THE INTERVENTION OF THE PONTIFICAL ACADEMY OF SCIENCES IN COMBATING ORGAN TRAFFICKING AND TRANSPLANT TOURISM

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The international transplant community was convened at the Vatican’s Pontifical Academy of Sciences (PAS) on February 7 and 8, 2017 at the request of Pope Francis to address the issues of organ trafficking and transplant tourism. The Summit participants included representatives from the media who provided country specific reports regarding organ trafficking.

A Consensus Statement was drafted that concluded:

That all nations and all cultures recognize human trafficking for the purpose of organ removal and organ trafficking, which include the use of organs from executed prisoners and payments to donors or the next of kin of deceased donors, as crimes that should be condemned worldwide and legally prosecuted at the national and international level.

The relationship of the PAS with media representatives has led to interventions that may contribute to the effective combating of organ trafficking.

ISTANBUL DECLARATION FROM 2008 TO 2017: HAS IT ACHIEVED ITS GOALS?

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Declaration of Istanbul (DoI) was created in Istanbul following a summit in 2008 on organ trafficking and transplant tourism. The aim was to provide guidelines to dry down transplant commercialism using the poor and vulnerable groups as a source of organs for the rich.

In order to implement the declaration several task forces were established to address the public, governments and professional organizations. A custodian group (DICG) was formed to follow up progress in fulfilling the aims of the declaration.

With next year marking the 10th anniversary of the declaration, its acceptance and effectiveness in combating organ trafficking and transplant tourism needs to be evaluated.

Endorsement of DoI

DICG has been successful in obtaining recognition and endorsement from over 115 international organizations concerned with organ failure and transplantation. Conferences held by these organizations require their participants and guest speakers’ adherence to DoI as a condition for making their presentation. Similarly most international medical journals will not publish any article unless the authors sign a declaration of adherence to DoI.

Follow up of reported cases

With multiple emissaries cooperating with DICG, many cases of breach of DoI are reported to Patient Affairs Committee which addresses the authorities in relevant countries. Pressure on authorities has been successful in several countries to apply more stringent control on organ trafficking.

Addressing governments

With help from the media active members of DICG have managed to bring about new legislations in some countries to curb transplant tourism and organ commercialism. DICG has managed to obtain the attention of several governments including Egypt, Pakistan, China and more recently the Vatican.

So is DoI working?

There is no doubt that DoI has had a major impact on
addressing organ trafficking and transplant tourism but as pressure increases on those involved in such illegal acts they use more sophisticated methods to cover their tracks. DoI urges to address organ shortage by increasing deceased donation but unfortunately no active steps has been taken to fulfill this aim, especially in countries were commercialism is rampant. Organ shortage is the real issue which needs to be addressed by governments and professionals in order to guarantee fulfilling the objectives of DoI.

**L3**

MEETING THE INCREASING DEMAND FOR ORGAN TRANSPLANTATION

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Organ transplantation is the treatment of choice for many patients with end-stage diseases. The lack of a sufficient supply with acceptable organs is the main reason for prolonged waiting times. Mortality and morbidity rates for patients awaiting organ transplantation have therefore remained high. Approaches in the past have primarily focused on increasing donation rates, both from living and deceased donors in an attempt to reduce the increasing gap between demand and availability of donated organs. A largely untapped opportunity is the improved use of deceased donor organs that have previously been discarded due to donor age, suboptimal quality, viral infections or cause of donor death. Novel approaches and treatments have been developed to successfully transplant deceased donor organs that have previously not been considered. Those novel approaches may make the utilization of organs from older donors, donors with cardiac death and those with higher infectious risk possible. Particularly, novel perfusion and preservation methods, new treatments of donors and recipients, diagnostics assessing organ quality and anti-viral agents may allow using a sizable amount of organs that have previously been discarded.

**L4**

LONG TERM OUTCOME OF LIVING RELATED RENAL TRANSPLANTATION IN AN EMERGING ECONOMY: SUCCESS AND FAILURES

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[Abstract not available]

**L5**

TPM EXPERIENCES AND SELF-SUFFICIENCY

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Organ donation and transplantation is a successful treatment of the chronic disease of many organs. The main problem is the lack of organs for transplantation. The world only performs today 10% of all the transplants needed and that is because of the lack of organs and we need 10 times more. Nowadays, the leaders in organ donation are Spain, United States and some European countries which can achieve 20 to 40 donors per million people, which can perform 50 kidney transplants per million populations and around 20 livers per million population, where the new vital cycle of transplantation is well develop but donation not.

In our model to develop organ donation, we propose to create some hospital university organization, where teams of professionals dedicated are in charge of developing the problem. In Spain since 1991 until now we have increased the number of teams dedicated to donation and transplantation up to 189. The TPM, Transplant Procurement Management, mainly ICU doctors, full-time or part-time dedicated, are the responsible for that. The training of these professionals has led to an increase of the donation in many countries like Croatia, Portugal, Iran, Thailand, Brazil, China, etc. The main purpose is to do an early referral to increase the conversion rate and to create this structure. These professionals work in DBD, DCD as well in the living donation field, being in charge of the education of other professionals, the quality assurance
programs, doing research and also calculating the cost and the resources needed for that. The conclusion is that the waiting list in many centers within European countries and United States are increasing compared with the number of transplants, while in Spain our waiting list still stable for the last 20 years, with less than one year waiting lists for organs such as heart, lung, liver, pancreas or kidney. According to EDTA Registry, Spain is performing 57 kidney transplants per million population (pmp), and Catalonia reaches 80 kidney transplants pmp (22 from living donors and 58 from cadaveric donors. This represents that the majority of patients with chronic kidney disease, receive a transplant.

As a conclusion: organ donation is a new hospital practice independent of the sociocultural environment.

RENAL TRANSPLANTATION: WHAT HAVE WE LEARNED OVER LAST 50 YEARS?

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Kidney transplantation has come a long way since the first successful kidney transplant was performed between identical twin brothers by Nobel Laureate Joseph Murray in 1950s. This was made possible principally by the pioneering work of Nobel Laureate Peter Medawar who had clearly elaborated the mechanisms of rejection in 1940 and early 1950s. This led to the birth of transplant immunology as a discipline in modern medicine resulting in the development of tissue typing, pre transplant cross matching and selection and judicious use of certain immunosuppressive drugs to prevent acute renal rejection and graft loss. High dose steroids and Azathioprine was the cornerstone of maintenance transplant immunosuppression regimes during the earlier days of allogeneic kidney transplantation in 1960 and 1970s which came at the cost of very high rejections, morbidity and poor graft and patient survival. First use of calcineurin inhibitor (CNI) cyclosporine as an immunosuppressive agent by Sir Roy Calne in 1978 and its subsequent adoption as a backbone of immunosuppression regime globally is viewed as a landmark discovery of the modern transplant immunology. For the first time focus shifted from immediate graft survival to medium and long-term kidney outcomes and increasing realisation of inferior long-term results due to poorly understood chronic allograft nephropathy (CAN) which was variably attributed initially to subclinical rejections, increasing reliance on expanded criteria donors, delayed graft functions and chronic CNI toxicity. This led to almost universal adoption of tacrolimus as CNI instead of cyclosporine in kidney transplantation in view of very promising results of SYMPHONY trial which demonstrated excellent 1 year result of a relatively low dose CNI (tacrolimus) compared to standard or low dose cyclosporin with theoretical beneficial advantages of this strategy in the minimisation of alleged chronic CNI as a principle cause of CAN. However, with the introduction of solid phase assays in the detection of donor specific antibodies, and the concept of molecular microscopy (transcriptome analysis of renal biopsy) in the 21st century came the awareness of chronic antibody mediated rejection (CAMR) as the predominant cause of CAN. Unfortunately currently there is no effective treatment for CAMR. Whilst awaiting the results of ongoing trials for the management of CAMR common sense demands prevention of CAMR by moving away from "one size fits all" approach to adopting patient centric strategies in term of selection of donor type, HLA incompatibilities, cardiovascular/malignancy/infection risk and adherence to medications. Poor adherence to immunosuppression medications has emerged as one of the most important modifiable risk factor for CAMR in over 40% of such patients. In this regard simple measures like better ongoing patient education, use of supervised once a month belatacept in selected cases but more importantly simplifying tablet dosing regimen such as once daily dose of extended release CNI may have far reaching cost effective benefits in the prevention of CAMR. I believe we have come a long way from 1950s and future seems very promising for the adoption of individualised patient centric management in the light of known clinical and established or newly emerging molecular risk factors to improve long term graft survival substantially.
**L7**

TRANSPANTATION OPTIONS FOR DIABETICS AND THE OBESE

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Type I and Type II Diabetic patients and the morbidly obese represent particular challenges for care when they develop end stage kidney failure. Prognosis for these patients treated by dialysis is extremely limited even with the best dialysis treatment. Transplantation, however, also becomes challenging both from technical surgical and long term medical perspectives. The technical challenges of transplantation of patients with significant vascular disease are compounded when access to those vessels is through a deep layer of abdominal fat. The opportunity that robotic surgery offers in this circumstance is intriguing but yet to be fully explored. Is this a gimmick or does it act as a game changer for the obese patient?

