), and gelatin zymography technique and western blot, respectively.

Results: Forty-eight hours of left lung I/R significantly increased pulmonary permeability and lung water content of the right lung, where levels of PCBAL, W/D and LW/BW increased by 35%, 18% and 24%, respectively (P<0.05) versus the sham group; tissue MDA level (P<0.05) and MMP-9 activity and protein expression were also increased markedly. SOD treatment attenuated I/R induced contralateral lung injury, evident by marked improvements in pulmonary permeability and lipid peroxidation and notable reductions in MMP-9 activity and protein expression.

Conclusions: We observed that I/R injury of single lung induced pulmonary barrier function impairment and increases in tissue lipid peroxidation and MMP-9 activity and protein expressing in the contralateral lung. SOD administration during the first hour of reperfusion provided lung protection through suppression of MMP-9 activity and protein expression and reducing tissue lipid peroxidation.

P202
HEPATIC WARM ISCHEMIA REPERFUSION INDUCED INCREASE IN KCr IS AMELIORATED BY MK-571 PRETREATMENT THROUGH REDUCING PULMONARY NEUTROPHIL INFILTRATION AND INFLAMMATORY RESPONSES IN RAT

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Introduction: Hepatopulmonary syndrome (HPS), characterized by shortness of breath and lung edema, is the major complication subsequent to liver ischemia and reperfusion (I/R) injury following resection or transplantation of liver. Increases in concentrations of pulmonary leukotrienes and neutrophil recruitment and infiltration across capillary were the hallmarks of HPS. In this study, we aim to investigate the protective efficacy of MK-571 (leukotriene D4 inhibitor) pretreatment against hepatic warm I/R injury associated lung barrier function impairment and lung injury.

Materials and Methods: Eighteen Sprague-Dawley male rats were evenly divided into three groups: a sham-operated control group, a hepatic I/R group, and a MK-571 treated I/R group. MK-571 (5 mg/kg) was administered intraperitoneally (i.p.) 15 min prior to hepatic ischemia and every 12 hours during reperfusion up to 48 hours. Hepatic ischemia was conducted, by occluding both the hepatic artery and portal vein for 30 min, followed by reperfusion-removing the vascular clamps and closing the abdominal incision with double layer suturing. Exact surgical procedures were conducted in all groups, except that no vascular occlusion was conducted in the sham group. The pulmonary capillary permeability at 48 hours after hepatic ischemia was assessed by KCr, using in vitro isolated perfused rat lung preparation, as well as lung wet to dry weight ratio (W/D) and protein concentration in bronchoalveolar lavage fluid (PCBAL). The level of neutrophil infiltration and inflammatory status were evaluated by tissue level of myeloperoxidase (MPO) and the cell count ratio of macrophage and neutrophil relative to that of the total leukocytes in BALF.

Results: As compared with sham group, hepatic warm I/R injury markedly increased KCr (1.66±0.22 vs. 0.51±0.16 g/min·cmH2O/100 g), W/D (4.42±0.17 vs. 5.32±0.27) and PCBAL (977±223 vs. 104±31 mg/dL) (P<0.05); the ratio of neutrophils and macrophages relative to total leukocytes increased from 1.4±0.4 and 4.5±1.1 % to 15.6±5.5 and 5.1±1.1%, respectively (P<0.05); MPO was increased from 0.06±0.01 to 0.15±0.03 U/mg (P<0.05). Blocking LTD4/E4 receptors by MK-571 treatment reduced neutrophil infiltration and pulmonary vascular protein leakage, as evident by KCr (0.55±0.22 g/min·cmH2O/100 g), W/D
(4.48±0.27), the ratio of neutrophils and macrophages (3.7±2.3; 5.3±2.1%, respectively), and MPO was reduced 0.06±0.03 U/mg, collectively suggesting that MK-571 attenuates hepatic warm I/R induced pulmonary capillary barrier function impairment and lung injury.

**Conclusions:** Treatment with MK-571 prior to hepatic ischemia as well as during reperfusion was protective against impairment of pulmonary capillary barrier function, through decreasing pulmonary neutrophil infiltration and inflammatory response.

### P203
**RISK FACTORS FOR EARLY POSTOPERATIVE PULMONARY COMPLICATIONS FOLLOWING HEART TRANSPLANTATION**

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**Introduction:** The aim of this study was to determine the types, incidence, and risk factors for early postoperative pulmonary complications in heart transplantation recipients.

**Materials and Methods:** We retrospectively collected data from the records of consecutive heart transplantsations from January 2003 to December 2013. A total of 83 patients underwent heart transplantation. Those patients younger than 10 years (n=9) and the patients who died intraoperatively (n=1) or during the first postoperative day (n=1) were not included in the analyses. The data collected for each case were demographic features, duration of mechanical ventilation, respiratory problems that developed during the intensive care unit (ICU) stay, and early postoperative mortality (<30 days). The respiratory complications that we sought were pleural effusion, pneumonia, pulmonary atelectasis, pulmonary edema, pneumothorax, and acute respiratory failure.

**Results:** Of the 72 patients considered, 52 (72.2%) were male. The mean age at the time of transplantation was 32.1±16.6 years. The mean duration of postoperative mechanical ventilation was 71.8±126.6 hours. The mean length of ICU stay was 13.5 ± 18.0 days. Two patients (2.8%) underwent heart transplantation. Those patients younger than 10 years (n=9) and the patients who died intraoperatively (n=1) or during the first postoperative day (n=1) were not included in the analyses. The data collected for each case were demographic features, duration of mechanical ventilation, respiratory problems that developed during the intensive care unit (ICU) stay, and early postoperative mortality (<30 days). The respiratory complications that we sought were pleural effusion, pneumonia, pulmonary atelectasis, pulmonary edema, pneumothorax, and acute respiratory failure.

**Results:** The median length of ICU stay was 13.5 ± 18.0 days. Two patients (2.8%) underwent heart transplantation. Those patients younger than 10 years (n=9) and the patients who died intraoperatively (n=1) or during the first postoperative day (n=1) were not included in the analyses. The data collected for each case were demographic features, duration of mechanical ventilation, respiratory problems that developed during the intensive care unit (ICU) stay, and early postoperative mortality (<30 days). The respiratory complications that we sought were pleural effusion, pneumonia, pulmonary atelectasis, pulmonary edema, pneumothorax, and acute respiratory failure.

**Conclusions:** Treatment with MK-571 prior to hepatic ischemia as well as during reperfusion was protective against impairment of pulmonary capillary barrier function, through decreasing pulmonary neutrophil infiltration and inflammatory response.

### P204
**INVASIVE PULMONARY ASPERGILLOSIS IN HEART TRANSPLANT PATIENTS**

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**Introduction:** Invasive pulmonary aspergillosis (IPA) is the most common invasive mycosis in heart transplant recipients (HTR). Early clinical recognition of this complication is difficult and laboratory data are not specific. Accordingly, antifungal therapy is frequently delayed. The usual time of onset of IA is 36 to 52 days post transplantation. Recovery of Aspergillus species from the respiratory tract specimen particularly that of A.fumigatus, is highly predictive of IPA in these patients. Among patients undergoing heart transplantation (HT), Aspergillus is the opportunistic pathogen with the highest attributable mortality. Our aim was to evaluate IPA infections in HTR in 6 years of period.

**Materials and Methods:** In our hospital, we diagnosed 6 patients with IA among 82 who underwent heart transplantation between 2007 and 2013. Medical records were reviewed for microbiological culture data, serum galactomannan levels and antifungal treatment provided. We investigated the demographics, clinical radiological features and the overall outcomes of these patients (Table I and II).

**Results:** In this report, the Aspergillus species most commonly found was A. Fumigatus. The occurrence of IPA may not be restricted to the post-transplant 3 months and may be expanded to 12 months. Bronchoscopy revealing positive culture for Aspergillus species and abnormal galactomannan level are suggestive of IPA. Empiric antibiotic therapy should be started immediately to avoid the mortality.

**Conclusions:** Although the timing of antifungal therapy for IPA is controversial in literature, we observed some patients may need therapy for 12 months due to recurrent IPA infections.
P205
LONG TERM PULMONARY INFECTIONS IN HEART TRANSPLANT RECIPIENTS
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Introduction: Although the incidence of pulmonary infections (PIs) after transplantation has declined with effective prophylactic strategies, lower respiratory tract infection still remains a life threatening complication among heart transplant recipients (HTR). Our aim was to evaluate long term PIs in HTR and to evaluate the impact of prophylactic antimicrobial strategies on time of occurrence of the various infectious after heart transplantation (HT).

Materials and Methods: Patients who underwent orthotopic HTR from 2003 through 2013 at Baskent University were reviewed. Demographic information, type of immunosuppression, perioperative infectious prophylaxis, follow-up clinical information, incidence of rejection and the type of infectious episodes (IEs) were collected. Infections were listed according to type of organism, the type of infectious episodes (IEs) were collected. The patients developed PIs (mean age: 44.3 years / range:20-61; Male/Female: 58/24], 13 (15.8%) of them are still on antifungal treatment, 3 patients died due to PIs. Among these patients, 7 patients in the first month and 1 patient between 3rd and 6th months of HT. Presenting symptoms were cough(n:7), fever(n:3). Chest computed tomography revealed unilateral consolidation in 9, bilateral in 4. In these patients multiple nodular consolidations were seen in 2, cavity lesion was detected in one. Six patients underwent bronchoscopy. Three of them had A. fumigatus growth in bronchoalveolar lavage (BAL) cultures. In 50% of the IPA patients the infection occurred 3 months after HT. Acinetobacter baumanii grew in sputum of 2 patients. Rest of the patients (n:8) had no growth either in BAL (n:3) or in sputum (n:3), deep tracheal aspirate (n:1) and in pleural effusion (n:1). Six of the patients only received empiric antibiotic, 5 received antifungal, and 2 received both. The treatment period varied between 1 month and 12 months in IPA patients. Four of the patients improved totally, 3 of them are still on antifungal treatment, 3 patients died due to rejection while the other three had died due to PIs.

Conclusions: Among patients undergoing HT, PIs are the most common cause of mortality. A. fumigatus is the most common opportunistic pathogen. It is suggested that patients with fever and cough should be evaluated for PIs in HTR and IPA should be suspected if these symptoms occur within the first three months. In this study, we observed that IPA infection may disperse through the first 12 months following transplantation. In addition, to start an immediate empiric antibiotic therapy was an important step in our approach to PIs in HTR.

P206
THE CASE OF SUCCESSFULL TREATMENT OF MULTIPLE EXTERNAL AND INTERNAL COLONIC AND SMALL INTESTINE FISTULAS FOLLOWING THE COURSE OF SEVERLY COMPLICATED PYLORUS-PRESERVING WHIPPLE PROCEDURE FOR DISTAL CHOLEDOCHEAL CHOLANGIOCARCINOMA
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Introduction: We present a case of a complicated pylorus-preserving Whipple procedure for distal cholecdochal cholangiocarcinoma.

Case: This patient had a replaced right hepatic artery arising from the SMA. In the course of sharp lymph node dissection it was accidentally transected and required end-to-end vascular anastomosing. 4 hours later from the end of surgery this patient developed diffuse bleeding due to coagulopathy and was taken back to operating room. In reoperation no exact cause of bleeding was found and entire subhepatic and pancreatic bed region was packaged. On day 3 after first surgery packages were removed under general anesthesia. On day 5 after first surgery, patient developed bile leakage from drainages located in the duodenojejunosotomy and hepaticojejunosotomy region. During initial anastomosis correspondingly 3-0 and 4-0 PDS single sutures were used. Gastrojejunosotomy line was reinforced by new layer of vicryl stitches. Hepaticojejunosotomy was refreshed. On day 7 after first surgery bile leakage reoccurred and pancreatojejunosotomy had been disintegrated. Patient was again reoperated. This time pancreatic remnant was closed blind by separate non-absorbable stitches and hepaticojejunosotomy drained externally through the disconnected pancreatojejunosotomy loop stump. Patient developed MRSA infection and was given broad-spectrum antibiotics including piperacillin in combination with vancomycin. More than 20 units accordingly of erythrocyte suspension and FFP were transfused while in postop ICU. Percutaneous tracheostomy was performed on day 40 after first surgery. Total stay in ICU accounted 62 days and 14 days in surgery service. Treatment included wound dressing
two-four times daily and use of continuous aspiration under low negative pressure, laparostomy and retention sutures for closing. Patient recovered and was discharged home on day 75 after initial surgery. In later period he suffered of 3 compound external bowel fistulas. Several unsuccessful attempts to close those fistulas surgically were tried out.

Conclusions: He had lived 3.5 years suffering of this great problem with very low quality of life before referring to our hospital. He applied to many high volume pancreatic centers but surgery was declined by hospitals. He admitted to our hospital for solving this difficult case. We diagnosed him to have multiple external and internal colon and small bowel fistulas with three enterocutaneous openings. We closed all external fistulas at the beginning of surgery and made a laparotomy. We separated small intestine and colonic loops attached to anterior abdominal wall without causing any new bowel opening. We encountered 8 internal small intestine and colonic fistulas communicating with 3 external openings. We removed all of them en-block with all fistulas resecting 50 cm of small intestine and 10 cm of colon performing 3 anastomosis: 2 anastomosis for proximal and distal jejunum and 1 colonic anastomosis. The scar edges of previous laparostomy wound were removed and prolen mesh used for alloplasty. We placed INTERCEED® (Johnson & Johnson-Ethicon) Absorbable Antiadhesive Barrier pads underneath mesh to prevent further bowel detachments to anterior abdominal wall. Surgical wound healed by primary intention without developing of any new fistula.