Diabetic patients have a disturbing amount of subclinical cardiac disease which drives early mortality after transplantation. In superficial analyses of post transplantation cause of death, diabetics appear to be relatively protected from cancer death, but this is because of the competing hazard of early cardiovascular death. Thus, separately for both Type I and Type II patients, there need to be effective strategies to avoid this co-morbidity. For Type II patients the solution for most people probably lie many years before the transplant and revolve around prevention of diabetes through healthier eating and exercise. For Type I patients, improved diabetes management is slowly contributing to an increased age at presentation with chronic kidney disease, which is contributing to a greater rather than lesser challenge by the time transplantation is considered. Early intervention with Islet transplantation – perhaps even through genetically modified xenogeneic islets – may eventually hold the key to improved long term survival. Until these technologies are perfected, simultaneous pancreas and kidney transplantation is providing substantial increases in survival.

The current state of the art of these clinical strategies will be presented and consideration of the future options and directions for the field will be considered.

**L8**

LONG-TERM OUTCOMES IN RECIPIENTS OF EXPANDED CRITERIA DONOR KIDNEYS: THE MCGILL UNIVERSITY EXPERIENCE

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The use of expanded criteria donor (ECD) kidneys remains a controversial subject.

We compared 279 kidney transplant recipients (KTxR) from standard-criteria donors (SCD) and 237 from ECD, transplanted between January 1990 and December 2006. We evaluated the impact of immediate graft function (IGF), slow graft function (SGF), and delayed graft function (DGF) and the drop in estimated glomerular filtration rate (ΔeGFR) ≤30% or >30% during the first yr post-KTx on long-term patient and death-censored graft survival (DCGS).

Ten-year patient survival was similar in SCD- or ECD-KTxR (P=0.38). DCGS was better in SCD-KTxR vs ECD-KTxR (77.3% vs. 67.3%; P=0.01). DCGS did not differ in either group experiencing IGF (P=0.17) or DGF (P=0.12). However, DCGS was worse in ECD-KTxR experiencing SGF (84.9% vs. 73.7%; P=0.04). Predictors of DCGS were 1-yr Scr (HR 1.03; P<0.0001) and ΔeGFR >30% between 1 and 12 months (Δ1-12eGFR) post-KTx (HR 2.2; P=0.02). In ECD-KTxR with IGF and more than 1-yr follow-up, 10-yr DCGS was better in those with Δ1-12eGFR ≤30% vs those with Δ1-12eGFR >30% (83.8% vs. 53.6%; P=0.01).

Recipients of SCD or ECD kidneys with IGF or DGF had similar 10-yr patient survival and DCGS. SGF had a worse impact on DCGS in ECD-KTxR. In addition to 1-yr Scr, Δ1-12eGFR >30% is a negative predictor of DCGS.

**Renal Function Recovery In Kidney Transplant Recipients**

Following kidney transplantation (KTx), renal function improves gradually until a baseline eGFR is achieved. Whether or not a recipient achieves the best-predicted eGFR after KTx may have important implications for immediate patient management, as well as for long-term graft survival.

The aim of this cohort study was to calculate the renal function recovery (RFR) based on recipient and donor eGFR and to evaluate the association between RFR and long-term death-censored graft failure (DCGF).

We studied 790 KTx recipients between January 1990 and August 2014. The last donor Scr prior to organ procurement was used to estimate donor GFR. Recipient eGFR was calculated using the average of the best three
Scr values observed during the first 3 months post-KTx. RFR was defined as the ratio of recipient eGFR to half the donor eGFR. 53% of recipients had an RFR ≥1. There were 127 death-censored graft failures (16%). Recipients with an RFR ≥1 had less DCGF compared with those with an RFR <1 (HR 0.56; 95% CI 0.37-0.85; P=0.006). Transplant era, acute rejection, ECD and DGF were also significant determinants of graft failure.

Early recovery of predicted eGFR based on donor eGFR is associated with less DCGF after KTx.

L9

EVOLUTION OF LIVING DONOR LIVER TRANSPLANTATION

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Liver Transplantation became a world wide treatment for end stage liver diseases in 1982, following the pioneering work of the late Dr Starzl. Soon it became apparent, that donor organ scarcity led to dramatic death on any waiting list, particularly in the group of small children > 50%. Two centers, in Paris(France) and Hannover (Germany) started to perform surgery on a transplant , to separate the left lobe(Houssin) and the left lateral segment (Broelsch) to serve the pediatric population first.

The discarding of viable liver parenchyma initiated the concept of Liver splitting , first performed in Hannover by the late Rudolf Pichlmayr in 1988 but presented in the first study of 20 cases by the University of Chicago team by Broelsch et al.

Simultaneously, a protocol for live donor operations had been publiclydeveloped by the Uof C group adressing the ethical, technical and institutional isssues surrounding this new endeavour. Individual procedures have been performed elsewhere before the Uof C program was inaugurated in November of 1989 with 20 patients to follow.

In the Western Hemisphere hundreds of Live Donor Procedures had been performed successfull until the first donor deaths occured, receiving public recognition in the main stream media resulting in public discrimination of doctors and institutions. 2001 became the year of division, and countries with cadaver donor availabilities resorted to brain dead or cardiac deceased donors while others, -the majority - initiated live donor programs like Japan, India, Korea, Phillipines , Turkey, Brasil with thousands of procedures being performed annually.

This evolution was not anticipated: Live Donor Transplants were conceived as substitutes for organ scarcity in elective situations with realistic alternatives to allow for uncoerced , informed consents. Simultaneous, Split Liver Procedures should amplify the limited donor pool, with cadaveric organ donation remaining the backbone of Liver Transplantation. Today, its application is unlimited all over the world, with stringent indications in the western countries and widely practiced in countries without alternatives. Fortunately, recent data from the US demonstrate the growing superiority of Live Liver Donation in any responsible setting compared to cadaveric donation.
L11
HOW TO PREVENT TISSUE ISCHEMIA-REPERFUSION INJURY AND IMPROVE TRANSPLANTATION OUTCOMES?

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Orthotopic liver transplantation (OLT) is the primary therapy for end-stage liver disease and acute organ failure. However, ischemia-reperfusion injury (IRI), a common consequence of the transplant process, is a key limitation. The cellular damage triggered by IRI occurs in about 20% of cases and can lead to primary graft non-function, necessitating re-transplantation or leading to recipient death. IRI also predisposes the recipient to both acute and chronic rejection and graft loss, as well as decreases the pool of transplantable organs. Seminal observations in murine models indicate that liver IRI is mediated by the innate immune system and that T cells are required for the activation, perpetuation and regulation of proinflammatory responses during and following IRI.

Recipient sensitization to donor HLA Ags occurs through blood transfusion, pregnancy and/or previous transplant and remains an important clinical problem. Up to 30% of transplant candidates are allosensitized, which not only increases the waiting time to find a compatible donor, but also dramatically increases the risk of acute and chronic cellular and Ab-mediated rejection. Given that a significant proportion of transplant candidates are allosensitized at the time of transplantation, this raises question as to whether or not donor specific alloreactive T cells present at the time of transplantation potentiates IRI on one hand and whether IRI may enhance the generation of donor alloreactive T cells, which mediate graft rejection and consequently deteriorate long-term outcomes.

The Dumont-UCLA Transplant Center, Los Angeles, CA, has one of the largest liver transplant programs in the U.S. (>6,000 liver transplants since 1984) and its Laboratory has been at the forefront of cutting-edge transplantation immunobiology research. Our from bench-to-bedside translational studies focus on the interplay between innate and adaptive immune systems in transplant recipients with the ultimate goal of defining characteristics that predispose donor organs to IRI and increased risk of acute and chronic rejection episodes. Our central hypothesis is that identifying the continuum of innate and adaptive immunophenotypes will permit us to select, monitor and refine the practice of therapeutic interventions against IRI and hence improve organ transplant outcomes.

Advances in technology targeting ex-vivo preservation period may increase the donor pool by improving marginal donor organ outcomes. The hypothermic and normothermic machine perfusions have proven as superior alternatives to a static cold storage preservation. The ex-vivo perfusion technology provides a platform to therapeutically modulate and repair the suboptimal graft. Data supporting such a novel rejuvenation approach have been produced in terms of clinical performance, with perfused donor livers being more resistant to IRI, while showing improved hepatocellular function, increased ATP levels and depressed inflammation responses in transplant recipients.

L12
CONCERNS WITH HEPATITIS C IN CHRONIC KIDNEY DISEASE AND RENAL TRANSPLANTATION

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170 Million Chronic HCV patients are present worldwide (2.3% of world population) with around 3 to 4 Million New Infections Annually. 10-30% develop liver damage after 15 -30 years. 40% get one or more extrahepatic complication including renal affection. There are At least 7 Genotypes and their global distribution varies: genotype 4 is the 4th in prevalence being 13% but in Egypt it constitutes 93% of affected patients.

HCV precipitates forms of glomerular disease that lead to CKD through immune mechanisms: glomerular immune deposits in 60-80% of those with cirrhosis. In Egypt, membranoproliferative glomerulonephritis (MPGN type 1) is the most common (54%). This may be associated with mixed cryoglobulinemia, followed by FSGS (24%), mesangioproliferative GN (18%) and membranous nephropathy (4%). There is negative impact of HCV on kidney: implicated in 23% higher risk of CKD onset and accelerated progression. HCV has a negative impact on the survival of patients on hemodialysis. Although seroconversion rate worldwide is 1.38-1.9 per year, it is 6% in Egypt.

There is Negative Impact of HCV on transplanted Kidney: Increased all cause mortality RR 1.79 and increased risk of graft failure RR 1.56. Treatment options Include first eradication of HCV infection. In the past interferon and ribavirin, with 50% response, high relapse and many side effects direct-acting antivirals (DAA) brought a new promise
with many Ongoing trials of treating HCV in CKD. Other treatments involve suppressing B-cell clonal expansion by immunosuppressives like Rituximab or Plasmapheresis. Recent reports of safety and efficacy of DAA combination given For 12 to 24 weeks in kidney transplant recipients with chronic genotype 1 or 4 HCV infection.

**L13**

**ADVERSE OUTCOMES OF LIVE KIDNEY DONATION**

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The Widening gap between the demand & supply of donor kidneys has lead to prolonged waiting list of the kidney recipient pool. For that, efforts made to increase the number of grafts by expanding the donor pool criteria.

Live kidney donors may run short or long term risks of donation increasing its mortality & morbidity while black people has more risks than white people & potential donors must be aware of the increased risks of pregnancies after kidney donation.

Recent development of laparoscopic nephrectomy in live kidney donation is a less morbid & more successful alternative for the donors.

All other risks & bad outcomes of live kidney donation will be discussed in the text.

**L14**

**HOW MUCH CAN WE EXTEND THE LIVER TRANSPLANT INDICATIONS, RATIONALLY, FOR HEPATOCELLULAR CARCINOMA?**

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Hepatocellular carcinoma (HCC) is the sixth most common malignant tumor worldwide and the third leading cause of cancer-related death. Liver transplantation is one of the accepted treatment modalities for HCC. This modality can be offered to patients with unresectable HCC regardless of patients’ liver function. It can also treat the underlying liver disease and consequently decrease the risk of de novo HCC. However, LT for advanced HCC might not be justified due to high recurrence rate and poor outcome in the era of organ shortage. In 1996, Mazzaferro and colleagues suggested the Milan criteria for LT selection.

Four year overall survival rate of the patients underwent liver transplantation within Milan criteria was reported as 75% and this criteria is accepted as worldwide gold standard for deceased organ allocation. However these criteria are strictly limiting the candidate patients for LT to a rate of 6-18% which excludes the vast majority of the patients, some of whom may also benefit from LT. Drop out rate at 24 months of subgroup of patients within Milan criteria (single lesion 2 to 3 cm; complete response after locoregional therapies and AFP ≤ 20 ng/mL) is 1.6% and in absence of these favorable factors this rate increases to 26.5% (3). Henceforward, tumors with same morphological criteria may have various prognosis. Therefore, strict morphological criteria are not a must. Determining the biological behaviour of the tumor is the leading indicative criteria for LT.

Histopathological methods are additionally used as, analysis of morphological features before LT fail to determine the biological behaviour of tumor (4). Pretransplant biopsy procedures are not demandable in demonstrating differentiation and microvasculary invasion as well as increasing the risk of tumor seeding, haemorrhage, and post LT recurrence. Therefore, expectations to determine tumor behaviour arise for biomarkers, such as AFP and Des-gamma carboxyprothrombin (DCP). Although there is a lack of concensus in the HCC studies, 400 ng/mL more frequently accepted as a cut off level for AFP and DCP level ≤ 400 mAU/mL is included in Kyoto criteria (5, 6). Recently, it is reported that patients beyond Milan criteria with a MoRAL score ≤ 314,8 in which these two biomarkers are used, may be candidates for LDLT (7). Dynamic AFP level analysis is more rated compared
with static AFP analysis in recent studies. Among patients beyond Milan criteria, prognosis is stated to be more favorable in absence of monthly dynamic AFP slope > 15 ng/mL and irresponsiveness to locoregional treatment (LRT) (8, 9).

Inflammatory response in HCC promotes tumor invasion by initiating angiogenesis and reflects tumor aggressiveness. These findings resulted in introduction of inflammatory markers for HCC patients (neutrophil/lymphocyte ratio = NLR, platelet/lymphocyte ratio = PLR, CRP etc.). In a recent study using NLR combined with Hangzhou criteria demonstrated that patients beyond Milan criteria with NLR ≤ 4 had better prognosis and this method can be used to select candidates for LT (10).

Response to LRT is an important factor to reveal tumor behavior which requires a period of time for observation. Since the waiting time in LDLT is very short, the response to treatment may not be established. Short waiting time or fast track approach is associated with poor results (11-14).

One of the current parameters for determining tumor behavior is the presence of tumor involvement with FDG PET. Patients beyond Milan criteria without tumor involvement in FDG PET has a better prognosis. Lai et al. reported that TRAIN (Time - Radiological response - Alpha-fetoprotein - INflammation) scoring, which combines the factors used to determine biological behavior of the tumor, is the best predictor of microvascular invasion (15).

We believe that a new scoring system that will be created by adding FDG PET involvement to TRAIN scoring will be more useful in predicting the biological behavior of the tumor, especially those beyond Milan criteria. LDLT is an important treatment option in advanced HCC patients who are not candidates for DDLT and this issue remains to be a promising area for further clinical studies.

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**L15**

**MILAN AND UCSF CRITERIA FOR LIVER TRANSPLANTATION TO TREAT HEPATOCELLULAR CARCINOMA**

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**Introduction:** Hepatocellular carcinoma (HCC) is the fifth most common malignancy in the world. Today, there are three potentially curative therapeutic treatment methods for HCC (Liver transplantation (LT), liver resection and local ablative treatments). In order to identify the best candidates for LT, is problematic. The aim of this study was to assess the long-term results of patients undergoing LT, to treat HCC and to compare the use of the validity of the Milan and University of California San Francisco (UCSF) criteria for selection of HCC patients for possible LT.

**Materials and Methods:** The study is a retrospective review of prospectively collected data. Between 1998 and 2016, 115 (20.4%) of 563 LTs were performed in patients with HCC. The patients were categorized into 3 groups according to both pre-LT radiologic and post-LT pathologic examinations. According to pre-LT and post-LT evaluations, patients numbers and groups were; pre-LT Milan + (n=84), pre-LT Milan-/UCSF+ (n=14), pre-LT UCSF – (n=17), post LT Milan + (n=77), post LT Milan-/UCSF+ (n=16), post LT UCSF – (n=22).

**Results:** Median follow-up period was 56.6 (1-176) months. According to pre-LT evaluations, the five years overall survival rates in the Milan+, Milan-/UCSF+, UCSF- groups were 79.4%, 61.4% and 11.0%, respectively ($p=0.00$). According to post-LT evaluations, the 5-year overall survival rates in the Milan+, Milan-/UCSF+, UCSF- groups were 80.0%, 67.0% and 26.0%, respectively ($p=0.000$). Within these groups, tumor recurrence was determined in 5.2%, 6.25% and 22.72% of patients respectively ($p=0.034$). Moreover, the presence of microvascular invasion within the explanted liver had a negative effect on the 5-year overall survival (74.2% vs. 39.6%, $p=0.003$).

**Conclusion:** The Milan criteria are reliable in the selection of suitable candidates for LT for the treatment of HCC. The UCSF criteria may be applied for selected patients for living donor liver transplantation in Turkey.

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**L16**

**EXPANDED CRITERIA FOR HCC IN LIVER TRANSPLANTATION**

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**Introduction:** Hepatocellular carcinoma (HCC) is the sixth most common cancer worldwide and the third highest cause of death related to malignancy. Since HCC diagnosis is typically late, the median survival following diagnosis is approximately 6-20 months and the 5-year survival rate is reported as less than 12%. HCC typically arises in the background of cirrhosis. Liver transplantation (LT) is regarded as an optimal radical therapy for selected patients with HCC. Initial experiences with orthotopic liver transplantation were limited to patients with extensive unresectable tumors, and were marked by uniformly dismal outcomes due to high rates of tumor recurrence. We aimed to evaluate our LT indications and results for HCC.

**Materials and Methods:** Between December 8, 1988 and January 1, 2017 we performed 552 LT at our centers. At Baskent University we have been using our criteria for LT in HCC candidates since 1994: transplant is performed on HCC patients regardless of the size and number of tumors, without major vascular invasion and distant metastasis, and with negative cytology (if the patient has ascites). In recent years, in addition to LT, we have also started performing interventional radiology procedures. In this study, we retrospectively reviewed our LT results of patients with HCC.