P207
ROUX-EN-Y PANCREATICOJEJUNOSTOMY AFTER DUODENUM NECROSIS IN SIMULTANEOUS KIDNEY-PANCREAS TRANSPLANTATION: REPORT OF A CASE

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Duodenal necrosis is one of the complications after pancreas transplantation sometimes results to graft removal and failure of transplantation. Here we report a case of duodenum necrosis after simultaneous kidney-pancreas transplantation managed with duodenum resection and pancreaticojejunostomy. A 27 years old male with end stage renal disease due to diabetes type 1 underwent simultaneous kidney-pancreas transplantation. Ischemic time for pancreas transplantation was 4 hours. One week after transplantation patient complained mild abdominal distention and lower abdominal pain. After three days of observation he presented fever and vomiting. Two days later because of failure of conservative management, laparotomy was done. Duodenum was necrotic near totally. After resection of duodenum a Roux-En-Y pancreaticojejunostomy was done. Post operation course was complicated with a low output pancreaticocutaneous fistula. Patients were discharged from hospital and fistula was resolved 2 month after surgery.

P208
ASSESSMENT OF CHANGES IN CARBOHYDRATE METABOLISM IN RECIPIENTS AFTER SIMULTANEOUS PANCREAS-KIDNEY TRANSPLANTATION

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Introduction: According to American diabetes Association (ADA), successful pancreas transplantation is the only effective method to improve diabetic patients' life quality. Surgical aspects of the simultaneous pancreas-kidney transplantation (SPKT) in details are covered in the medical literature, but, relatively less attention has been attended to carbohydrate metabolism (CM) changes and pancreas graft's
(PG) endocrine dysfunction (ED), which is subjected to the influence of numerous negative factors in the postoperative period. Our objective was to evaluate the changes in CM in the early postoperative period after SPKT.

**Materials and Methods:** We have evaluated the CM changes in 32 patients with type 1 diabetes, diabetic nephropathy, chronic renal failure after SPKT, male n=17, female n=15. The duration of the patients' main disease was 24 ± 7 years, the average daily insulin requirement was 37 ± 22 ED, the level of HbA1c – 8.1 ± 0.9%, the average level of fasting glucose was 10±6 mmol/L, postprandial 13.4 ± 6 mmol/L, the duration of the substitution therapy regular dialysis from 0 to 48 months. The recipients' selection has been made by the blood group, HLA-system antigens and cross-match results.

**Results:** In all cases was immediate PG function, normalization of glycemia immediately after transplantation. However, during the first postoperative day the tendency to hypoglycemia has been noted (glycemia - 4.1±1.1 mmol/L), which has required the glucose infusion during the first three postoperative days. Subsequently, the level of glycemia has stabilized. The fasting glucose level was 5.9 ± 2 mmol/L; postprandial, 7.4±3 mmol/L; C-peptide, 4.3 ±3.1ng/mL; insulin, 12.9 ± 10 IU/mL. By the end of the second postoperative week the glycemia level has increased to subnormal indicators and amounted on an empty stomach 6.6 ± 3 mmol/L; postprandial, 8.2 ± 3 mmol/L; C-peptide, 4.8 ± 3 ng/mL; insulin, 12.9 ± 9 IU/mL. It was associated with a number of PG dysfunction, which was the result of acute rejection and/or immunosuppressive drugs toxicity. In two cases this required a temporary appointment of insulin therapy with subsequent its cancellation.

**Conclusions:** Our studies show that CM changes in the early postoperative period depend on the patient's conditions, the graft's resilience and the other factors which affect the PG. There is a clear need to conduct additional research in this direction, the development of reliable methods for the assessment of PG's endocrine function, the differential diagnosis of the causes of graft dysfunction, their morphological verification and the ways of their elimination. SPKT is the best way to normalize CM and metabolic changes than the exogenous insulin introduction, which increase the possibility of patients' social rehabilitation.

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**P209**

**SIMULTANEOUS PANCREAS-KIDNEY TRANSPLANTATION FROM LIVING DONOR USING HAND-ASSISTED LAPAROSCOPIC DONOR SURGERY: SINGLE CENTER EXPERIENCE**

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**Introduction:** Simultaneous Pancreas-kidney Transplantation (SPK) has been the fundamental treatment and shown significant result on selected patients diagnosed with type 1 diabetes with renal insufficiency. Most pancreas transplantations are dependent on deceased donor, yet the waiting time for SPK from deceased donor is significantly long. Furthermore, in many countries without law establishment regarding brain death, living donor remains as the only source. Therefore, author introduces three experiences of living donor SPK using hand-assisted laparoscopic donor surgery (HALS).

**Materials and Methods:** Three cases who underwent simultaneous pancreas-kidney transplantation from living donor (LDSPK) using HALS at Korea University Anam Hospital from 2012 to 2013 were retrospectively reviewed in patient characteristics and clinical outcomes of donor and recipient (Table 1).

**Results:** For the donors, the pancreas and renal function had been well preserved postoperatively. One donor suffered from the pancreatic fistula which was controlled with conservative management. Out of 3 cases of recipient operation, one case was performed by ABO incompatibility donor. One recipient experienced significant postoperative bleeding which required 10 pints transfusion of pack RBC for 3 days, because of the routine anti-coagulation therapy to prevent the vascular thrombosis. However, it was controlled with conservative management. The levels of creatinine, serum insulin and C-peptide of recipients were normalized and remain stable at the last follow up (Table 1).

**Conclusions:** LDSPK can be an efficient alternative in cases where deceased donor is not present at a proper time, if degree of completion in operator's skill can be present. It also can be safely performed on both donor and recipient with comparable result to deceased donor.

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Introduction: Despite many advances in islet transplantation, poor efficacy of isolation and early graft dysfunction remain major obstacles for further progress. It has been shown that cell membrane damage occurs during the islet isolation procedure which could lead to early graft dysfunction. We investigated whether treatment with Essentiale (EN), a preparation of essential phospholipids, could reduce islet damage due to stress and improve islet quality and function.

Materials and Methods: Islets isolated from C57BL/6 mice and human research pancreata were used. Islets were cultured up to 5 days in medium containing Essentiale at 0.125 mg/ml and viability and function were assessed. Islets were treated for 24 h with a proinflammatory cytokine cocktail and/or hypoxic condition in the presence or absence of EN. mRNA levels of IL-1β, MCP-1, and IP-10 were measured by q-PCR. Secretion of IL-1β, MCP-1, and IP-10 was measured by Luminex assay. Additionally, secretion of HMGB1 due to islet damage was measured by ELISA. For in vivo analysis, a marginal dose of 1,500 human islets were transplanted under the left kidney capsule of STZ-induced diabetic mice.

Results: EN protected mouse beta cells, human and mouse islets from cytokine and hypoxia-induced apoptosis (30.6% day 1, p<0.05; 36.0% day 3, p<0.03). EN also improved function measured by glucose-stimulated insulin release in both mouse and human islets. EN significantly blocked IL-1β induction in islets stimulated by proinflammatory cytokines. Cytokine-induced secretion of IL-1β, MCP-1, and IP-10 was significantly blocked by EN. Islet damage by hypoxia was prevented by EN, shown by significant reduction in amount of secreted HMGB1 (p<0.005). In vivo, the mice showed better graft function when treated with EN compared to the non-treated control.

Conclusions: Our results suggested that pretreatment of islets with EN can improve islet viability by reduce apoptosis. This drug also blocks induction of IL-1β, a key mediator of apoptosis, thus protecting islets from cytokine and hypoxia-induced damage. EN can be used as an adjunct in islet transplant treatment to improve graft outcome.

P211
5,7-DIHYDROXY-3,4,6-TRIMETHOXYLAVONE ATTENUATES ISCHEMIC DAMAGE AND APOPTOSIS AND IN MOUSE ISLETS

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Introduction: The transplantation of isolated islets is a promising treatment of diabetes. Heat-shock protein (HSP70), which plays a vital role in cellular protection in various tissues subjected to stress, 5,7-dihydroxy-3,4,6-trimethoxyflavone (Eupatilin), a pharmacologically active flavone derived from the Artemisia plant species, has been reported to have anti-oxidant, anti-inflammatory activities and expression HSP. We performed this study to examine the hypothesis that preoperative eupatilin administration induces HSP70 before islet transplant attenuating ischemic damage to mouse islets.

Materials and Methods: Balb/c mice were randomly divided into two groups according to the treatment of eupatilin after isolation, cultured in medium with or without eupatilin. In vitro, islet viability and function were assessed. After treatment with a cytokine cocktail (TNF-α, INF-γ and IL-1β), cell viability, function and apoptosis were found with the islet cells. The GSH levels were measured in islet cells. Both HSP70 and proteins related to apoptosis were analyzed by Western blots.

Results: Viability and function were similar between the two groups. After treatment with a cytokine cocktail, viability were significantly improved in eupatilin-treated islets compared with cytokine group. The GSH levels were significantly elevated in the eupatilin-treated group. HSP70 expression in islets treated with eupatilin was markedly stronger compared with the control and cytokine group. Cytokine treated islets produced significantly higher levels of P38 MAPK, BAX, PARP, capsase-3 than islets treated with eupatilin. The eupatilin-treated group showed attenuated cytokine-induced apoptosis.

Conclusions: These results suggested that preoperative
eupatilin administration induced HSP70 before islet transplantation, thus attenuating cytokine-induced apoptosis, which might be potential tool to mitigate the ischemic damage to islet cells and the early inflammation at the site of implantation.

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PANCREATIC ISCHEMIA AND REPERFUSION INJURY INDUCED PULMONARY VASCULAR BARRIER FUNCTION IMPAIRMENT IS ATTENUATED BY NIAIN PRETREATMENT

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Introduction: Potential lung injury subsequent to ischemia and reperfusion (I/R) of pancreas, following shock, revascularization or pancreas transplantation is an important clinical problem. In addition to proteases, induction of inflammatory cytokines, such as tumor necrotic factor-α (TNF-α), and free oxygen radicals activity may play essential roles in remote lung injury, characterized by increase in protein concentration in bronchoalveolar lavage fluid (BALF) and lung edema. In this study, we examined the effects of niacin treatment against lung injury induced by pancreatic I/R injury.

Materials and Methods: Male Sprague-Dawley rats are divided in a sham-operated control group, a pancreatic I/R group, and a pancreatic I/R group with niacin pretreated group; niacin (300 mg/kg/day) was treated 3 days prior to the ischemia. Pancreatic ischemia was established by occluding both the gastroduodenal and splenic arteries for 120 min, followed by 6 hrs of reperfusion. Pulmonary filtration coefficient, Kfc, was measured at the end of study using isolated perfused rat lung preparation, followed by collecting BALF and lung tissues. Pulmonary vascular barrier function was assessed by Kfc, lung wet to dry weight ratio (W/D) and lung weight to body weight ratio (LW/BW). Lung inflammation was assessed by differential neutrophil cell count in the lung lavage and tissue level of malondialdehyde (MDA) and TNF-α. Serum levels of lactate dehydrogenase (LDH) and amylase were examined at baseline and the end of study for assessing lung and pancreas injury.

Results: As compared with sham group, pancreatic I/R markedly increased serum amylase (3765±442 vs. 772±114 IU/mL) (P<0.05) and differential neutrophil count (8.5±2.2 vs. 3.2±1.4%) in BALF; pancreatic I/R injury also impaired lung barrier function as demonstrated by increases in Kfc (1.74±0.35 versus 0.26±0.07 g/min*cmH2O/100 g) (P<0.05), protein concentration (1243±142 vs. 82±44 mg/mL) (P<0.05); W/D (4.42±0.17 vs. 5.32±0.27) and LW/BW (0.062±0.013 vs. 0.044±0.007) (P<0.05), along with increases in LDH (2230±367 vs. 475±221 U/g) (P<0.05) and MDA (0.844±0.12 vs. 0.487±0.07 pmol/mg) and TNF-α (184±26 vs. 74±8 pg/mg). Conversely, niacin pretreatment demonstrated protection of lung barrier function against pancreatic I/R injury, by improving Kfc (1.05±0.22) and reducing degrees of lavage neutrophil infiltration, MDA (0.569±0.08 pmol/mg) and TNF-α (116±13 pg/mg) in the lung tissue (P<0.05).

Conclusions: Niacin pretreatment demonstrated lung barrier function protection against pancreatic I/R injury, through reducing tissue levels of tissue MDA and TNF-α, and neutrophil infiltration.

P213
RETINOBLASTOMA CANCER STEM CELL ISOLATION AND CHARACTERIZATION FROM IRANIAN POPULATION

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Introduction: To determine whether side population (SP) cells in Iranian retinoblastoma cell line have cancer stem cell-like properties in vitro.

Materials and Methods: We analyzed and sorted SP from Iranian retinoblastoma cell line by CD44 positive selection on magnetic cell sorting. SP and non-SP (NSP) cells were determined their abilities such as proliferation, karyotyping, stem cell surface markers, spheroid formation soft agar assay and in vitro and in vivo differentiation analysis. The expression of Nanog, PROM1, MSI1, Sox2, PAX8, And Oct3/4 was determined by Real Time-PCR between SP and NSP cells and compared them with Y79 retinoblastoma cell line. Moreover, they were injected into nude mice to determine their tumorigenic properties.

Results: SP cells from Iranian retinoblastoma cell line could grow clonally in adherent form and spheres generated from single cells in condition media. The expression of stem cell surface marker such as CD90, CD105, and CD166, significantly higher in SP than NSP cells on the CD44 positive cell fraction. The expressions of Nanog, PROM1, MSI1, Sox2, PAX8, And Oct3/4 gens were significantly higher in SP than NSP cells. As few as SP cells resulted in tumor formation in 6 of 12 injected sites, however, the injection of NSP cells failed to form new tumor. By the way karyotyping result show that CD44 positive cells have 46, XY, and duplication in 16 chromosomes (q13; q22).

Conclusions: CD44 positive cells isolated by MACS from Iranian retinoblastoma patent have been high proliferation
and tumorigenicity characteristics. Therefore, these isolated cells might be a target in developing future retinoblastoma therapies.