**Results:** Of the 552 total LT performed at our center, 61 (11.1%) patients received transplant for HCC. 52 were male and 9 were female. 11 of these patients were children and 50 were adults. We performed 41 living donor LT (10 pediatric, 31 adult) and 20 deceased donor LT (1 pediatric, 19 adult). All deceased donor LT had down staging therapy before transplantation. We diagnosed HCC incidentally during pathological examination in 6 patients (10.1%; 4 pediatric and 2 adult). All of these 6 incidental HCC cases are still alive without HCC recurrence for 75-140 months. 32 of the patients were operated on according to Baskent University expanded criteria. 6 of these patients were children and 26 were adults. We had 16 patients (1 pediatric and 15 adult) who were within Baskent University expanded criteria radiologically and pathologically before transplantation. The other 15 patients (4 pediatric and 11 adults) who were within Milan criteria radiologically before transplantation,
but after LT, when pathologic specimens were evaluated, they were found to be within Baskent University expanded criteria. We had 1 patient incidentally diagnosed after transplantation who was within Baskent University expanded criteria. HCC recurrence was detected in 14/61 cases (23.7%). Disease free 5-year survival rates of patients within Baskent University expanded criteria and within Milan criteria were 56.8% and 78.7%, respectively (P = .024).

**Conclusions:** Patients within Milan Criteria have a higher survival rate due to early diagnosis, and patients with expanded criteria have a 5-year survival rate of roughly 60%. As such, we have shown that the criteria for the treatment of HCC can be safely and effectively expanded with promising results, especially when performed in combination with interventional radiology procedures.

**L17**

**PRINCIPLES FOR RESPONSIBLE SURGICAL INNOVATIONS**

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The field of solid organ transplantation represents a remarkable example of surgical innovation, which has led to enormous gains in longevity and quality of life for patients with end stage organ disease. Responsible surgical innovation dictates an understanding of the context of surgical innovation, the distinction between different types of innovation and the guidelines, which have been developed for responsible progress in this field. The goals are to allow for rational evaluation of innovative practices and to guarantee the safety of patients who undergo novel procedures and treatments.

Francis Moore was an early proponent of surgical innovation as a means to improve patient care. He was a resident at the time of the Cocoanut Grove Fire in Boston. His Attending, Dr. Oliver Cope introduced a novel treatment of burn care (fluid resuscitation and substitution of petroleum jelly for tannic acid), which he (and Dr. Moore) applied to MGH admitted burn victims. The superior outcome of these patients’ compared to conventionally treated burn patients admitted to Boston City Hospital impressed Dr. Moore with the power of surgical innovation in enhancing patient care. At the Brigham and Women’s Hospital, Dr. Moore instituted a program of hemodialysis in patients with chronic kidney disease, began the program for kidney transplant using first live donor and subsequently deceased donor transplant and performed the first liver transplant at the Institution in 1963. Dr. Moore confirmed that a patient’s willingness to participate to achieve “improved health” must be tempered by making certain that the patient is informed about potential risks with a new treatment or procedure. He noted a system of checks and balances based on the presence of IRB’s, collaboration of scientists from different backgrounds, the granting process and the institutional ethical climate. He felt these factors were important in ensuring ethical innovation.

Surgical innovation has been categorized in these categories; incremental, enabling and disruptive. Incremental innovation reflects a change that marginally improves currently available technology. Examples of incremental technology includes induction protocol and steroid withdrawal in renal transplant recipients or development of new tool for minimally invasive surgery. Enabling innovation reflects innovation that supports further development in a field, examples of enabling innovation in the field of transplantation include the case of thrombolytic agents in DCD donors to prevent Ischemic-type biliary complications, the use of split liver transplantation or the development live donor liver transplants. Disruptive innovation is described as an innovation that creates a new market and value network and eventually disrupts existing market and value network. In cardiac surgery, the TAVR development fits into this category. The original introduction of solid organ transplantation was “disruptive.” Other examples in the field of transplantation include development of ghost organ using host or stem cells, the artificial kidney device and face and limb transplantation.

The ethics group at University of Chicago point to important issues in surgical innovation a) the risk to patient safely b) difficulty in giving time informed consent c) issues about financial support for major innovative prior to proof of efficacy d) the conflict of interest and e) the threat to professionalism inherent in trying new techniques.

It has been suggested that the approach to surgical innovation should include a) meticulous long-term follow up b) cooling off period between initial discussion and informed consent. C) Involvement as a “consent advocate” d) learning curve mitigated my disclosure and apprenticeship. Real time evaluation of the progress of a trial using the kusum approach may alert investigators to identify problems early may also be of benefit.

The field of transplantation relies on responsible innovation; responsibility for this rests with the clinicians supported by leaders in the field.
L18

LAPAROSCOPIC VERSUS FINGER ASSISTED OPEN DONOR NEPHRECTOMY TECHNIQUES: WHERE DO THEY STAND?

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Introduction: Advances in minimally invasive surgery for live kidney donor's nephrectomy have led to the widespread use of laparoscopic technique as a standard of care. However, progress has also occurred with open techniques. The aim of the study was to compare an innovative finger assisted open donor nephrectomy (FAODN) technique versus standard laparoscopic living donor nephrectomy (LDN).

Materials and Methods: Description of FOADN technique will be presented. Laparoscopic hand assisted technique was used for comparison. Retrospective data was collected for donor age, gender, race, surgical parameter, hospital length of stay, cost, and 1 year donor renal function (serum Creatinine and GFR) using two different institution’s electronic databases (UVA and KCL). The analyses included 95 donors in each group during a similar period of time. Collected variables were compared using Fishers Exact Test for 2x2 tables and Likelihood Ratio Chi-Square for larger tables.

Results: Overall donor clinical and demographic characteristic were similar between groups. The FAODN group had more males donors (48.4% vs. 51.6% p=0.03), while the LDN group had a statistically significantly larger number of females donors (70.5% vs. 29.5%, p=0.003). Median body mass index (BMI) was similar between groups (28 vs. 26, p=0.032). Left nephrectomy was overall preferred in both groups. Overall frequency of minor postoperative complications was significantly lower in the FAODN group as compared to the LDN group (14.7% vs. 31.6%, p=0.0094). However, rates of hernia, operative blood transfusions and postoperative bleeding episodes were not statistically significantly different between groups. LDN group demonstrated a significantly higher creatinine (1.1 vs. 0.9 mg/dl, p<0.001), and a significantly lower donor GFR at 1 year (60 vs. 89 ml/min/1.73m², p-value<0.001) post donation. Surgical parameters demonstrated a significant longer surgery time (3.5 vs. 1.2 hrs, p<0.001), a longer combined length of incision (6 vs. 5 cm, p=0.001) and higher cost in LDN group, while demonstrating a statistically significantly shorter median hospital length of stay (3 vs. 4 days, p<0.001).

Conclusion: Our study demonstrates that FAODN is a successful alternative to laparoscopic techniques. It appears to provide renal donors a favorable outcome in terms of complication, surgery duration, and renal function at 1 year post donation.

L19

ROBOT ASSISTED SURGERY IN LIVING KIDNEY DONORS

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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 living donor nephrectomy.

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 87 consecutive patients who underwent robot assisted living donor nephrectomy in between November 2013 and May 1017 at Gazi University Transplantation Center, Ankara Turkey.

Out of 87, forty six patients were male and forty one patients were female. Mean age was 48 (range: 23-65). All living donors were relative to their recipients, there is no unrelated living donation in our center. Hundred Percent of early patient and graft survival, in all 87 operations, similar early patient and graft survival represents for patients with laparoscopic and open technique. One patient needed peroperative blood transfusion because of surgical bleeding. There was one Clavien III surgical complication and one case conversion because of bleeding to an open surgery in this series. The median warm ischemia time was: 2.7 min (range: 2.0 – 5.1 min).

One patient had double ureter, three 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 cost for robot-assisted living donor nephrectomies were 2.750 USD versus 1.850 USD 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.

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**L20**

**REGENERATIVE MEDICINE SURGICAL PROTOCOLS AT THE BIOMEDICAL RESEARCH FOUNDATION ACADEMY OF ATHENS**

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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 mechanical devices. The field of tissue engineering applies the principles of engineering, cellular and molecular biology towards the development of sustainable biological scaffolds that maintain, improve or restore the function of pathological tissues. The key role to scaffolding is to provide mechanical stability to the native tissue and structural support to cells. Our interests are focusing on vascular, tracheal and nerve regeneration.

Peripheral arterial disease leads to the damage of blood vessels which can be replaced by using synthetic, autologous or allogenic vascular grafts. Current replacement approaches employ biocompatible materials solutions that are not able to regenerate or grow with the patient. Our aim is to investigate the *in vivo* biocompatibility of allogenic rat abdominal aorta, treated with a newly developed decellularization protocol.