**P214**

**KNOWLEDGE AND ATTITUDES ON EYE DONATION AND CORNEAL TRANSPLANTATION: MEDICAL STUDENTS VERSUS PATIENT RELATIVES IN BASKENT UNIVERSITY**

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**Introduction:** Our objective was to assess the knowledge and attitudes on eye donation and corneal transplantation of medical students versus patient relatives in Baskent University.

**Materials and Methods:** The study was a comparative questionnaire-based cross-sectional survey of fifth year medical students and patient relatives at the Baskent University Faculty of Medicine conducted between September 2013 and March 2014. Data on participants’ demographics, knowledge and attitudes on eye donation and corneal transplantation were collected and analysed using descriptive and comparative statistics. A p<0.05 was considered statistically significant.

**Results:** The participants [n= 167; medical students (MS), 82; patient relatives (PR), 85] comprised 79 males and 88 females who were aged 43.3 ± 20.2 SD years (range, 22-63 years). There were no significant inter-group differences in awareness of eye donation (OR: 1.71; 95%CI: 0.92-3.17, p=0.0924) and willingness to donate own (OR: 0.76; 95%CI: 0.33-1.76, p= 0.5260) or relatives’ (OR: 0.76; 95%CI: 0.29-1.98; p= 0.6274) eyes. Significantly more of MS than PR knew that donation consent is given by donor while alive (OR: 2.93; 95%CI: 1.56-5.4; p=0.0005) and had good knowledge of donor eye preservation (OR: 2.43; 95%CI: 1.27-4.68; p = 0.007).

**Conclusions:** Among medical students and patient relatives, there are crucial deficits in knowledge and attitudes on eye donation and corneal transplantation. Tailored donation awareness campaigns and introduction of undergraduate course work on eye donation may reverse the trend.

**P215**

**TWO-DIMENSIONAL MONOLAYER CULTURE OF KERATINOCYTES ON GELATIN-COATED SURFACE**

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**Introduction:** Human epidermal keratinocytes culture is currently established for treatment of burns and wounds and laboratory applications. Contamination by unwanted cells and stop of cell proliferation are barriers in primary keratinocyte culture. The present study was conducted to evaluate keratinocytes culture process on gelatin coated surface.

**Methods:** Obtaining skin samples were performed in accordance with the ethical standards laid down in The Helsinki Declaration. The epidermis was separated from the dermis of the skin samples using dispase. Subsequent to enzymatically isolation of keratinocytes from epidermis by trypsin, these cells were cultured on gelatin coated flask in serum free medium. A group of cells were cultured without coating, as control group.

**Results:** We indicated positive effects of surface coating with gelatin on the primary culture of keratinocytes. Culture of these cells on gelatin-coated surface showed better proliferation and suitable morphology. In this circumstance, adhesion of these cells to the surface was more efficient and without contamination with small round cells.

**Conclusion:** Success in primary culture of keratinocytes can lead to achieve the optimal number of cells for research and clinical applications.

**P216**

**CONSIDERATION IN THE IMPROVEMENT OF HUMAN EPIDERMAL KERATINOCYTES CULTURE IN VITRO**

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**Introduction:** Large scale expansion of autologous epidermal keratinocytes is essential in the application of these cells for severe burns treatment in patients. According to this fact, this study was designed to appraise various conditions in the expansion of human epidermal keratinocytes.

**Materials and Methods:** Skin samples were obtained during plastic surgery after receiving informed consent forms to the standards set by the Declaration of Helsinki.
The epidermis was separated from the dermis of the skin samples using dispase. The epidermis was trypsinized for keratinocytes isolation. Keratinocytes were cultured in the various conditions, with or without human dermal fibroblast feeder layer mitomycin C – treated and the different culture medium.

**Results:** Our results suggest that keratinocytes cultured on a human dermal fibroblast feeder layer are grown for several passages. Extensive deformation and rapid deterioration were observed in the cultured cells without feeder layer and in serum free medium.

**Conclusions:** Mitomycin – C treated human dermal fibroblast can provide optimal conditions for proliferation of keratinocytes.

**P217**

**NEW IRANIAN CONTINUOUS CELL LINE DERIVED FROM HUMAN RETINOBLASTOMA (SPU-RB1)**

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**Introduction:** Retinoblastoma (RB) is an intraocular eye cancer occurring during early childhood, caused by a disturbance of the tumor suppressor gene, RB. Cell lines derived from retinoblastoma have been widely utilized in researches in order to thoroughly understand the RB mechanisms, functional properties of wild-type alleles and also most importantly, differentiation pathways in the retina. Nowadays, only a few retinoblastoma cell lines are available in the word. In this experiment, for the first time, we established a new human retinoblastoma cell line with adherent growth properties and specific characterization named SPU-RB1 from the Iranian population.

**Materials and Methods:** A one-year old male subject with no family history of retinoblastoma was admitted to Farabi Eye Hospital for clinical evaluation. The sample was provided with informed consent, institutional committee approval was obtained, and the principles of the Declaration of Helsinki were followed. Primary tumor was obtained from eyes immediately forwarded into transfer media. After 2 days of culture, the medium was replaced with fresh medium containing 10 Um retinoic acids. The culture medium was changed every three days. After ten days, cells harvested, their RNA extracted and the RT-PCR reaction for retinoic acid receptor α (RARα), to confirm the differentiation induced by retinoic acid, has done. Karyotype analysis was performed on SPU-RB1 cells on the first and last passages. Cells were subjected to Real Time PCR analysis to determine the specific gene evaluation, gene expression for RARα, ABCG2, GFAP, ACTB genes was performed with SYBR® Premix Ex Taq” (TaKaRa, Japan) master mix in CFX96” Real-Time PCR instrument (BioRad, USA) in the following condition: Initial denaturation, 95°C for 30 second, denaturation 95°C for 5 second, and combined annealing and extension step carried out in 58-60°C for 34 min.

**Results:** SPU-RB1 cell line in typical features such as morphological and molecular characteristics was common to the previous human retinoblastoma cell line, Y79: its morphological characteristics in term of being fibroblast and/or ganglion like cells also as an adherent cell have a unique feature in culture. Moreover, gene expression of specific genes like RARα, ABCG2, and GFAP as a marker for retinoblastoma cell lines show similarity compared to Y79. At least 100 metaphase spreads were analyzed, abnormality in the chromosomes contains 3, 11,13,16,17 in form of duplication and deletion, were observed.

**Conclusions:** SPU-Rb1 a novel human retinoblastoma cell line, the inimitable properties of adherent growth and having different chromosomal imbalances compared with Y79. Therefore, these data make SPU-Rb1 as an inevitable candida for such retinoblastoma studies. Furthermore, in case of animal studies, an orthotropic implantation model using this cell line seems to be the most representative for retinoblastoma formation.

**P218**

**RETINOBLASTOMA CANCER STEM CELL ISOLATION AND CHARACTERIZATION FROM IRANIAN POPULATION**

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**Introduction:** To determine whether side population (SP) cells in Iranian retinoblastoma cell line have cancer stem cell-like properties in vitro.

**Materials and Methods:** We analyzed and sorted SP from Iranian retinoblastoma cell line by CD44 positive selection on magnetic cell sorting. SP and non-SP (NSP) cells were determined their abilities such as proliferation, karyotyping, stem cell surface markers, spherioed formation soft agar assay and in vitro and in vivo differentiation analysis. The expression of Nanog, PROM1, MS1, Sox2, PAX8, And Oct3/4 was determined by Real Time-PCR between SP and NSP cells and compared them with Y79 retinoblastoma cell line. Moreover, they were injected into nude mice to determine their tumorigenic properties.

**Results:** SP cells from Iranian retinoblastoma cell line could grow clonally in adherent form and spheres generated from
single cells in condition media. The expression of stem cell surface marker such as CD90, CD105, and CD166, significantly higher in SP than NSP cells on the CD44 positive cell fraction. The expressions of Nanog, PROM1, MS11, Sox2, PAX8, And Oct3/4 gens were significantly higher in SP than NSP cells. As few as SP cells resulted in tumor formation in 6 of 12 injected sites, however, the injection of NSP cells failed to form new tumor. By the way karyotyping result show that CD44 positive cells have 46, XY, and duplication in 16 chromosomes (q13; q22).

Conclusions: CD44 positive cells isolated by MACS from Iranian retinoblastoma patent have been high proliferation and tumorigenicity characteristics. Therefore, these isolated cells might be a target in developing future retinoblastoma therapies.

P219
HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR ADULT SICKLE CELL DISEASE: A CASE REPORT

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Introduction: Sickle cell disease (SCD) patients develop end-organ complications that are associated with significant morbidity and early mortality. Myeloablative allogeneic hematopoietic stem-cell transplantation is curative in children younger than 16 years of age with SCD. However, the procedure is highly toxic in adult patients. Graft rejection and graft-versus-host disease (GvHD) are also important problems need to be overcome. Thus, the patients require new and innovative conditioning regimens that minimize morbidity and mortality. We designed a nonmyeloablative stem-cell transplantation protocol for an adult patient with SCD.

Materials and Methods: A 25-year adult patient with severe SCD underwent nonmyeloablative transplantation with CD34+ peripheral-blood stem cells, which were obtained from HLA matched sibling. Conditioning regimen was 200 cGy of total-body irradiation plus Flu150/Bu3.2/Cy29/ATG 30 (Fresenius). Sirolimus, mycophenolate, and high dose Cy (100/kg) was used as a protocol for GvHD prophylaxis.

Results: The transplant was successful with no peritransplant complication. He engrafted on day +11. Hemoglobin values before transplantation and at the last follow-up assessment were 8.6 g/dl and 14.0 g/dl, respectively on day +30. He gained a stable donor chimerism (>95% by FISH for total nuclear cell). The patient did not develop acute, or chronic GvHD. The patient was alive on day +213.

Conclusions: This improved non myeloablative transplantation protocol seems to be effective and safe in adult patients with SCD and encourage the transplant team to start a controlled clinical trial.

P220
AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR SEVERE REFRACTORY CROHN’S DISEASE: A CASE REPORT

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Introduction: Crohn’s disease is a recurrent systemic inflammatory disease affecting the gastrointestinal tract with extraintestinal manifestations and systemic immune disorders. Although new therapeutic strategies have been developed to control Crohn’s disease, medical treatment for refractory cases is not able to prevent extensive and/or repeat surgery. Recently, several cases have been reported of successful remission induction in Crohn’s disease patients by means of hematopoietic stem cell transplantation (HSCT). Here we report 23 years old female patient with refractory Crohn disease who non responded to stem cell transplantation procedure. The patient was refractory to conventional therapies, including steroids, salazopyrine, salofalk, azothiopurine and anti-TNFα antibodies. Patient refused the surgery and surgery was considered also not to be a feasible alternative due to the extensive disease involvement of the small intestine. We were planed to perform the autologous HSCT for this refractory patient after our hospital council of decision and informed consents.

Materials and Methods: Peripheral blood stem cells were mobilized using a single infusion of cyclophosphamide (CY) 2 g/m2, followed on day 4 by subcutaneous injections with G-CSF 5 μg/kg twice daily until leukapheresis. CD34+ cells were collected by using continuous flow apheresis machine (Spectra Optia, Teruma BCT, USA). The conditioning regimen consisted of high-dose CY (50 mg/kg BW/day from day -5 to day -2) antithymocyte globulin 2,5 mg/kg/day (3 days; from day -4 to day -2 with prednisolone 500 mg (3 days) followed by auto PBSCT on day 0. Mesna was given along with CY to prevent haemorrhagic cystitis and G-CSF (5 lg/kg BW/day) was administered starting 7 days after transplantation. Endoscopy, barium small bowel enteroclysis and MRI enterography were performed. Haematological and immunological reconstitution was analysed using lymphocyte subpopulation and CD4+/CD25+/Fox-p3 + T regulatory cells (TREG) were evaluated at specific times; before and 3 and 4 months.
after transplantation. Treatment-related side effects like infectious complications and organ-related toxicities were assessed.

**Results:** The patient had successfully completed stem cell mobilization and 7.6 million cells/kg were infused. Treatment was well tolerated, with acceptable toxicity. The neutrophile engraftment was occur at 9th day. But there were no clinical, colonoscopic and laboratory improvement during the 10 months follow-up after the transplantation procedure. We shown that percentage of CD3 positive cells unchanged throughout post transplant period. The percentages of CD4+, CD19+ and TREG+ positive cell decreased while percentages of CD8+ and CD56 + cells increased after transplantation.

**Conclusions:** Results from several monocentre pilot studies over the last years suggest that autologous HSCT is safe and efficient to induce remission of refractory CD, and even has the potential to induce medication-free remission for several years. Our patient was refractory to all conventional therapies and she didn’t respond to autologous HSCT. Additionally, clinical improvement seemed to be associated with the high percentage of TREG cell count in the peripheral blood. This observation may support the thesis that if some biomarkers predicting the effectiveness of HSCT can be used in the pre-HSCT period, prevention of overtreatment like high dose immunosuppressive therapy can be realized. Further studies are needed.

**Table 1. Summary of Changes in CD3, CD4, CD8, CD19 and Fox p-3 Positive Lymphocytes Before and After Transplantation**

<table>
<thead>
<tr>
<th>Total Lymphocyte</th>
<th>CD3</th>
<th>CD4 Th (%)</th>
<th>CD8 (%)</th>
<th>CD19 Th (%)</th>
<th>NK cells (%)</th>
<th>CD3+/ CD25 (%)</th>
<th>CD4/ CD25 (%)</th>
<th>FOX-p3 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before tx</td>
<td>10.6</td>
<td>78.6</td>
<td>60</td>
<td>18</td>
<td>13</td>
<td>8</td>
<td>1.2</td>
<td>6.7</td>
</tr>
<tr>
<td>After tx, 3rd month</td>
<td>13</td>
<td>72</td>
<td>27</td>
<td>35.7</td>
<td>1.5</td>
<td>24.6</td>
<td>1.4</td>
<td>15</td>
</tr>
<tr>
<td>After tx, 4th month</td>
<td>7.6</td>
<td>76.7</td>
<td>35.8</td>
<td>32.2</td>
<td>0.1</td>
<td>20</td>
<td>5.1</td>
<td>4.2</td>
</tr>
</tbody>
</table>

**P221**

**EFFECTIVENESS OF FLUDARABINE AND BUSULPHAN-BASED CONDITIONING REGIMENS IN ACUTE MYELOBLASTIC LEUKEMIA: EIGHT-YEAR EXPERIENCE OF A SINGLE CENTER**

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**Introduction:** Allogeneic hematopoietic stem-cell transplantation (allo-HSCT) is an effective and potentially curative treatment for acute myeloblastic leukemia (AML). The conditioning regimen with busulfan plus cyclophosphamide is considered as the standard myeloablative regimen for AML. However, it is associated with significant risks of regimen-related toxicity. In recent studies, fludarabine has replaced cyclophosphamide in conditioning regimens to overcome toxicity, nonrelapse mortality and treatment failure.

**Materials and Methods:** The present study is a single-center study designed as a retrospective and cross-sectional manner and conducted between July 2005 and November 2013. A total of 55 consecutive patients who underwent allo-PSCT for AML from an HLA-identical sibling donor were included in the study. Their median age was 42 (18-63) years. All patients received a busulphan-fludarabine-ATG-based conditioning regimen. The conditioning regimen consisted of a myeloablative (9.6-12.8 mg/kg busulphan, 150 mg/kg fludarabine and 15 mg/kg rabbit ATG and a reduced intensity conditioning (6.4 mg/kg busulphan) regimen. All patients received cyclosporine A plus methotrexate for graft-versus-host disease (GVHD) prophylaxis. Viral and fungal prophylaxes were performed according to standard operating procedures compatible with JACIE standards (KIT-KU-012). The patients received a preemptive treatment with gancyclovir for cytomegalovirus reactivation based on the results of molecular screening.

**Results:** While 48 patients underwent allo-PSCT using myeloablative regimen, seven patients received reduced intensity conditioning. Eight patients had single adverse genetics (two had 7q deletion, one monosomy 7, one trisomy 21, one trisomy 8, one t (3;5), one t (9;22) and one had t (9;11)) and non-complex genotypes. FLT3-ITD-positivity was found in two out of 20 samples. While three patients had active disease at the time of diagnosis, all patients were in complete remission upon follow up. Neutrophil and platelet engraftment times were 12 (9-20) and 12 (7-19) days, respectively. During follow up period, 20 (36%) patients developed cytomegalovirus viremia, 7 (12%) developed herpes virus infection and 3 (5%) fungal infection. Acute GVHD developed in 10%, chronic GVHD developed in 50% of the patients. A total of 7 patients received donor lymphocyte infusion due to failure to develop full chimerism, minimal residual disease positivity or relapsed disease. Grade 1 or 2 GVHD developed in 5 and grade 4 GVHD developed in one of the donor lymphocyte-administered patients. Median follow-up of was 22.6 months. The probability progression free survival at one and three years after transplantation was %88 and %75, respectively (Figure 1). The overall survival (OS) at one year and three years was 88 % and 83% respectively, and after five years of follow up, OS was found as 60% (Figure 2). Treatment related mortality occurred in 3 patients (5.5 %). Cause of death was infections in one patient, GVHD in 2 patients. In multivariate analysis; OS, progression free survival were not influenced by age, minimal residual disease positivity, presence of cytomegalovirus antigenemia and conditioning regimen (reduced intensity vs myeloablative conditioning) (p<0.005). Presence of active disease at the time of transplantation was found as an independent risk factor. In univariate analysis,
acute GVHD negatively affected OS while chronic GVHD positively affected OS.

**Conclusions:** Our results indicate that busulphan and fludarabine-based conditioning regimens are effective in AML and have low toxicity, morbidity and mortality.

Figure 1. Cumulative Incidence of Relapse in Patients with Acute Myeloblastic Leukemia Who Transplanted Using Busulphan and Fludarabine-Based Conditioning Regimens

Figure 2. OS in Patients with Acute Myeloblastic Leukemia Who Transplanted Using Busulphan and Fludarabine-Based Conditioning Regimens

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**P222**

**THE RESULTS OF ALLOGENEIC BONE MARROW TRANSPLANTATION IN PATIENTS WITH ACUTE LYMPHOBLASTIC LEUKEMIA: TEN YEARS EXPERIENCE OF SINGLE CENTER**

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**Introduction:** In contrast to childhood acute lymphoblastic leukemia (ALL), the poorer outcome of adult ALL is with an average survival of 35% in patients’ age 18 to 60 years. This consequence relates to multiple factors, including a higher incidence of poor prognostic markers such as Philadelphia positivity and lower incidence of favorable subtypes. The allogeneic hematopoietic stem cell transplantation (HSCT) has been increasingly proposed for adult ALL in first remission (CR) over the past 10 to 15 years. Because the use of alternative to match sibling donors as match unrelated and haploidentic donors has provided broad spectrum availability of donor pool ALL patients. However, the curative potential of allogeneic HSCT must be assessed to the problems associated with the procedure which consists of non-relapse mortality, chronic graft versus host disease (GvHD) and due to this long term morbidity, late side effects and quality of life status. In the other hand, another increasingly growing option is to reserve allogeneic HSCT for high risk patients by identifying patients who have chance of cure without HSCT. Although there are some debates of allogeneic HSCT in patients within first CR, there is a consensus on that all patients in second CR or later remission are candidates for allogeneic HSCT.

**Materials and Methods:** We wanted to share our ten years experience of HSCT in patients with ALL according to this information as outlined. We performed allogeneic HSCT in 38 patients with ALL between the years 2004 to 2014 in the Baskent University Adana Adult Bone Marrow Transplantation Center.

**Results:** There were 18 (47.4%) male and 20 (52.6%) female patients and the median age was 31 years (17 to 31). The risk status had known 33 out of 38 patients that the incidence of high risk ALL patients was 57.9% (n=22). The donors characters were consist of full match sibling, match unrelated and haploidentical (78.9%, 2.6% and 18.4% respectively). We used five different conditioning regimens depending on whether sibling, unrelated or haploidentical donor for allogeneic HSCT procedure. In most of them are based on total body irradiation total body irradiation combined with cyclophosphamide or etoposide. We had to perform second allogeneic HSCT in four patients because of relapsing after the first transplantation. The median time until transplantation was 9.7 months with wide range (0.7-53.5). Eighteen of the patients (47.4%) died during the follow up. The transplantation related mortality (TRM) was 18,9%. Disease free survival was nearly 70% for the first year and 25% for the third year. We detected overall survival (OS) 65% and 40% in the first year and third year, respectively.

**Conclusions:** Although there are ongoing discussions for allogeneic HSCT in patients with adult ALL, the results of studies shown that there are not curative chemotherapy regimens especially high risk or relapse/refractory patients. Allogeneic HSCT may be a curative for eligible patients or may provide longer survival in compare to conventional therapies.
**P223**

**QTC PROLONGATION IN PERIPHERAL STEM CELL APHERESIS DONORS: IS IT REALLY SAFETY FOR VOLUNTEERS?**

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**Introduction:** Voluntary donation of peripheral blood stem cells (haemopoietic progenitor cells, apheresis; HPCA) for allogeneic haemopoietic cell transplantation are accepted procedures performed on related and unrelated donors throughout the world. Donation of HPCA carries generally small but measurable risks of morbidity and mortality among healthy donors. Most of these complications via citrate infusion during the procedure. We aim to study of the effect of citrate infusion on the QTc and vital parameters during and after the peripheral stem cell apheresis procedure in the volunteer donors.

**Materials and Methods:** First-time HPCA donors medically assessed between April 2011 and December 2013 were included in the study. To ensure a healthy subject population, subjects underwent screening which included a detailed medical history, physical examination, including vital sign measurement, 12-lead ECG, and clinical laboratory tests. Apheresis procedures were performed with COBE Spectra MNC or Spectra Optia MNC, both by Terumo BCT (Lakewood, CO, USA), according to the manufacturer’s handbook and standard operating procedures (SOP, KIT-TU-003) compatible with JACIE standards. Anticoagulation was achieved with ACD-A only, and 1:12 the ACD-A to inlet flow rate. During the procedure, heart rate, ECG and transcutaneous oxygen saturation and noninvasive blood pressure were monitored intermittently.

**Results:** One hundred and eight HPCA were performed in 68 healthy donors; ages from 18-60 and 26 of whom were females, in the Cell Collecting Unit at Baskent University, that was accredited by JACIE, between 2011 and 2013. The mean calculated total blood volume of donors was 4995.25 ± 818.88 ml. No technical problems related to cell separators was noted. Adverse events only occurred in 5 of the 108 procedures (4.60%). None of these events justified discontinuing the session. The mean calculated of baseline, first and second hours measurement during the procedure and 30 minute later after the procedure QTc value 349.9 ± 52.8, 347.6 ± 59.5, 391.8 ± 54.0 and 404.8 ± 59.2 ms respectively. Also we compared between baseline QTc and other values. While there was no statistical significans between baseline QTc and first hour, it was a statistical significans between baseline QTc and second hours measurement and after the procedure of 30 minute later. There was no statistical significans both PaO2 and blood pressure measurements. There was also no statistical significans plasma Ca, Mg and K levels between before and after procedures.

**Conclusions:** QTc prolongation always occurs during leukopheresis if the procedure takes more than 2 hours. This study indicates that it may be advisable to assess donors for family or personal history of sudden death to exclude those at increased risk of arrythmias because of asymptomatic carriage of a long QT gene. In addition baseline QTc measurement is a simple and noninvasive procedure that could be applied to further studies with a view to enhancing donor safety in apheresis.

**P224**

**CD8+ T CELL DEPLETION EFFECTS ON HLA-G EXPRESSION ON NATURAL KILLER CELLS**

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**Introduction:** HLA-G molecules are HLA class Ib antigens characterized by tolerogenic and immunoinhibitory functions. HLA-G modulates NK cells, T cells, and DC maturation through its interactions with various inhibitory receptors. HLA-G protect HLA class-I deficient targets from NK cells-mediated lysis and its expression was related to allograft acceptance. The aim of the study was to investigate the effect of HLA alloantibodies and CD8+ T cells on HLA-G expression on NK cells and CD4+CD25high T cells.

**Materials and Methods:** Study group included eight healthy volunteers. Periheral mononuclear cells isolated with density gradient centrifugation over Ficoll/Hypaque. After the PBMC isolation, lymphocytes divided two groups. One of them is CD8+ T cell group and the other is CD8-T cellgroup. Immunomagnetic cell isolation technique used for separation of CD8+ T lymphocytes from PBMC. Autolog serum samples, PRA class-I positive serum samples and PRA class-II positive serum samples were added during the preparation of the cell cultures to examine their effects at 24 and 48 hours. Cultures were incubated at 370C in a humidified 5%CO2 air atmosphere for 24 and 48 hours. To investigate the expression of HLA-G on the surface of CD4+CD25 (high) Treg cells and CD16+ natural killer cells we used anti-CD45, anti-CD4, anti-CD8, anti-CD25-anti-CD16 and anti-HLA-G monoclonal antibodies in flow cytometry.

Statistical analysis was performed using SPSS software (Version 16.0, SPSS Inc., Chicago, IL, USA). All numerical
Table 1. Time Dependent and HLA-Antibodies Dependent Changes in 
CD4+CD25high and CD16+ Cells and Their HLA-G Expression

<table>
<thead>
<tr>
<th>Immune cells and time</th>
<th>PRA class-I+ serum sample</th>
<th>PRA class-II+ serum sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4+CD25high 0 hour - 24 hour</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>CD4+CD25high 0 hour - 48 hour</td>
<td>0.483</td>
<td>0.735</td>
</tr>
<tr>
<td>CD4+CD25high HLG+ 0 hour - 24 hour</td>
<td>0.059</td>
<td>0.131</td>
</tr>
<tr>
<td>CD4+CD25high HLG+ 0 hour - 48 hour</td>
<td>0.414</td>
<td>0.197</td>
</tr>
<tr>
<td>CD16+ 0 hour - 24 hour</td>
<td>0.012</td>
<td>0.012</td>
</tr>
<tr>
<td>CD16+ 0 hour - 48 hour</td>
<td>0.012</td>
<td>0.249</td>
</tr>
<tr>
<td>CD16+HLA-G+ 0 hour - 24 hour</td>
<td>0.017</td>
<td>0.012</td>
</tr>
<tr>
<td>CD16+HLA-G+ 0 hour - 48 hour</td>
<td>0.123</td>
<td>0.028</td>
</tr>
</tbody>
</table>

Results: sHLAG level was significantly higher in the transplanted patients compared to the control. Prograf and not cyclosporine or rapamune had positive effects on sHLAG levels. Patients with chronic rejection had a significant lower level of sHLAG compared to graft stable group. No effect of donor type, infection or duration post-transplant, on sHLAG levels was found.

Conclusions: The results of the current study are consistent with previous studies addressing the role of sHLAG in inducing immunotolerance post kidney transplantation. The findings from the current study on the chronic rejection group, supports the on-going research of having a treatment with HLA-G/or derivate, which may constitute in the future a novel efficient anti-graft rejection therapy.

P226

THERAPEUTIC EFFECTS OF HUMAN BONE MARROW MESENCHYAL STEM CELL ON CCL4-INDUCED OXIDATIVE DAMAGE IN RAT LIVERS

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Introduction: Liver damage is due to the excessive accumulation of extracellular matrix which affects the liver function over time and leads to its failure. In the past, a liver transplant was thought to be the only treatment but due to the shortage of proper donors other medical treatments have been taken into consideration. The purpose of this study was to evaluate the therapeutic effects of stem cells from bone marrow derived mesenchymal stem cells (BM-MSC) in CCL4 damaged rats.