On tracheal regeneration, our aim is to produce a tracheal scaffold for the treatment of serious respiratory tract conditions without the use of a bioreactor. According to the World Health Organization, respiratory diseases are the third most common cause of death, and specific tracheal disorders are the fifth most common cause of death as shown by statistical studies (WHO, 2014). To date, there are not universally effective solutions for treating advanced airway disorders, especially in children. In order to carry out the present study, trachea will be removed from rats and will be decellularized. An evaluation of decellularization by histological testing, DNA quantification, glycosaminoglycan and collagen, tracheal transplantation in another animal model, tissue re-cellularity assay, biomechanical control and immune response control will be performed. The decellularized trachea will be implanted in the rat back, while biopsies will be taken every month (for 4 months).

Peripheral nerve injury is a common global problem, and it significantly affects the patients’ quality of life and cause an enormous socioeconomic burden. In the United States, more than 50,000 surgical procedures are carried out to repair peripheral nerves annually. Successful reconstruction of segmental nerve defects has been a challenging surgical hurdle for reconstructive surgeons, although many surgical strategies have been attempted for the reconstruction of nerve defect. Our goal is to create a biological scaffold from the umbilical cord for the reconstruction of the rat’s sciatic nerve.

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**L21**

**THE TECHNIQUE OF ILEOBLADDER AND KIDNEY TRANSPLANT IN RATS AND PIGS**

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**Introduction:** Small, poor compliant or unstable bladders are one of the major problems that we face in patients. Many studies have been performed since more than a century (often unsuccessful or associated with high rate of complications), but no distinct method has been developed. Herein, our goal was to develop and evaluate a new ileobladder model.

**Materials and Methods:** A total of 15 rats (250-300 gr) and 5 pigs (approximately 100 kg) were cared for according to institutional and published guidelines. General anesthetic was given and laparotomy was done through midline incision. Ileal loops were prepared for ileobladder. After
cystectomy down to 1 cm above trigon, anastomoses were done between antimesenteric sides of ileal loops and the remnant of the bladder with 6/0 prolene suture. In addition, the same procedure was performed simultaneously with renal transplantation in 2 other pigs.

**Results:** One rat died on the first day of operation due to hemorrhage of multiple organs. Two rats survived for 5 days, 3 rats for 7 days, 3 rats for 11 days, and 5 rat is still alive 55 days after surgery. One rat was sacrificed for pathological evaluation after 3 months. One pig survived for 22 days, 1 for 9 days. Of the 2 pigs that received a simultaneous renal transplant, both are still alive and doing well 45 and 37 days after surgery, respectively. One pig that received a simultaneous renal transplant was alive 90 days after surgery. It was sacrificed for pathological evaluation after 3 months. Urinary discharge was normal in all of them. Pathological examination of the anastomosis sites reported a normal healing process with moderate inflammation. The pathologic evaluation showed that the small intestine muscle layer was transformed into the muscle layer of the bladder.

**Conclusions:** Although some complications were faced as no draining procedure was used, in terms of technique, our new ileobladder model is promising for providing functional bladder volume. Based on this experimental study, we will perform a larger scale series in both an experimental and clinical setting. This technique can be useful for small bladder and bladder physiology disorders.

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**L22**

**THE USE OF GENOMICS AND PATHWAY ANALYSIS IN OUR UNDERSTANDING AND PREDICTION OF CLINICAL RENAL TRANSPLANT INJURY**

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The development and application of high-throughput molecular profiling have transformed the study of human diseases. The problem of handling large, complex data sets has been facilitated by advances in complex computational analysis. The recent literature regarding the application of transcriptional genomic information to renal transplantation, with specific reference to acute rejection, acute kidney injury in allografts, chronic allograft injury, and tolerance has made considerable progress over the recent past. Other “omics” strategies such as proteomics, metabolomics, and the microRNA transcriptome have recently been used to study the pathogenesis of specific disease states following transplantation. The next challenge remains how to integrate these findings so that they provide useful information for clinicians and researchers about the underlying pathophysiology of these conditions. Whilst these data have shed new light on our understanding of the pathogenesis of specific disease conditions after renal transplantation, their utility as a biomarker of disease has been hampered by study design and sample size. Potential biomarker candidates need to be formerly evaluated in formal multicenter clinical trials and demonstration that they actually improve patient and graft outcomes needs to be assessed. The expectation is that these new technologies will improve clinical trial design, better predict patient and graft outcomes and identify new drug targets. Whilst these new technologies are powerful new tools for studying transplant related conditions it is important to have well characterized patient populations with linked clinical and histological data in order to develop clinical paradigms that help us to better understand and predict allograft outcome.

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**L23**

**PREDICTABILITY AND RISK FACTORS FOR DEVELOPMENT OF NEW ONSET TYPE 2 DIABETES MELLITUS AFTER TRANSPLANT IN THE SAUDI POPULATION**

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**Objectives:** The study objective was to investigate the predictability and risk factors for the development of new-onset type 2 diabetes mellitus after transplant in the Saudi population.

**Materials and Methods:** This was a retrospective observational cohort study in adult kidney transplant recipients who developed new-onset type 2 diabetes mellitus after transplant. Patients with and without new-onset type 2 diabetes mellitus after transplant were compared for demographic factors, blood glucose levels at
4-hour intervals for 24 hours after transplant, and serum creatinine levels at 6 and 12 months after transplant.

Results: Of 279 patients included in our study, 15.5% developed new-onset type 2 diabetes mellitus after a mean follow-up of 4.6 ± 2.1 years after transplant. Patients with new-onset type 2 diabetes mellitus after transplant were significant older (P = .001), had a higher body mass index (P = .001), and had higher fasting blood glucose levels 24 hours after transplant (P = .03). No significant differences were observed regarding sex, transplant type, or serum creatinine levels at 6 and 12 months. Risk factors for new-onset type 2 diabetes mellitus after transplant are body mass index (P = .001; relative risk of 1.26), fasting blood glucose at 24 hours (P = .001; relative risk of 1.3), age (P = .001; relative risk of 1.44), and family history of diabetes mellitus (P = .001; relative risk of 31.3).

Conclusions: Risk factors for developing new-onset type 2 diabetes mellitus were age, heavier weight, body mass index, family history of diabetes mellitus, and having higher fasting blood glucose levels 24 hours after transplant, with family history of diabetes mellitus being an especially very high significant risk factor.

L24

REFRACTORY RECURRENT POST-TRANSPLANT IDIOPATHIC MEMBRANOUS GLOMERULONEPHRITIS: THE FORGOTTEN POTENTIAL CULPRIT

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The observed inconsistency in therapeutic responses with T cell- and B cell-directed therapies and the recently introduced anti CD20 monoclonal antibody, as rescue therapy in case of primary resistance or partial disease remission or as first line treatment, and the similarity as well, in the rates of complete and partial remission, relapsing or resistance, in the settings of idiopathic membranous glomerulonephritis (iMGN) in native kidney and in recurrent disease post-kidney transplant (RPTMGN) reported in most trials, implies the existence of different immunopathogenic signatures that may be operational either isolated or combined in the pathogenesis of iMGN. These signatures involve primarily B cells lineage present in distinct compartments such as CD20+ activated B cells found in spleen and lymph nodes, CD19+/CD20- plasmablasts and short-lived plasma cell in the blood and CD19-/CD20-/CD38+ long-lived memory plasma cell niched naturally in the bone marrow and ectopically in the native or grafted inflamed kidney. These non- proliferating CD38+/CD138+ plasma cells are known to provide the basis for humoral memory and refractory autoimmune diseases. As expected, long-lived memory plasma cells that lack CD20 markers, would be refractory to a CD20+ targeting immunosuppressive therapies and therefore, may explain the limited rate of complete remission, not exceeding the 20% or 50% of all treated patients observed in most studies using the monoclonal anti CD20 antibody rituximab, as rescue or a first line therapy in native or RPTMGN settings, respectively. The available data on B cell depletion and B cell recovery in relation to remission and relapse of the nephrotic syndrome in iMGN, which often used CD19 as a marker of B cell dynamic monitoring, suggests no clear relationship. This may explain the frequently observed relapses or primary resistance of iMGN to anti CD20 therapy despite ongoing CD20+ cell depletion. In contrast to the regenerating activated CD20+ B cell, short and mainly long-lived memory plasma cell is a non-proliferating B cell that produces considerable amount of IgG auto and alloantibodies. Consequently, these cells would be resistant to in vivo anti CD20/CD19 specific monoclonal therapies, as has recently being shown. Proteasome inhibitors (PIs), known plasma cell depleting agents with both anti B and T cell effects and the new generation of anti CD38 monoclonal antibodies, may offer a novel therapeutic alternative at least in those patients refractory to combined conventional or conservative-rituximab therapy in spite of total CD20+ cell ablation observed in rituximab-sensitive patients. Given the existence of different potential immunopathogenic signatures that may be operational in the pathogenesis of iMGN, there is an important need for the development of immunologic or other biomarkers to help identify patients who are likely to successfully respond to either T and B cell-targeted therapy or ultimately the combination of both.
The topic “Diabetes mellitus and renal transplantation” can be viewed from two aspects: renal transplantation in diabetic patients and new-onset diabetes after renal transplantation.