Materials and Methods: Liver damage in adult male Wistar rats was induced with carbon tetrachloride (CCL4). Rats were divided into: normal control group, receiving CCL4, and receiving CCL4 plus marrow derived-MSC. Human BM-MSC was isolated, cultured, and characterized. Rats were injected with xenograft MSCs to hepatic lobes of the liver. In the eighth week, blood samples were taken from all groups. Histological staining and biochemical analysis were used to compare the morphological and functional liver regeneration among different groups. Measurement of lipid peroxidation and glutathione transferase activity were also done.

P225

HLA-G AND RENAL TRANSPLANTATION

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Introduction: Studying immune tolerance induced by HLA-G in kidney allograft acceptance may help in more understanding of its mechanisms, hoping in the future to bolster it and thus decrease the immunosuppressive drugs given that are well known to have serious side effects. The aim of the current study is to evaluate soluble HLA-G in three groups: kidney transplanted patients with no rejection episodes, transplanted patients with biopsy proven renal rejection and healthy age matched non transplanted individuals.

Materials and Methods: Three groups were studied: kidney transplanted patients with no rejection episodes [n= 43]; transplanted patients with biopsy-proven renal rejection [n= 27]; healthy age-matched non transplanted individuals as controls [n= 42]. I Soluble HLA- G level was measured in the serum by a quantitative sandwich ELISA assay.
**Results:** The result of histopathology, and biochemical analysis indicated that local injection of human BM-MSCs was effective in treating liver failure in rat model. Furthermore, oxidative stress was attenuated by increased level of GSH content after MSC transplantation.

**Conclusions:** Evidence of this animal model approach is shown in which bone marrow-derived MSCs promote an antioxidant response and supports the potential of using MSCs transplantation as an effective treatment modality for liver disease.

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**P227**

AN EXTRACT OF ARTEMISIA ASIATICA PROTECTS KIDNEYS FROM ISCHEMIA-REPERFUSION INJURY IN MICE

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**Introduction:** An extract of Artemisia asiatica was reported to possess antioxidative and cytoprotective actions in various experiments. Ischemia-reperfusion injury (IRI) remains a major problem in renal transplantation, and the inflammatory response to IRI exacerbates the resultant renal injury. In the present study, we investigated whether an extract of Artemisia asiatica exhibits renoprotective activities against ischemia/reperfusion-induced acute kidney injury (AKI) in mice.

**Materials and Methods:** Renal IRI was induced in male C57BL/6 mice by bilateral renal pedicle occlusion for 30 min followed by reperfusion for 48 hr. An extract of Artemisia asiatica (100, 300mg/kg, p.o.) was administered 4 days before IRI.

**Results:** Treatment with an extract of Artemisia asiatica significantly decreased blood urea nitrogen, serum creatinine levels, as well as kidney tubular injury (p<0.05). Western blotting indicated that an extract of Artemisia asiatica further significantly increased the level of HO-1 at 48 h after IRI, attenuated the level of P38 MAPK, caspase 3.

**Conclusions:** These findings suggest that an extract of Artemisia asiatica is a promising therapeutic agent against acute ischemia-induced renal damage and that its renoprotective effects may be mediated in part by increased HO-1.

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**P228**

HUMAN LEUKOCYTES ANTIGEN PROFICIENCY TESTING IN KOREA: A SUMMARY OF RECENT 5 YEARS OF PERFORMANCE

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**Introduction:** In order to improve the quality of human leukocyte antigen (HLA) and reliability of histocompatibility testing in Korea, external proficiency testing surveys have been performed biannually since 1996. We analyzed responses from approximately 70 laboratories participating in 10 surveys in recent 5 years (2009-2013) in Korea.

**Materials and Methods:** A total of 10 proficiency testings were performed during 5 years, in which 66-75 laboratories participated per survey. Proficiency testing included HLA typing, crossmatch test, and panel reactive antibody (PRA) test. HLA typing test was composed of high and low resolution DNA typing. Crossmatch test included direct complement dependent lymphocytotoxicity (CDC), anti-human globulin (AHG)-augmentation and flow cytometry method. PRA test included enzyme-linked immunosorbent assay (ELISA) and luminex assay.

**Results:** The discordance of serologic equivalent results was 0.9% (16/1865) for HLA-A, 1.8% (20/1863) for HLA-B, 1.5% (20/1304) for HLA-C, 1.3% (24/1895) for HLA-DR, and 1.8% (7/376) for HLA-DQ. The discordance of high resolution DNA typing was 0.2% (1/503) for HLA-A, 0.6% (3/506) for HLA-B, 0% (0/503) for HLA-C, 1.3% (7/506), for HLA-DRB1, and 0.7% (2/276) for HLA-DQB1. In the crossmatch test, the average of 2.7% (range 0-10%) of total laboratories revealed unacceptable results. In the PRA test, the number of participating laboratories increased from 10 to 13 during 5 years. The discrepancy of results of PRA testing varied 0 to 22.2% in each survey. In the first survey, nine out of ten participated laboratories reported the results of PRA by ELISA method, but as surveys went on, the number of laboratories that used luminex screen assay increased and was up to 92.3% (12/13) at the last survey.

**Conclusions:** This study demonstrates the increased number of laboratories in Korea showing high quality of histocompatibility testings in recent 5 years.
**P229**

**THE MOST COMMON GREEK HLA HAPLOTYPES IN THE HELLENIC CORD BLOOD BANK INVENTORY**

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**Introduction:** Cord blood (CB), with bone marrow and peripheral blood, are considered to be the main source of hematopoietic stem cells for allogeneic stem cell transplantation. The ultimate purpose of the public cord blood banking is to establish an inventory with a large HLA diversity. It is, therefore, essential that in terms of histocompatibility, the stored CB units (CBUs) are representative of the population from which they have been derived as well as of ethnic minorities present in the population. The Hellenic Cord Blood Bank (HCBB) has an inventory of 2700 CBUs: The aim of this study was to estimate the distribution of HLA-A,-B,-DRB1 alleles and the A-B-DRB1 haplotype frequencies of the HCBB inventory. For this reason the phenotypic and allelic frequencies of 2413 CBUs donated exclusively by mothers of greek descent were obtained.

**Materials and Methods:** The 2413 CBUs and their paired maternal samples were HLA-A,-B,-DRB1 typed at the 2-digit level, using PCR-SSO (LIFECODES, Immucor) and the typing results were analyzed using Arlequin v3.

**Results:** The most frequent allelic groups for HLA-A were: HLA-A*02 (27.7%), HLA-A*24 (16.3%); HLA-A*01 (10.4%); HLA-A*03 (8.7%), HLA-A*11 (6.9%) and HLA-A*32 (6.7%), whereas HLA-A*36 and *43 were not represented. For HLA-B the most common were HLA-B*35 (16.1%); HLA-B*51 (14.3%); HLA-B*18 (12.7%); HLA-B*44 (7.8%); HLA-B*07 (4.4%) and HLA-B*40 (4%) whereas HLA-B*54,*59,*67,*78,*81,*82 and *83 were not represented. For HLA-DRB1 the most frequent alleles were HLA-DRB1*11 (27.9%), HLA-DRB1*16 (13.8%) and HLA-DRB1*13 (9%). There was no statistical difference among these allele frequencies and those previously reported concerning the Greek population. The most common haplotypes in this sample were A*02-B*18-DRB1*11 (3.4%); A*02-B*51-DRB1*11 (2.1%); A*01-B*08-DRB1*03 (1.9%); A*24-B*35-DRB1*11 (1.6%); A*24-B*18-DRB1*11 (1.5%); A*02-B*51-DRB1*16 (1.2%) and A*24-B*51-DRB1*11 (1.0%).

**Conclusions:** In the future, an in depth and continuous analytical process of the CBUs haplotypes will ensure the dynamic evolution of the HCBB. Activities such as CB collection, planning or inventory renewal will be based on those results in order to achieve an optimal ethnic representation.

**P230**

**INVESTIGATIONAL BUILDING INTEGRITY OF DECELLULARISED RAT ABDOMINAL AORTA**

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**Introduction:** The loss or damage of an organ or tissue is one of the most common and devastating problems in healthcare today. Current therapies include organ transplantation, surgical restoration or the use of artificial devices. Tissue engineering applies the principles of engineering and biology towards the development of functional biological replacements that are able to maintain, improve or restore the function of pathological tissues. One of the key components of a tissue engineered replacements is the scaffold. This can be either implanted unseeded into the patient, with a view to attracting endogenous cell repopulation in vivo, or seeded with cells and conditioned in an appropriate bioreactor, with a view to obtaining appropriate functionality prior to implantation. For replacements that serve a predominantly mechanical/hemodynamic function, such as heart valves and vascular grafts, the key role of a biocompatible scaffold is to provide mechanical stability and support. The aim of the overall project is to develop a new method for the decellularisation of homograft vascular grafts for use in vascular surgery. To this end, rat abdominal aortas were decellularised, using the new protocol, and assessed for their mechanical integrity, with a view to subsequently implanting decellularised rat aortas in the rat animal model without immunosuppressive treatment, in order to simulate the allogeneic transplantation model.

**Materials and Methods:** The biomechanical integrity of native and decellularised rat aortas was assessed under uniaxial tension tests. For this purpose, 36 male rats (12 Wistar, 24 DA) were used to excise their abdominal aortas. Twelve of the aortas were tested fresh (Wistar and DA rats), within 24 hours from slaughter, and the rest were...
decellularised using the newly developed protocol (DA rats only). Briefly, the harvested aortas were thoroughly washed in PBS, containing protease inhibitors, and then incubated for 22 hours in CHAPS buffer. The aortas were rinsed again with PBS and each sample was incubated for 22 hours in SDS, rinsed with PBS and immersed 1 day in A-MEM with 15% FBS. Fresh and decellularised samples \( n = 6 \) were subjected to uniaxial tensile loading to failure, and the recorded stress-strain behaviour of each specimen was assessed in terms of 6 biomechanical parameters, including collagen and elastin phase slope, transition stress and strain, and failure stress and strain.

**Results:** No statistically significant differences were found in any of the biomechanical parameters studied between the decellularised DA rat aorta group and both the native DA and Wistar rat aorta groups \( (p > 0.05) \). Also, no significant difference was shown between the native DA and native Wistar rat aorta groups. The biomechanical parameters found in this study, specifically the ultimate tensile strength and failure strain of both the decellularised and native aorta groups, were comparable to those previously reported in the literature (Brüel and Oxlund, 1996).

**Conclusions:** The results from this study have shown that the newly developed decellularisation protocol did not affect the mechanical properties of the native rat aorta. In addition to this, both native Wistar and native/decellularised DA rat aorta groups shared similar mechanical properties. Further investigation will focus on the effectiveness of the decellularisation treatment in terms of cell nuclei and DNA removal, as well as on the in vivo biocompatibility of the decellularised DA rat scaffolds implanted in Wistar rats.

**P231**

**HLA ALLELE FREQUENCIES IN THE SOUTHEASTERN, EASTERN AND MEDITERRANEAN REGIONS OF TURKEY**

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**Introduction:** It is important to known HLA frequencies in population for HSCT and it is differ between populations. These differences are reflected in matching probabilities of recipient and potential donors. This study the first to be carried out with such mass screening of Turkey. The aim of the retrospective study was to investigate HLA class-I and class-II allele frequencies in our region.

**Materials and Methods:** Tissue typing for HLA class I (-A, -B, -C) and class-II (-DRB1, -DQB1) in 3487 patients \( n = 1525 \) and donors \( n = 1962 \) who applied Baskent University Adana Research and Medical Center (between 2010 and 2013) for renal transplantation or hematopoietic stem cell transplantation, were studied using sequence-specific primers (SSP) and/or sequence-specific oligonucleotides (SSO).

**Results:** Our group consists of female 44.5% \( n = 1550 \) and male 55.5% \( n = 1937 \) patients and donors and their mean of age is 40.1±16.1. A total of 21 HLA-A, 31 HLA-B, 14 HLA-C, 13 HLA-DRB1 and 5 HLA-DQ alleles were identified. The most frequent HLA alleles were HLA-A*02 (32.9%), HLA-A*24 (27.0%), A*03 (24.0%), HLA-B alleles were HLA-B*35 (31.6%), HLA-B*51 (23.0%), HLA-B*44 (11.5%), HLA-B*18 (10.1%), HLA-C*04 (15.64%), HLA-C*07 (13.85 %), HLA-C*12 (12.17%) and for class-II; HLA-DRB1*11 (44.9 %), HLA-DRB1*04 (28.8%), and HLA-DRB1*15 (22.8%), HLA-DQB1*03 (46.0 %) and HLA-DQB1*05 (23.3 %). We did not find any correlation between HLA allele frequencies and sex \( (p > 0.005) \), and donor or patients \( (p > 0.005) \).

**Conclusions:** Our study results show that there is no correlation between patients and donors. So we can accept our results as the real HLA frequencies independent from hematological disease and end stage renal failure. According to our literature search HLA-A*02, HLA-A*24, HLA-A*01 and HLA-B*35, HLA-B*51, HLA-B*44 are the most frequent allele in Istanbul city region (Uyar et al). The other study is HLA-A*02, HLA-A*24, HLA-A*11 and HLA-B*35, HLA-B*51, HLA-B*44 HLA-DRB1*11, HLA-DRB1*04, and HLA-DRB1*13 are the most frequent allele in Eastern Anatolian region of Turkey (Kayhan et al). When we compare our results with the others, except some small differences, HLA frequencies results were similar to each other although they are from different regions of Turkey.
Introduction: PML is a serious neurological disease that has to be considered in the differential diagnosis of any central nervous system (CNS) dysfunction-affecting patients on potent immunosuppressive medications. Kidney transplant recipients are a vulnerable group with heavy immunosuppression who can develop such complication. PML presented late in reported kidney transplant cases and outcome was generally fatal. However, regression has been reported in some cases especially after reduction or withdrawal of mycophenolate. Our purpose was to describe three different presentations of PML in kidney transplant recipients and evaluate the effect of reduction/discontinuation of immunosuppression on patient and graft outcome, to review the literature and find out the most appropriate mode of management.