The prevalence of diabetes is steadily increasing worldwide. It is estimated that 330 million of population will suffer from diabetes until 2030. Diabetic nephropathy is the most common cause of end-stage renal disease (ESRD) in Western societies and accounts for approximately 40 to 45 percent of cases of ESRD in the United States. Diabetic nephropathy was the etiology of ESRD in approximately 23 percent of kidney transplant recipients transplanted in the United States in 2008.

Type I diabetic patients with ESRD have three therapeutic options apart from dialysis: i) living-donor renal transplantation, preferably preemptively, ii) pancreas transplantation, either simultaneously or sequentially after renal transplantation, and iii) being placed on a waiting list for deceased-donor renal transplantation. Most of the times, pancreas transplantation is not an option for type II diabetic patients, so they have to undergo a living- or deceased-donor renal transplantation.

For type I diabetic patients, life expectancy after a living-donor renal transplantation is about 18 years whereas after a deceased-donor renal transplantation is 11.4 years, somewhat lesser but definitely more than staying on dialysis. Transplant survival seems to be optimal after a simultaneous pancreas-kidney transplantation as well as patient survival.

For type II diabetic patients after a living- or deceased-donor renal transplantation, a marked decrease in mortality risk is evident, independently of the age of the recipient.

Diabetes presents particular challenges both in the pretransplant evaluation and after transplantation. These challenges are related to the high incidence of cardiovascular disease among diabetic patients and the increased risk of bacterial and fungal infections compared with nondiabetic transplant recipients. In addition, glycemic control is more difficult after transplantation.

All diabetics should be evaluated for the presence of coronary heart disease before transplantation with a noninvasive test, preferably dobutamine-induced stress echocardiography. If there are symptoms or signs consistent with coronary heart disease or a positive noninvasive test, they should undergo cardiac catheterization.

Diabetes and subdiabetic hyperglycemia occur in a substantial number of patients following renal transplantation. New-onset diabetes after transplant (NODAT) is associated with increased mortality and morbidity as well as decreased long-term allograft survival.

The incidence of NODAT is variable, ranging from 7 to 46% in different studies. Studies that use the current criteria for diagnosis suggest that up to one-third of nondiabetic kidney transplant recipients develop persistently impaired glucose metabolism by six months posttransplantation. The incidence of NODAT is higher among transplant recipients than the incidence of new-onset diabetes among dialysis patients. Risk factors include increased age, obesity, African American race, Hispanic ethnicity and family history of diabetes or gestational diabetes. Furthermore, there are transplant-specific risk factors such as medications (glucocorticoids, tacrolimus, sirolimus), hepatitis C and cytomegalovirus infections, hypomagnesemia and polycystic kidney disease.

Management includes regular monitoring of all patients, consideration of immunosuppressant therapy modification and therapy of diabetes mellitus.

Progress in patient care and immunosuppressive medications has resulted in an improvement in the allograft survival in the early posttransplant period; however, there is a substantial graft loss afterwards. Recent publications show a 4% annual graft failure among renal transplant recipients. Therefore, the number of patients returning to dialysis with a failed allograft is increasing year by year.

The outcomes of these patients are controversial; most authors agree that mortality rates are higher as compared to the naive dialysis patients. The risk is even higher in diabetic cases and cardiovascular causes are the leading cause of death being followed by infections and malignancies. A couple of etiologies can be responsible for this unfavorable outcome: 1. Mostly there is a delay in returning to dialysis, 2. A rejected allograft can result in a chronic inflammatory state, which may cause malnutrition, hypoalbuminemia and increased cardiovascular risks, 3. Immunosuppression can sustain, even in the case of immunosuppressive drugs are discontinued.

A controversial issue is the type of dialysis after transplant failure. Actually, there is a concern that return to PD may be risky, because sustaining immunosuppression
may predispose the patients to peritonitis. However, many studies suggest that dialysis modality does not have a significant effect on the outcome of patients with failed transplants.

Another controversy is the indications for graft nephrectomy after transplant failure. Maintaining a failed graft represents a chronic inflammatory state and transplant nephrectomy should be considered especially if there are signs and symptoms of graft inflammation. However, graft nephrectomy is a risky operation, which dictates that this operation should not be a routine procedure, but be performed only when indicated. For the time being, most of the grafts are left in place.

An important issue is how to handle immunosuppressive therapy in these patients. In the case of maintaining immunosuppression there is an increased risk of infections, cardiovascular diseases and malignancies, and also steroid related many side-effects, especially osteoporosis. On the other hand, discontinuation of immunosuppressants may result in loss of residual allograft function and also acute graft inflammation, which may result in spontaneous graft rupture. Taking together, immunosuppression is almost always discontinued in these patients because infections, a major cause of death after a failing graft, can be avoided by stopping immunosuppressive drugs.

Considering the sequence of cessation of the immunosuppressants, most of the time, firstly anti-proliferative drugs (azathiopurine, mycophenolic acid derivatives or mTOR inhibitors) are stopped; this is followed by withholding calcineurin inhibitors. Almost all authors suggest that steroids should be stopped lastly, following a slow taper. If possible, all immunosuppressants should be discontinued by the post-operative 6 months.

An important issue is retransplantation; many studies have shown a clear survival benefit of retransplanted patients when compared with the ones remaining on dialysis. Therefore, every attempt should be made for retransplantation, while only 15% of the patients will receive another transplant.

**L27**

**OVERVIEW ON IMPLEMENTATION AND INITIAL OUTCOME DATA ON THE USE OF HYPOTHERMIC MACHINE PERFUSION FOR EXTENDED CRITERIA DONOR KIDNEYS IN EUROPEAN RENAL TRANSPLANT PROGRAMS**

**Bernard Cohen**

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**Introduction**

The widening gap between organ supply and demand has pushed renal transplant programs to widen up their cadaveric renal donor pool with extended criteria donors (ECD) despite the fact that kidneys from such donors are more prone to ischaemic reperfusion injury.

In order to tackle the deleterious impact of IRI in these ECD kidneys, hypothermic machine perfusion (hmp) has been introduced in many European transplant programs which was triggered by the encouraging results from the Eurotransplant machine preservation trial (NEJoM 010109). A subset analysis from this trial demonstrated that the use of HMP for ECD kidneys resulted in lower incidences of DGF and PNF as well as improved graft function and survival.

**Overview on implementation and initial outcome data on the use of HMP for ECD kidneys in Europe**

During the next 5 years following the landmark publications of the Eurotransplant machine preservation trial, national machine perfusion programs for ECD kidneys have been implemented in France, Ireland, Norway and Switzerland while in Poland and The Netherlands machine perfusion programs have been introduced even for all cadaveric donor kidneys.

Besides these national machine perfusion programs, meanwhile also many European single centers in Spain, Sweden, Portugal, UK, Rumania, Italy, Austria and Germany reported to have started with the use of HMP for the preservation of their ECD kidneys.

While Switzerland and The Netherlands have not yet reported on their initial outcome data, France most recently presented their initial results showing HMP for ECD kidneys to reduce the incidence as well as the duration of delayed graft function (DGF), to reduce the length of hospital stay. They observed that also fewer kidneys were lost during the 1st year although this effect did not reach significance yet.
Preliminary European single centers reports are in line with the initial French national outcome data: e.g. Spanish centers have also reported a significant reduction of DGF and primary non function (PNF) incidence after the introduction of HMP for their ECD kidneys.

**Conclusion**

Reports on initial results from European national programs as well as single centers HMP programs have all confirmed the earlier published conclusions of the Eurotransplant machine preservation subset analysis, showing HMP for ECD kidneys to lead to fewer DGF and PNF cases, lower dialysis sessions which eventually leads to shorter hospital stay, less costs and –last but not least- fewer graft losses.

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**L28**

**DCD UNCONTROLLED AND CONTROLLED: INTERNATIONAL EXPERIENCES AND MODELS**

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In the world today we perform only 10% of the transplant needs. Why? The people who die will be enough potential to achieve the self-sufficiency in all the countries. For this we need that the 0.5% of the death of each country becomes utilized donors.

From all the donors only 10% are DCD and from them 1% are uncontrolled DCD.

When we think about deceased donation, mainly people have in mind DBD and from cranioencephalic trauma and some cerebral vascular accidents and in the epidemiology of death in the world 17 million, 30% of all death are for cardiovascular disease including ischemic cardiopathy and this is a huge potential of DCD donors, controlled or uncontrolled.

Only UK, US, Spain, Australia, Belgium, Netherlands, Latvia have regular programs going on and some of them have like 10 donors per million of population (pmp) which represents 10 to 20% from all the pool of donors in these countries. The rest of the countries are no active, it is not legalize, it is not set up or even it is forbidden.

Nowadays, by technology, we have all the experience and techniques to start organ preservation in the death bodies while doing a quick retrieval, in situ perfusion, normothermic regional perfusion (NRP) and other new procedures coming soon. The retrieval of these organs it is safe, and the viability demonstrated after transplantation regarding the kidneys, the pancreas and also the livers, lungs and heart today is excellent.

Nevertheless, do not forget that the new and coming ex situ preservation machines help a lot to assess the viability of these organs previous to the decision of transplantation and the most effective point is that reduce the effect of the primary non function and the delayed graft function.

As a conclusion, death potentials exist in all the countries. Social, religion and legal aspects can accept this practice, the system is possible to implement in all the countries. The results are excellent for kidneys and very promising for other organs and the cost – benefit compared with dialysis has no doubts.

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**L29**

**PSYCHOSOCIAL EVALUATION OF PROSPECTIVE LIVING ORGAN DONORS IN A COUNTRY OF IMMENSE MULTICULTURAL AND SOCIOECONOMIC DIVERSITY: A REPORT FROM QATAR**

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**Background:** Renal transplantation is the best therapeutic option for ESRD. the increasing number of renal transplantation performed each year, and lack of deceased donation has led to a longer waiting time to get a kidney even in countries where deceased donation program is well developed, hence, living donation programs have been heavily relied upon as an alternative. Developing a successful living kidney donation program necessitates extra vigilance to protect the vulnerable and poor from coercion, commercialism and exploitation. Qatar is a gulf country with 2.6 million population including 12% citizens and 88% non citizen residents mostly poor workers from South East Asia and the Middle Eastern origin. This vast socioeconomic and multinational diversity result in an ethical and legal challenges due to vulnerability of the poor & the underprivileged to coercion and enticement to provide organs.

**Rationale:** The tremendous increase in the living organ donation in Qatar (related and emotional) over the last seven years since the launch of the Doha Donation Accord in 2011, necessitates the development of the committee for oversight of living donation (COLD) in Sept 2014 in order to ensure that altruism is not undermined, societal
values are not eroded and the Qatari regulations and law are implemented meticulously. In the COLD the Potential Living Donors (PLDs) undergo comprehensive psychosocial evaluation to determine their psychological stability; verification of motivation, relationship to the recipient and ability to make an informed decision about the organ donation, with full understanding of the medical, legal and ethical hazards.

**Results:** Since the creation of the COLD in Sept. 2014 until Jan. 2017, the committee studied 220 PLD files including Qatari 130 (59%) and Non-Qatari 90 (41%); rejected 17PLDs (7.7%), accepted 182 PLDs (82.7%) and 21 PLDs (9.5%) were lost to follow up. Causes of rejection were: Coercion = 11, Forged identity = 1, psychologically unfit = 2, suspicion of commercialism = 1, medically unfit = 2.

**Conclusion:** Our experience with the COLD has shown that psychosocial evaluation is essential to prevent exploitation of the vulnerable PLDs whether genetically related or unrelated. We recommend a dedicated team independent of the transplant team to do systematic evaluation as per locally developed policy that address the regional socioeconomic vulnerability factors guided by the international guidelines and standards.

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**L30**

**COMPLICATIONS AND PITFALLS DURING ABDOMINAL ORGAN PROCUREMENT: THE UCLA EXPERIENCE**

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**Objective:** To describe the UCLA experience of common complications and pitfalls during the abdominal organ procurement operation.

**Background:** Procurement of abdominal organs for transplantation requires an expeditious assessment and recovery of such organs while minimizing surgical injury. The ever-increasing demand for organs, and unfortunately short supply, has led to innovative ways to expand the donor pool. These include utilizing older donors with multiple comorbidities, high-risk social behaviors, prolonged hospitalizations, known congenital anomalies, and donation after cardiac death (DCD) donors. While such practices have had a positive influence on the number of organs available for transplantation, it has also imposed a higher level of skills and expertise from the procurement surgeon for the successful attainment of organs. This level of expertise arises not only from the donor surgeon's own personal experience with the operation but also from the described collective experience of other surgeons. The purpose of this paper is therefore to describe common complications and pitfalls that the UCLA procurement team has witnessed over the years in hopes that it will enable other surgeons to benefit from such experience.

**Conclusions:** The field of abdominal organ transplantation continues to grow with an even greater need for organs expected in the future. In order to meet such demands transplant surgeons must continue to evolve and develop new and innovative ways to increase the availability of donor organs. Some of these new concepts and techniques impose a greater skill set from donor surgeons that we feel is partly achieved from knowing the experience of other surgeons in the field. The described complications and pitfalls in this paper should alert surgeons to those parts of the donor operation that UCLA has noticed could present with challenges. This information will better equip the donor surgeon to anticipate and be able to handle such situations with the ultimate result of maximum utilization of donor organs.

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**L31**

**BUILDING DECEASED ORGAN TRANSPLANTATION PROGRAM: PRESSURE & RESISTANCE!**

Abdel-Hadi Al Breizat

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Organ Shortage is the greatest challenge facing the field of organ transplantation today. Recently the government has come under much criticism by the public and media. In spite Legislation that was passed on year 1977 and recognized brain death and its declarations as form of death which allowing procuring organs for transplantation, the concept of brain death has never been promoted or widely publicized. Few deceased donation that were took place are due to the efforts of nongovernmental organizations (NGO). Legislation- Transplantation human organs Act also has made commerce in organ and unrelated
transplants illegal. For living donation – it defines who can donate without any legal formalities.

National effort started on the year 2015 for Regulations of transplant activities through activation and expansion deceased donor donation. Parallel to the living related donation program, the deceased donation program has slowly evolved. The National Action Plan seeks to engage organizations, professionals, policymakers, communities, individuals, and families in a linked, multi sector effort to improve Transplant services.

Few legislations have been added with aim to Increase public awareness, Improve efficiency of the donation process, conducting training courses and workshops for the human resources, organization transplant meetings, creation a national waiting list system, expanding the degree of genetically relative in living organ donation in addition to no organ transplantation services cost. All transplants currently are being done under the cloak of legal authority including removal human organs. Frequent change in administrations, priorities and resistance which came from different corners are the main obstacles to make a substantial progress, however in addition to the good control on organ transplant tourism there is an increase in number of people who filled the donation cards, number of brain death cases being diagnosed and reported, number of cases where are the relatives agreed to donate but unfortunately most of these cases were not suitable for donation at the time of acceptance (late).

Every organization and professional group involved in the development and dissemination of the culture of organ donation and services should have specific goals, objectives, strategies, policies, guidelines, and metrics to ensure that their actions did meet Patient needs and satisfaction. Creating favourable social, legal, cultural environments is vital to the success of a transplant programme, as well as Settlement of financial requirements for the transplant services.

L32

CANADIAN FORUM ON COMBINED ORGAN TRANSPLANTATION

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The Canadian Society of Transplantation and Canadian Blood Services conducted a consensus forum on combined renal/nonrenal transplants, as they are not part of Canadian organ-specific allocation models at present.

The purpose of this initiative was to make recommendations, develop eligibility criteria, and a decision-making model on listing and allocation.

Forty-two participants with expertise in combined transplantation participated in the consensus forum. The United States and Canadian data were reviewed. The consensus forum made recommendations regarding the following: (1) investigation of etiology, severity, duration, and level of renal dysfunction; (2) documentation of degree of nonreversible kidney injury; (3) eligibility for combined (either simultaneous or staged) transplantation; (4) research.

Key recommendations were: (1) patients with end-stage nonrenal disease with estimated glomerular filtration rate <30 mL/min per 1.73 m² for >1 month or on dialysis <3 months, who fulfill criteria for nonreversibility of renal dysfunction (by level and duration of renal dysfunction, imaging, and pathology findings), would be eligible for combined renal/nonrenal transplantation; (2) patients on dialysis >3 months would be eligible for combined renal/nonrenal transplantation; (3) staged renal after nonrenal transplantation with subsequent prioritized allocation of renal transplant was endorsed in selected cases.

The validation and impact of these recommendations on allocation will require further studies.
CORONARY ARTERY CALCIUM SCORE FOR CARDIAC RISK STRATIFICATION: A RETROSPECTIVE ANALYSIS OF CADAVERIC AND LIVING-DONOR LIVER, AND SIMULTANEOUS LIVER-KIDNEY TRANSPLANT RECIPIENTS

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Significant research has been undertaken to evaluate pre-transplant cardiac risk stratification. Coronary artery calcium score (CAC), significant coronary disease on catheterization, and 1- and 2-year mortality in patients who underwent cadaveric and living-donor liver, and simultaneous liver-kidney transplantation between January 1, 2011 and November 1, 2015 at Johns Hopkins Hospital (JHH) Liver Transplant Program were retrospectively reviewed. 329 patients were transplanted during this time of whom nearly half (148) had a CAC score performed. Of those patients, 30% had a score of 0 (44), 43% had a score between 1 and 250 (64) and 27% had a score of greater than 250 Agatston units (40). One-year overall mortality among patients with a CAC score of 0 or greater than 250 was 7.5% and 21.6% respectively (OR: 3.4; 95% CI: 0.828, 13.98; p = 0.089). Interestingly, two-year mortality in patients with a CAC of greater than 250 was 42.9% whereas it was only 18.5% in patients with a CAC of 0 (OR: 3.3, 95% CI: 0.968, 11.24; p = 0.055) with p = 0.01 for Mantel-Cox survival curve comparison analysis. Similar non-invasive cardiac testing modalities showed no relationship with one- or two-year mortality and were non-diagnostic in 14% of cases.