Cases: We report here three kidney transplant recipients who were diagnosed as cases of PML and treated by immunosuppression reduction in two and discontinuation in one. Patients were two males and one female aged 69, 28 and 63 years respectively at the time of presentation. They were 4, 9 and 3 years post transplantation. Presentation was acute with hypertension and loss of consciousness in the first case, subacute with persistent headache in the second and insidious with slow deterioration of consciousness in the third patient. The three patients were diagnosed by brain magnetic resonance imaging. Cerebrospinal fluid (CSF) was nearly normal in the three patients. JC virus was detected by polymerase chain reaction in the CSF in the first and third cases but it was not detected in the second one. The first patient recovered completely clinically and maintained on low immunosuppression with normal renal function. The second case has discontinued his immunosuppression recently except for steroids and still under follow up with functioning kidney. The third one had a slow progression of CNS dysfunction with normal renal function on very low immunosuppression and died after five years of diagnosis.

Conclusions: Despite the fatal outcome of PML in the literature, kidney transplant recipients may have better prognosis with reduction/discontinuation of immunosuppression.
P234

ERYTHROPOIETIN DEPENDENT ANEMIA: EMERGING ISSUE AMONG RENAL TRANSPLANT RECIPIENTS WITH DIFFERENT AGE GROUPS

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Introduction: Apart from the usual causes of anemia due to CKD renal transplant recipients have various other factors predisposing to anemia. Post-transplant anemia and its association with transplant outcomes have not been properly studied in the Middle East region in the era of EPO.

Materials and Methods: Out of 2000 renal transplant recipients who were transplanted at Hamed Al-Essa Organ transplant center of Kuwait, 183 of them (9.15%) were maintained on erythropoietin. Patients were grouped according to their age into 4 groups: pediatrics, group 1 (<18 years, n=19); adults, group 2 (18-40, n=54); middle age group 3 (40-60, n=83) and elderly group 4 (>60, n=27). We evaluated such cases for possible causes of resistant anemia especially ferritin, transferrin saturation, serum iron, folic acid, vitamin b12 and creatinine; in addition to the type of immunosuppressive regimen used. We never encountered parvovirus infection so far in our recipients, however proper screening is ongoing.

Results: The majority of patients in the four groups were females (52.9, 69.2, 64.7 and 70% respectively; p=0.63). The prevalence of anemia was 81.3%, 86.4, 79 and 88.9% respectively (p=0.68) at the time of transplantation and decreased to 40, 38.1, 51.9 and 77.8% respectively after 6 months of transplantation (p=0.24). We found no significant difference in the type of induction or the primary maintenance immunosuppression (steroid, MMF and CNI) (p=0.98 and 0.91 respectively). After 6 months of transplantation, target HB was achieved more commonly in adults (35.1%) but severe anemia was more prevalent among pediatric age group (46.2%) but this did not rank to significance (p=0.05). Pre-transplant hypertension, IHD and diabetes were significantly less among pediatrics (p<0.05) however, delayed graft function was comparable in all groups (p>0.05). Most of patients had normal levels of CR protein, folic acid and vitamin b12 (p>0.05); and the majority revealed negative proteinuria and low vitamin D level (p>0.05). Moreover, serum iron, transferrin, ferritin and transferring saturation were comparable in all groups (p>0.05). The prevalence of anemia was significantly more common in cases with preemptive transplantation, especially with cadaveric or unrelated donors (p=0.04). With multivariate analysis, we found that patient age had significant impact on serum iron, transferrin saturation and pre-transplant diabetes (p<0.05). Moreover, serum iron correlated negatively with patient age (r=-0.215, p=0.048). There were no significant difference in patient or graft outcome among different groups (p>0.05).

Conclusions: Post-transplant anemia is not uncommon in this EPO era, irrespective to age of recipients. The EPO dependency observed here posts a major issue in follow up and further studies are ongoing to identify its etiology.

P235

ANEMIA AFTER KIDNEY TRANSPLANTATION: PREVALENCE, RISK FACTORS, AND OUTCOME

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Introduction: Post transplantation anemia (PTA) is common. Apart from the usual causes of anemia due to CKD renal transplant recipients have various unique factors predisposing to anemia. Post-transplant anemia and its influence on transplant outcomes have not yet been reported from the Middle East in the era of erythropoietin.

Materials and Methods: Out of 2000 renal transplant recipients who were transplanted at Hamed Al-Essa Organ transplant center of Kuwait, 183 of them (9.15%) were maintained on erythropoietin. Six months post-transplant, patients who did not achieve target hemoglobin (HB>12 grams/dl) comprised group 1 (n=36), while those who had HB less than 12 will comprise group 2 (n=147). We evaluated cases for possible causes of resistant anemia especially ferritin, transferrin saturation, serum iron, folic acid, vitamin b12 and creatinine; in addition to the type of immunosuppressive regimen used and parvovirus.

Results: Majority of patients in both groups were females (67.3% vs. 69% respectively; p=0.86) with mean age of 42.7±16.3 vs. 37.2±15.6 years (p=0.11). In the studied groups, the prevalence of anemia was 88.8% vs. 78.3% (p=0.18) in both groups with an overall prevalence (83.5%) at the time of discharge or two weeks following transplant whichever it was the last which decreased to 79.1% 6 months post-transplantation. Most of patients in both groups received anti-proliferative induction (59.8 vs. 53.8% p=0.85) and were maintained on steroid, MMF and CNI (81.7 vs. 82.1; p=0.98). Only 4(2.7%) cases of group 2 achieved target HB with EPO therapy. While mild anemia was reported in 26.4% and moderate in 36.4%, it was severe in 33.6% after 6 months of transplantation. Pre-transplant IHD and delayed graft function were more common in anemia group but did not rank to significance (p=0.08 and 0.2 respectively). The majority of patients in both groups were comparable regarding serum CR protein, folic acid and vitamin b12 (p>0.05); and most of them revealed negative proteinuria and low vitamin D level (p>0.05). Serum iron was significantly lower in anemia group (11.1±5.1 vs. 14.7±6.1 respectively; p=0.01). Most of the anemic patients received
grafts from cadaveric or unrelated donors, while most of the non-anemic group got their grafts from related donors. The prevalence of anemia was reported more among cases with preemptive transplantation (p=0.04). We observed that patient age correlated negatively with serum iron (r=0.215, p=0.048); serum ferritin correlate negatively with HB 6 months post-transplantation but not that at time of transplantation (r=-0.328 & 0.08; p=0.004 & 0.5 respectively). There was no significant difference in patient or graft outcome among different groups (p>0.05).

**Conclusions:** Post-transplant anemia is common, and iron use remains suboptimal in these renal transplant recipients. Live related donors and exogenous EPO gave protection from post-transplant anemia. Presence of post-transplant anemia at 6 months did not influence graft or patient outcome in this short study. Proper management of anemia in CKD patients before transplantation is crucial.

**P236**

**POSITIVE BK VIRUS-KIDNEY DONORS: OUTCOME WITH POSITIVE HLA-CW7 RENAL TRANSPLANT RECIPIENT**

Hamed Al-Essa Organ Transplant Center, Kuwait

**Introduction:** BK nephropathy is increasing problem in renal transplant recipients. It has been correlated with newer Immunosuppressive agents and the decline in acute rejection rates. However, the combinations of early detection, prompt diagnosis, and appropriate reduction in maintenance immunosuppressive therapy have been associated with better outcome. We aimed to evaluate the impact of BK positive kidney donors on the outcome of kidney transplant recipients after mean follow up period of 21 months.

**Materials and Methods:** Out of 18 kidney donors with positive BK virus in blood and urine-both qualitative and quantitative PCR-, 5 were found fit for donation. Here in we present 5 kidney transplant recipients who received kidney allografts from such donors with mean age of 35±3 years. We assessed the impact of donor BK on patient and graft survival after mean follow up period of 21 months.

**Results:** All patients – except one – were males with mean age 49.4±4.2 years; mean body weight 68.2±4kg and mean follow up duration 21.6± 4 months. All patients – except one – were managed by thymoglobulin induction and steroid, tacrolimus, MMF as maintenance therapy. Ureteric stenting was a routine procedure in each case. HLA-CW7 was detected in 4 out of 5 recipients and in the 5th it was detected in the donor. Three patients were biopsied and two with acute tubular necrosis and one with AAMR which was managed successfully with plasma exchange. Moreover, on last follow up all patients are enjoying functioning grafts without evidence of recurrence of BK infection.

**Conclusions:** BK positive persons can be accepted safely for kidney donation especially for recipients with HLA-CW7. Further long term and larger randomized studies are needed to evaluate this preliminary observation.

**P237**

**ERYTHEMA-NODOSUM: RISK FACTORS AND MANAGEMENT AMONG RENAL TRANSPLANT RECIPIENTS**

Hamed Al-Essa Organ Transplant Center, Kuwait

**Introduction:** Erythema nodosum is a cutaneous inflammatory reaction located on the anterior aspects of the lower extremities. A review of the literature reveals a long list of etiologic factors like infections, sarcoidosis, rheumatologic diseases, inflammatory bowel diseases, medications, autoimmune diseases, pregnancy, and malignancies. Histopathologically, it showed septalpanniculitis with no vasculitis and the inflammatory infiltrate in the septa varies with age of the lesion. In early lesions edema, hemorrhage, and neutrophils are responsible for the septal thickening, whereas fibrosis, peri-septal granulation tissue, lymphocytes, and multinucleated giant cells are the main findings in late stage. There are no reports of classical erythema nodosum in renal transplant recipients in English medical journals.

**Cases:** We here in report four renal transplant recipients presented with classical erythema nodosum with different etiologies. In all cases, primary immunosuppression was tailored without induction and maintained by cyclosporine and MMF. Also, all cases were subjected to the following investigations to rule out autoimmune disorders: anti-ds-DNA, rheumatoid factor, antistreptolysin O (ASO), (c&p) ANCA, ANA, C3 and C4, anti-cardiolipin, and B-glycoprotein. Also, we investigated for infections especially HBV, HCV, CMV, HIV, EBV and antibodies against legionella ,mycoplasma and brucella. Also, T-spot test, blood and urine cultures were performed for bacteria and fungi.

**Conclusions:**

1. Erythema nodosum can develop in renal transplant patients who did not receive induction therapy, non-rejecters and those with steroid free protocols.
2. Management of erythema nodosum should be directed to the underlying associated condition which could be TB, IBD or drug induced.
P238

IMPACT OF SYSTEMIC LUPUS ERYTHEMATOSUS ON THE OUTCOME OF RENAL TRANSPLANT RECIPIENTS: SINGLE CENTER EXPERIENCE

Hamed Al-Essa Organ Transplant Center, Kuwait

Introduction: Long term outcome of renal transplantation among systemic lupus erythematosus (SLE) patients remains a debated topic. Most of the previous reports were based upon small single-centre studies most of which were not well designed. We compared the long-term outcome of kidney transplantation in ESRD patients secondary to lupus nephritis with that in an age, sex, and donor matched control group of recipients.

Materials and Methods: This study comprised 192 kidney transplant recipients who received their grafts between 1994 and 2011 at Hamed Al-Essa Organ Transplant Center of Kuwait. These patients were further subdivided into two groups according to original kidney disease (36 secondary to SLE) and (156 secondary to non-SLE causes). All patients’ data were assessed with special emphasis on graft and patient survival as well as post-transplant medical complications.

Results: The two groups were comparable regarding pre-transplant patient demographic features (age and sex of donors and recipients), moreover pre-transplant diabetes, anemia, hypertension, tuberculosis, bone disease, type of dialysis, type of immunosuppression and viral profile were also matched. The overall incidence of post-transplant complications was comparable among the two groups especially NODAT, BK nephropathy and coronary heart disease (p>0.05). Lupus patients needed significantly more anti-hypertensives (p=0.003), and had higher prevalence of CMV (p=0.001). On the other hand, we observed higher prevalence of hyperlipidemia in the control group (p=0.015). We observed that the mean number of rejection episodes were significantly higher among lupus patients compared to the control group (0.94±1.1 vs. 0.42±0.66; p=0.011). Kidney graft survival was worse among the lupus group compared to the control group (p=<0.001); however, patient survival was comparable in both groups at 1, 5, and 10 years (p<0.05).

Conclusions: SLE as a cause of ESRD in renal transplant recipients is associated with worse allograft survival possibly due to higher prevalence of CMV, hypertension and acute rejection episodes.

P239

BARIATRIC SURGERY IN OBESE RENAL TRANSPLANTS: SINGLE CENTER

Hamed Al-Essa Organ Transplant Center, Kuwait

Introduction: Obesity has been associated with poor graft and patient survival after kidney transplantation, requiring functional increase of anti-rejection drugs. Weight loss surgery may be a good alternative in this clinical scenario. The aim of this report is to assess the outcomes of bariatric procedures performed in patients after renal transplantation compared to conventional group of patients.

Materials and Methods: In this retrospective study, collected database was conducted to analyze the outcomes of obese patients after kidney transplantation (BMI>38) who underwent bariatric procedures during the last 5 years (n=11 cases) in comparison to controlled obese group without this type of surgery (n=41 cases). Roux-en-Y gastric bypass was the most common procedure. We aimed to evaluate this type of surgery among renal transplant patients in comparison to control group.

Results: The two groups of patients were matched regarding their demographic data, type of donor, cases with IHD, type of induction and maintenance of immunosuppression. Most of patients in bariatric group were females (60%) while males dominated the other group (84%, p=0.03). The basal and last follow up BMI means were 38.3±8.9 and 33.3±7.3; while they were 44.2±5.6 and 44.2±6.7 in the control group. The mean percentage of excess weight loss at 6 months in bariatric group was 15.4±5.1% vs. 0.4±0.2% in the control group (p<0.001). We found no significant difference in the two groups regarding number of cases with pre-transplant diabetes or NODAT, however the total number of diabetics in the control group was significantly higher (73.3% vs. 40%, p=0.042). Moreover, we observed that rejection episodes, graft and patient outcomes were similar in both groups (p>0.05). There were no postoperative complications except in two patients: one with strangulated hernia; and the second with postoperative deep venous thrombosis and pulmonary embolism.

Conclusions: Bariatric surgical techniques may be used safely and effectively-with some precautions- to control obesity among renal transplant recipients. Further improvement in metabolic parameters and long term patient and graft outcome can be observed only with longer and larger studies.
P240
CRITICAL ILLNESS POLYNEUROMYOPATHY IN RENAL TRANSPLANT RECIPIENTS: SINGLE CENTER EXPERIENCE

Hamed Al-Essa Organ Transplant Center, Kuwait

Introduction: Critical illness polyneuromyopathy (CIP/CIM) commonly accompanies patients with multi-organ failure and sepsis. Distal muscle weakness and loss of deep tendon reflexes are usually found with sparing the cranial nerves musculature. Many risk factors had been identified specially hypoxia, hypotension, hyperpyrexia, female gender, severity of illness, duration of organ dysfunction, renal failure and renal replacement therapy, hyperosmolality, parenteral nutrition, low serum albumin, duration of ICU stay, vasopressor and catecholamine support and age. Hyperglycemia also has been identified as an independent risk factor, with an important potential impact in terms of prevention. Herein, we reported the development of such syndrome in 7 out of 22 renal transplant recipients who were weaned successfully from ventilator for bronchopneumonia.

Materials and Methods: Out of 45 renal allo-transplant recipients who developed persistent bronchopneumonia during the period between August 2009 and March 2010, 22 of them necessitated mechanical ventilation following diagnostic broncho-scopic aspiration and lavage. After doing in the ICU, we failed to wean seven patients from mechanical ventilation. Critical illness polyneuromyopathy was suggested after receiving intensive care for bronchopneumonia and acute graft insufficiency.

Results: Our lines of management were supportive, consisted of aggressive pulmonary hygiene in addition to prevent secondary complications of immobility such as bed sores, deep venous thrombosis and superimposed compressive neuropathies. As a long term management, rehabilitation program-active and passive exercises- were started beside assistive devices, and medication for neuropathic pain, if present.

Conclusions: CIP/CIM is a rare complication and this is the first report among renal transplant recipients. Clinical suspicion and electrophysiological studies are the tools for early diagnosis. Proper management including correction of risk factors especially diabetes and long term measures of rehabilitation might be beneficial.

P241
RENAL TRANSPLANTATION AFTER PROSTHETIC MITRAL VALVE REPLACEMENT: A VENTURE OR AN ADVENTURE?

Department of Nephrology, Organ Transplant Centre, Hamed Al Essa, Kuwait

Introduction: Literature is very scanty on renal transplantation after prosthetic heart valve replacement. We, herein report a rare case of renal transplantation in a patient with mitral valve replacement (MVR) and its outcome.

Case: A 44 year old lady with MVR on anticoagulation underwent a live renal transplant elsewhere. On the tenth postoperative day (POD) she was empirically treated for graft dysfunction with three doses of antithymocyte globulin (ATG). She came to our centre on the 45th POD with continuing graft dysfunction and underwent a graft renal biopsy the next day. Heparin anticoagulation was resumed after two days and she was treated with pulse steroid and thymoglobulin following biopsy report of acute cellular rejection (ACR) IIA. Thymoglobulin had to be discontinued after 4 doses since she developed infections in multiple sites which were treated with parenteral antibiotics besides transfusion of two units of blood for slow drop in hemoglobin. She underwent explorative surgery on the 60th POD for continuing graft dysfunction, during which, a perigraftlymphocoele was drained along with an open renal graft biopsy. Anticoagulation was resumed after 24 hours keeping the APTT ratio around 2, but she developed continuous bleeding after three days which necessitated multiple transfusions. Anticoagulation was therefore withheld despite the risk of thrombosis of the MVR but bleeding could not be controlled and a graft nephrectomy had to be performed after two days. Regular anticoagulation and hemodialysis was resumed from the next day and she had an uneventful recovery thereafter.

Conclusions: Renal transplantation in recipients with prosthetic MVR is quite challenging and the risk of anticoagulation and bleeding has to be seriously considered before such a venture.
P242
SAFE AND EFFECTIVE TREATMENT OF PERSISTENT HYPERCALCEMIA AND HYPERPARATHYROIDISM WITH CINACALCET IN RENAL TRANSPLANT RECIPIENTS

Department of Nephrology, Organ Transplant Centre, Hamed Al Essa, Kuwait

Introduction: The calcimimetic, cinacalcet offers an attractive alternative to parathyroidectomy for treating hypercalcemia with persistent hyperparathyroidism in renal transplant recipients (RTR). The objective of this study is to evaluate the efficacy of cinacalcet in RTR with hypercalcemia and persistent hyperparathyroidism and its safety after long term use.

Materials and Methods: Cinacalcet at a dose of 30 to 90 mg was prescribed to 15 RTR (8 women, 7 men) with a mean age of 46.6 years (range = 23 to 68) and hypercalcemia with hyperparathyroidism. Cinacalcet therapy was started at a mean of 35.4 (range=4 to 153) months post transplant and period of follow up after treatment was 20.5 (range = 6 to 54) months.

Results: Treatment with cinacalcet effectively reduced levels of, serum calcium from 2.70 ± 0.07 to 2.33 ± 0.22 mmol/L in 6 months (P< 0.001) and 2.31 ±0.17 mmol/L in 12 months (P< 0.001); intact parathyroid hormone (iPTH) from 74.8 ± 34.82 to 22.2 ± 12.34 pmol/L in 6 months (P< 0.001) and 19.28 ± 8.08 pmol/L in 12 months (P< 0.001) and raised levels of serum phosphate from 0.92 ± 0.22 to 1.14 ± 0.29 mmol/L in 6 months (P<0.001) and to 1.11 ± 0.26 mmol/L in 12 months (P = 0.001). Renal function remained stable with pretreatment, 6 month and 12 month post treatment serum creatinine levels of 127 ± 72.4, 130 ± 80.45 (P= 0.381), 131.2 ± 95.75 (P= 0.331) umol/L and estimated glomerular filtration rates (eGFR) of 72.6 ± 29.23, 74.6 ± 32.39 (P = 0.406) and 75.82 ± 36.34 (P = 0.816) ml/mt. Immunosuppressant drug levels remained unchanged and there were no rejection episodes or any significant adverse effects described.

Conclusions: Cinacalcet was safe and effective in renal transplant recipients with hypercalcemia secondary to hyperparathyroidism with no evidence of declining renal function or limiting side effects.

P243
RAPAMYCIN INDUCED CAST NEPHROPATHY IN A RENAL TRANSPLANT RECIPIENT: A CASE REPORT

Department of Nephrology, Organ Transplant Centre, Hamed Al Essa, Kuwait

Introduction: Rapamycin is an immunosuppressive drug used for maintenance therapy with designs to decrease steroid and/or calcineurin inhibitor exposure. Rapamicin related cast nephropathy has been reported in the setting of delayed graft function in the early postoperative period in renal transplant recipients and in animal models with protein overload nephropathies. We report an unusual case of rapamycin induced cast nephropathy in a patient, 45 months post renal transplant.

Case: A 13 year old Kuwaiti girl with infantile polycystic kidney disease and stage V chronic kidney disease underwent a preemptive live renal transplant in October 2006. Her immunosuppression included induction with two doses of Basiliximab and maintenance with steroids, cyclosporine and rapamycin. She had good initial graft function and continued to have stable renal function with creatinine around 120umol/L and no proteinuria. In July 2010 she presented with graft dysfunction with a rise in serum creatinine to 200umol/L. After routine investigations a renal biopsy was performed which revealed cast nephropathy with extensive intratubular casts which were negative for light chain staining. Evaluation for myeloma including serum and urine electrophoresis, urine light chains and skeletal survey failed to demonstrate any abnormalities. Rapamycin induced cast nephropathy was considered as the cause of cast nephropathy and the drug was discontinued. Her renal function steadily improved over the next few weeks and a repeat renal biopsy performed six weeks after discontinuing rapamycin revealed a much improved cast nephropathy. Her serum creatinine reached baseline value off 115 umol/L and she continues to have excellent renal function till date.

Conclusions: Rapamycin can induce tubular toxicity with a unique form of cast nephropathy and withdrawal of the offending drug leads to clinical and histological resolution.
P244
MANAGEMENT OF POST-RENUAL TRANSPLANT LEUCOPENIA AND ITS IMPACT ON GRAFT AND PATIENT OUTCOME

Hamed Al Essa Organ Transplant Center, Ibn Sina Hospital, Kuwait

Introduction: Post-renal transplant leucopenia is a common clinical challenge which needs fine dose adjustment of precipitating drugs, proper management of complications and use of granulocyte colony-stimulating factor (G-CSF). Serious infections, chemo-prophylactic and immunosuppressive drug reduction may affect patient and graft outcome. Our aim was to study incidence of posttransplant leucopenia, clinical management and its impact on graft and patient outcome over one year.

Materials and Methods: We studied renal transplant patients operated during 2010 in our center who received immunosuppression and chemoprophylaxis according to our protocol (thymoglobulin/or basiliximab induction, maintenance steroid, mycophenolatemofetil [MMF] and tacrolimus/or cyclosporine A according to the immunological risk; valgancyclovir 900mg and septrin ½ tablet D/S daily for 6 months. Significant leucopenia (<4000x10⁹) was managed by reduction of valgancyclovir then MMF and giving G-CSF according to the response. All patients were screened for CMV infection by CMV-PCR titers at time of transplant and at 3, 6, 9 and 12 months after transplant.

Results: Over one year, 79 patients were transplanted and divided into leucopenia and non-leucopenia group (group 1 and 2 respectively). Twenty seven patients were in group 1 (34.17%) and had at least one attack of significant leucopenia (p=0.02). Mean total leucocytic count of the whole year of follow up period was significantly lower in group 1 (4294±1488 x10⁹ versus 8205±2123x10⁹, p=0.0001). Mean neutrophil count was 964.3±192.7x10⁹ while MMF was reduced to ≥50% in 85.7% in group 1 (0.62±0.852 versus 0.28±0.49, p=0.03). There was no difference in patient outcome at 12 months (100% in both groups). Graft failure was 3.7% in group 1 versus 7.7% in group 2 without significant difference (p=0.44).

Conclusions: Significant reduction of MMF and valgancyclovir due to leucopenia resulted in significantly higher rate of renal graft rejection episodes, CMV infection and NODAT. High doses of G-CSF were used safely to treat neutropenia without significant side effects. Prospective studies using smaller dose of prophylactic valgancyclovir are required.

P245
CHRONIC PERSISTENT NEUTROPENIA AFTER RENAL TRANSPLANT-CASE REPORT AND REVIEW OF LITERATURE

Hamed Essa Organ Transplant Center, Kuwait

Introduction: Neutropenia is defined as an absolute neutrophil count <1500x10⁹/L. Chronic persistent neutropenia (CPN) can be congenital, cyclic or idiopathic. Most cases of neutropenia are acquired and due to decreased granulocyte production or less often, increased destruction. A large number of rare primary neutropenias occur and, when associated with severe recurrent infections as in the severe congenital neutropenias, can be treated successfully with hematopoietic growth factors. Congenital neutropenia can also be seen with certain inborn errors of metabolism such as glycogen storage disease, type 1b and with some of the primary immune deficiency states. Cyclic neutropenia, in contrast to other congenital neutropenias, tends to be mild and benign. G-CSF use shortens the duration of chemotherapy-induced neutropenia in patients who have neutropenia without fever (afebrile neutropenia). Renal transplant recipients receive many bone marrow suppressive drugs (immunosuppressives, antibiotics, antivirals, etc.) and are exposed to life threatening infections causing bone marrow suppression. High doses of G-CSF and steroids may be required to maintain reasonable neutrophil count. Concerns about safety of long duration of high dose G-CSF treatment were reviewed.

Case: A 51 years old Yemeni patient had CKD due to ADPKD. He received the second unrelated renal transplant on June 2010 with thymoglobulin induction and steroid avoidance protocol [mycophenolatemofetil (MMF) and tacrolimus] due to history of bilateral femoral head avascular necrosis. One month later he developed biopsy proven
borderline acute cellular rejection treated with steroid pulse therapy. He developed chronic diarrhoea and CPN (±500 ×109/L) with total leucocytic count (TLC) ±1500 ×109/L requiring high doses of G-CSF up to 180 megaunits/week. A trial of shifting MMF to sirolimus failed to improve diarrhoea and CPN. Bone marrow biopsy done on August 2010 showed hypercellularity with myeloid hyperplasia mostly due to G-CSF injections. Colonoscopy was normal but clostridium difficile toxin in stool was positive. Viral screening was negative for CMV, EBV, parvovirus B19, BKV, HHV-6, adenovirus and enterovirus. Serology was negative for ANA, anti-DNA, RF and ANCA P&C. Serum B12 and folate were normal. Offending drugs for CPN were discontinued without response. Diarrhoea improved after metronidazole treatment and stopping MMF. He continued on tacrolimus and started on small dose of steroid (5mg daily) on 12/1/2011. He responded well and TLC improved to ±3000 ×109/L. Repeat bone marrow biopsy done February 2011 after stopping G-CSF for 2 weeks was normal. G-CSF injections were required up to 9 months after transplant without significant side effects. TLC stabilized and MMF could be added slowly up to a dose of 500mg BID.

Conclusions: CPN after renal transplant is a serious problem which can be treated safely with high doses of G-CSF for long duration and responds to careful drug manipulation and maintenance steroid.

P246
SIROLIMUS RESCUE THERAPY AFTER ACUTE REJECTION IN RENAL TRANSPLANT RECIPIENTS – ONE YEAR FOLLOW UP

Hamed Al-Essa Organ Transplant Center, Kuwait

Introduction: Conversion from calcineurin inhibitors (CNIs) to sirolimus (SRL) is proved to be safe and effective in improving long-term graft outcome. SRL treatment of high risk renal transplant recipient (RTR) is under investigation. Using SRL as rescue therapy for RTR who are treated for rejection episodes is an unusual way of management which is not yet standardized.

Materials and Methods: Over one year, we evaluated effects of conversion from CNI to SRL as rescue therapy on RTR after treatment of biopsy proven acute rejections (BPAR). RTR converted from CNI, mycophenolate mofetil (MMF) as 2gm daily and steroid to SRL, MMF and steroid after treatment of BPAR were studied after one year of conversion.

Results: Thirty candidates were maintained on CNIs (24 were on cyclosporine-A and 6 on tacrolimus) after receiving ATG (80%) or basiliximab (13.3%) induction therapy. The overall mean age was 35.1±13.5 years, including pediatric and geriatric age groups and patients with multiple comorbid conditions. Black patients were 63.3%. Mean body mass index (BMI) was 27.8±8 and 33.3% had a BMI >30. Pre-conversion steroid-resistant rejection incidence was 16.7%. Mean time to convert to SRL was 10±18.8 months post-transplantation. Post-SRL rejection episodes were reported in 16.6% with 10% resistance to steroid treatment. Leucopenia, hypercholesterolemia and hypertriglycerideremia increased significantly post-SRL (p 0.031, 0.0001 and 0.007 respectively). Graft and patient survival were 100% each. There were significant improvements in estimated creatinine clearance from 58±22.1to 69.6±22.2 ml/min/1.72 (MDRD formula) at one year (p 0.001). SRL had to be discontinued in 6.6% of candidates mainly due to its side effects.

Conclusions: Conversion from CNI to SRL sought to minimize the long-term harmful effects of rejection episodes and chronic CNI usage on the graft outcomes. Our patients were at high risk for developing rejection (63% black, 43% deceased donors with high HLA mismatches). There was significant improvement of graft function at one year without significant subsequent rejection episodes which proves the potency of SRL as rescue therapy for such high risk patients. Results were satisfactory after one year of follow up (100% graft and patient outcome, less antihypertensives requirement, no significant proteinuria and significant increase in creatinine clearance by the end of the study). Hyperlipidemia was controlled by statin ±fibrates. Our patients developed high rate of SRL/MMF related side effects since exclusion criteria were limited to bone marrow suppression only (33% were obese, all age groups and patients with co-morbidities were not excluded). All patients received full dose of MMF (2gm daily) which results in higher exposure to mycophenolic acid and increase of rate of SRL/MMF combination side effects during follow up. SRL rescue therapy after treatment of BPAR is proved to be effective as a CNI free regimen for high risk RTR after one year of follow up.

P247
SAFETY OF GRANULOCYTE COLONY-STIMULATING FACTOR AMONG RENAL TRANSPLANT PATIENTS WITH LEUCOPENIA

Hamed Al-Essa Organ Transplant Center, Kuwait

Introduction: Severe leucopenia after renal transplant is a common clinical problem with significant complications. Granulocyte colony-stimulating factor (G-CSF) use shortens the duration of drug induced neutropenia in patients who have neutropenia without fever (afebrile
neutropenia). Chemo-prophylactic and immunosuppressive drugs manipulation may precipitate infections and allograft rejection. Using G-CSF in postrenal transplant patients is essential for proper management, but safety of this drug in this group of patients is under investigation. Our aim was to evaluate safety of using G-CSF in management of postrenal transplant leucopenia.

**Materials and Methods:** We studied renal transplant patients operated during 2010 in our center who received immunosuppression and chemoprophylaxis according to our protocol (thymoglobulin/or basiliximab induction, maintenance steroid, mycophenolate mofetil [MMF] and tacrolimus/or cyclosporine A according to the immunological risk; valgancyclovir 900mg and septrin ½ tablet D/S daily for 6 months. Significant leucopenia (<4000x10⁹) was managed by reduction of valgancyclovir and MMF and giving G-CSF according to the response without a maximum cumulative dose. All patients were screened for CMV infection by CMV-PCR titers at time of transplant and at 1, 2, 3, 6, 9 and 12months after transplant.

**Results:** Over one year, 79 patients were transplanted and divided into leucopenia and non-leucopenia group (group 1 and 2 respectively). In group 1; 27 patients had at least one attack of significant leucopenia (p=0.02). Mean total leucocytic count was significantly lower in group 1 (p=0.0001). MMF was reduced significantly to ≥50% in 85.7% while valgancyclovir and septrin were stopped completely in 76.9% in group 1 (p=0.0001). Mean neutrophil count was 964.3±192.7x10⁹ in group 1 with significant positive correlation with total leucocytic count (p=0.009). G-CSF injections were given to all patients in group 1 with a mean dose of 146.6 megaunit/patient without significant side effects except for low back pain. Maximum cumulative dose of G-CSF given to one patient was 700mu with a mean of 233.3±90.7mu/attack. All patients in group 1 received G-CSF during the first attack of neutropenia (mean dose 73.3±81.2mu/patient). Four patients had ≥3 attacks, required higher doses of G-CSF (mean 270±271.6mu/patient), more hospital admissions due to associated infections and higher incidence of rejection. There were no significant differences in demographic data including induction and maintenance immunosuppression and cases with DGF. There were no significant differences between both groups in BK viremia (0.601) and incidence of associated infections other than CMV (p=0.15). Four cases of CMV infection were detected in group 1 during the first 6months while none were in group 2 (p=0.012). All cases of CMV were treated successfully using gancyclovir, valgancyclovir and G-CSF according to response. Mean rejection episode/patient was higher in group 1 (p=0.03) mostly due to immunosuppressives reduction. All patients were alive at 12months in both groups. Graft failure was 3.7% in group 1 versus 7.7% in group 2 without significant difference (p=0.44).

**Conclusions:** Managing leucopenia in postrenal transplant patients using G-CSF helped in successful treatment of associated CMV and other serious infections. High doses of G-CSF were used without significant side effects or increased risk on graft or patient outcome.

**P248**

**RISK FACTORS OF STEROID RESISTANT T-CELL MEDIATED ACUTE CELLULAR REJECTION AMONG RENAL TRANSPLANT RECIPIENTS**

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**Hamed Al-Essa Organ Transplant Center, Kuwait**

**Introduction:** Acute rejection in renal transplantation was considered a risk factor for short and long-term allograft survival. The expected reversal rate for the first acute cellular rejection-by steroid pulse- was ranged between 60 to 100%, and lack of improvement within one week after treatment was defined as steroid-resistant rejection. The aim of this work was to evaluate factors that lead to steroid-resistant acute cellular rejection among patients with first live-donor renal allotransplant and its impact on graft and patient survival.

**Materials and Methods:** Patients with improvement of serum creatinine was considered as control group I (n=106); while others were considered as steroid resistant group (SRACR) II (n=101). Both groups were matched regarding demographic data.

**Results:** Patients with below target CsA level were significantly higher in group II (p=0.02). We found no significant differences between the 2 groups regarding post-transplant complications (P > 0.05). However, the mean hospital stay was longer in group II (p=0.021). Living patients with functioning graft were more prevalent in group I while those who live on dialysis were more prevalent in group II. The two groups were comparable regarding long-term patient and graft survival despite significantly lower creatinine in patients of group I till the end of 6 months (P=0.001).

**Conclusions:** Prebiopsy low cyclosporine trough level and associated chronic changes represented the most important risk factors for SRACR. Rescue therapies improve short term graft outcome, however it did not affect either patient or long term graft survival after 5 years of follow up.
OUTCOME OF ZERO-HLA MISMATCH RENAL TRANSPLANT RECIPIENTS: KUWAIT EXPERIENCE

Hamed Al-Essa Organ Transplant Center, Kuwait

Introduction: The evidence that antigens of the HLA system provide the major barrier to acceptance of renal transplants was first obtained with living-related donor transplants. Graft survival was superior in sibling pairs having both the same serologically defined HLA antigens. However, an intermediate level of graft survival was reported in haploidentical parent to child or sibling to sibling transplants. Therefore the compatibility at all three HLA loci is desirable for optimal graft outcome. Our aim was to assess the long-term outcome of HLA zero-mismatched renal transplant recipients in Kuwait.

Materials and Methods: From 1993 to 2010, 1050 renal transplants were performed in Hamed Al-Essa Organ transplant center, including 40 (3.8%) kidney transplant recipients with zero-HLA mismatches. All of them received their initial transplants. There were 21 (52.5%) males, 19 (47.5%) females with their mean age 28.8 ±7.1 years (range 7-53 yrs). The primary renal disease was chronic glomerulonephritis (GN) in 17 (42.5%), chronic tubule-interstitial nephritis in 12 (30%), diabetes mellitus in 2 (5%) and idiopathic in 9 (22.5%). All recipients had negative B and T cell lymphocytotoxicity cross match prior to the time of transplantation. Without induction, they were maintained on triple immunosuppressive protocol based on steroid, antiproliferative agent (azathioprine or mycophenolatemofetil) and calcineurin inhibitor (cyclosporine or tacrolimus).

Results: Mean follow up period was 8.76±2.1 years and the mean serum creatinine on last follow-up was 112 umol/L (range, 51-186 umol/L). Graft survival was 100%, 97.2%, 93.9% and 84% at 1, 3, 5 and 10 years respectively with 100% patient survival during the whole follow up period. Four grafts were lost during the follow up period due to chronic rejection. Biopsy proven acute rejection represented 5% (2 episodes) during the 1st year after transplantation with complete response to pulse steroid. There were in total, 3 (7.5%) cases of post transplant GN, 2 being recurrent diseases (lupus nephritis and IgA nephropathy) and the third, a case of de novo membranous GN. Post transplant diabetes and hypertension were reported in 6 and 2 patients respectively. There were no cases of post-transplant malignancy.

Conclusions: Favorable patient and graft outcome was observed in zero-mismatched renal transplant recipients possibly related to less post-transplant co morbidities.

OUTCOME OF KIDNEY TRANSPLANTATION IN ELDERLY PATIENTS: SINGLE CENTER EXPERIENCE

Hamed Al-Essa Organ Transplant Center, Kuwait

Introduction: The number of elderly patients accepted in renal replacement programmes is increasing. There is a general agreement that age per se does not constitute a contraindication to transplantation. Many centres are still reluctant to accept patients >60 years old, as they are frail, have more comorbid conditions and their overall life expectancy is lower. The aim of this study was to investigate transplantation provides any survival benefit or not in this group of patients.

Materials and Methods: This study is a retrospective case control analysis study in elderly patients (Group I; >60 years). Data were compared to those obtained in patients (Group II) who were matched for HLA mismatches and time of follow up but not with recipients' age (20-50). Primary end points are Graft loss and/or patient death, while secondary end point are Cerebro-cardiovascular events, malignancies or rejection.

Results: Thirty-two patients with mean age(±SD) 63.4(±3.2), ranged from 60 to 73 years old (11 females and 21 males) were compared with 32 patients with mean age(±SD) 33.5(±7.46) ranged from 21 to 50 (11 females and 21 males). There is no statistically significant difference between the 2 groups in the result of mean s.creatinine after 1 year while mean s.creatinine after 3 years in Gr II is significantly higher than Gr I (p<0.003) and prevalence of malignancy was similar in both groups (one patient in each group). Seven graft were lost in Gr I (6 due to patient deaths and 1 from trauma) while only 1 was lost in Gr II (due to renal vein thrombosis) (p <0.01).

Conclusions: Elderly age was associated with lower number of graft losses due to rejection, while they had higher death rate result in significantly worse overall renal transplant survival.
TRANSPLANT OUTCOME AS RELATED TO PROLONGED DIALYSIS VERSUS SHORT TERM PRE-TRANSPLANTATION DIALYSIS

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Introduction: Dialysis is life saving for patients with irreversible renal diseases. However, it is associated with significant morbidity, greater mortality than transplantation and is also expensive. Thus, transplantation is considered to be the treatment of choice for end-stage renal diseases (ESRD). Our goal in this study was to determine whether the duration of chronic renal failure and hemodialysis before renal transplantation have any effect on one year survival of allograft function and whether longer duration of hemodialysis leads to unsatisfactory results as compared to shorter duration of dialysis.

Materials and Methods: Graft function was reviewed among 1000 renal allograft recipients in Shiraz (Southern Iran) Organ Transplant Center. Patients were divided into two groups: Those who have been dialyzed for less than 3 months (group 1) and those who have been dialyzed for 3 months or more (group 2). Graft failure was defined as either a serum creatinine >3 mg/dL and/or return to dialysis.

Results: Statistical analysis showed a significantly lower creatinine level at 3 years after transplantation for group 1. There was no significant difference in mean creatinine level at one year between the two groups. The incidence of various complications and causes of graft failure were the same among both groups.

Conclusions: Our data are not in favor of the notion that advanced uremia favor successful engraftment, in fact, early transplantation eliminates the cost, complications, and inconvenience of dialysis, leading to proper rehabilitation and a better quality of life. Besides, prolonged uremia and dialysis in pediatric age group interferes with growth and appropriate body image. Such finding support the idea of earlier transplantation.