Of the patients who had CAC score measured, over a quarter had coronary angiography performed (40 patients). Previous studies have identified a CAC score of greater than 250 Agatston units as potentially useful in pre-transplant risk stratification [1]. By these criteria, 63.6% of patients with a CAC score of greater than 250 Agatston units were found to have obstructive CAD (previously defined as more than 50% obstruction on angiography) whereas only 37.5% of those with a score of less than 250 Agatston units were found to have the same (OR: 2.91, 95% CI: 0.547, 15.56; p = 0.21). Indeed, in the 2 patients with an Agatston score of 0, neither had evidence of obstructive CAD. Of those patients founds to have obstructive disease, 33.3% (5 patients) had interventions taken such as CABG or PCI.

As such, CAC score may prove to be a useful initial tool for cardiac risk stratification for patients undergoing evaluation for liver transplantation and potentially identify patients who may benefit from diagnostic/therapeutic coronary angiography.

References

PRE- AND POST-OPERATIVE ECHOCARDIOGRAPHIC DIFFERENCES BETWEEN SIMULTANEOUS LIVER-KIDNEY (SLK) AND ORTHOTOPIC LIVER TRANSPLANT (OLT) RECIPIENTS

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SLK is often offered as a treatment option for end stage liver disease simultaneously presenting with chronic renal failure. Not much data is present regarding the pre transplant cardiovascular screening for SLK.

We reviewed the pre-transplant echocardiographic characteristics on patients who underwent OLT or SLK between May 2008 and December 2015. Pediatric cases as well as live donor and previous organ recipients were excluded.

There were 270 OLT and 47 SLK patients. There were no significant differences in age, sex, or race between the two groups. MELD score at transplant was higher in SLK compared to OLT patients (28.7 vs 21.8, p<0.001). There was no difference in Left Ventricular Ejection Fraction between the two groups. Median estimated Right Ventricular Systolic Pressure was higher in the SLK group (36.5 mmHg vs 31mmHg, p<0.005). The SLK group was more likely to undergo right heart catheterization prior to transplant (14.6% vs 5.1%; Odds Ratio 2.86; p<0.05)
however, in this sample of transplanted patients, none of these studies revealed pulmonary hypertension.

After transplant, both groups of patients had similar mean length of follow up (OLT 306 days vs SLK 289 days, \( p = 0.29 \)). There was a significantly longer length of stay in the ICU (18 vs 5 days, \( p<0.01 \)) for SLK patients.

In summary, our findings indicate that SLK patients undergo invasive measurement of right heart pressures more frequently than OLT patients. It is unclear whether echocardiographic indications should also be changed to optimize the screening in this population. Our data also indicates that SLK patients tend to be sicker and have more involved hospital courses, but that their long-term outcomes may be similar.

L35

CHALLENGES OF TRANSPLANTATION IN ASIA

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The developing world is faced with several major challenges and hence transplantation becomes a low priority in most countries. As a result the transplantation rate is very low in most developing countries. The commonest transplantation is that of kidneys and due to lack of dialysis facilities the awareness about the transplantation is generally very poor.

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 neighbors.

The strategy of increasing organ donation and transplantation would begin with prioritizing the end stage organ failure in their respective healthcare system. The transplant centers 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 renal and liver centers in the country 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. However organizational aspects have recently been identified as the most important and several successful programmes in Asia have reinforced these factors more than the others.

Since the donor and recipient are both members of the society, the transplant based on beneficence and altruism is appreciated and therefore sale or commerce in transplantation is looked down upon.

The ethical principles in transplantation are universal and poor resources should not be any excuse for promoting transplantation for only those who could pay.

L36

SIXTEEN YEARS OF LIVING DONOR LIVER TRANSPLANTATION IN EGYPT: WHAT HAVE WE LEARNED?

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The absence of a cadaveric liver transplantation program in Egypt 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 800 cases of LDLT in three transplant programs. This is mainly an adult program with only three paediatric cases and only three left lobe donations. The remaining cases were right lobe donations of which four were for retransplants.

Donor safety has been of primary concern in our programs. Donors were 18 to 45 years of age with a mean of 30 and ABO-compatible. Liver biopsy was done routinely in all donors and 30% revealed abnormal findings resulting in their rejection, in spite of normal tests stressing the importance of routine liver biopsy in donors.

There were no donor mortalities and donor complications were classified using the Clavien grading system with all complications within grades I and II. The residual liver volume was always kept at or above 35.

The mean age for recipients was 44 years, MELD 21, and BMI 26 with HCV constituting 95% of the cases.

Associated Hepatocellular carcinoma (HCC) has been the indication in 23.6% of cases with 95% of those within the Milan criteria.

Biliary complications have been an initial challenge
being a cause of mortality in 0.5% and morbidity in >10% of cases in the initial 130 cases analyzed. Modification of the surgical technique and selection criteria has eliminated the mortality from biliary complications in LDLT.

Overall 1-, 3-, and 5-years survival rates for all patients were 98.3%, 93.5%, and 71.4% respectively. Overall disease-free survival for hepatocellular carcinoma patients at 1, 3, and 5 years were 96.6%, 93.5% and 64.2%, respectively. Comparing patients within and beyond Milan, the overall survival time was statistically non-significant among both groups. Factors affecting recurrence were tumor grade, lobar distribution, size of the largest nodule, and total tumor burden in the explanted liver. Recurrence adversely affected survival.

**L37**

THE IMPACT OF THE RELIGIOUS ATTITUDE ON THE PUBLIC: LEBANESE EXPERIENCE

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*Vice-President, NOD-Db, Department of Nephrology, LAU, Beirut, Lebanon*

A favorable attitude of the national faith leaders plays a major role not only in encouraging families to consent to deceased donation but it also influences the performance of the health professionals.

Relaying this favorable attitude to the local faith leaders in close contact with their respective congregations should be even more effective.

**L38**

INCREMENTAL PROGRESS AND BENEFITS OF TRANSPLANTATION SYSTEM IN KAZAKHSTAN

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*JSC National Research Medical Center, Astana, Kazakhstan*

Since 2011 due to the development of transplant system in Kazakhstan our medical centers have performed more than 1000 lifesaving or life-enhancing transplants in Kazakhstan. Of those, over 70 percent were kidney transplants.

Organ transplantation leads to important individual benefits for patients and to economic benefits for government. It was proved that the transplantation is the best cure for patients with end-stage kidney disease, and the only treatment for patients suffering from end-stage liver, heart and lung diseases. It was also confirmed that a kidney transplant the most cost-effective method of treatment for patients with end-stage kidney disease and compare to dialysis can more than double a patient’s life expectation.

Kazakhstan still has a shortage of organs, although the modest increases in transplant numbers. Proper training in organ transplantation for health management professionals has progressed to create a culture of donation and varies considerably across the country and hard work will continue on this area.

In conclusion, the governmental support continued movement forward in a focused and collaborative manner to advance transplant system where possible. Transplant system across Kazakhstan has seen consistent improvements, and those strategies that have been proven successful in Kazakhstan.
RESULTS OF KIDNEY TRANSPLANTATION IN KYRGYZ CITIZENS

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National Center of Maternity and Childhood Welfare, National Hospital, Bishkek, Kyrgyzstan

Introduction: The purpose of this review is the evaluation of kidney transplantation in Kyrgyzstan for 17 years.

Materials and Methods: The analysis was carried out of 204 patients after kidney transplantation in Kyrgyzstan for the period 1999-2016. Children 19 patients, the average age of children at the time of transplantation 13.1 ± 0.5 years, the ratio of boys 73.6%, girls 26.3%. Adult 185 patients, mean age 31.7 ± 0.4 years, men 68.6%, women 31.4%.

Results: The frequency of Chronic Kidney disease of end-stage (CKD 5) in Kyrgyzstan varies from 13.2 per 100,000 population.

The main cause of CKD 5 in both adults (85.4%) and children (47.4%) was glomerulonephritis (GN). The abnormality of the urinary system ranks second in children in the cause of CKD 5.

The frequency of kidney transplantation in children is 0.9 per 100,000, in adults 4.9 per 100,000 population. The history of transplantation in Kyrgyzstan began in 1999, and it should be noted that the greatest increase in the number of patients after transplantation falls from 2011 and reaches a maximum by 2016 from 17 to 44 patients per year.

The place of transplantation is characterized by diversity, so the number of transplants in Turkey and Pakistan prevails, the second place is Kyrgyzstan, Tajikistan and Kazakhstan. The beginning of kidney transplantation in Kyrgyzstan falls on 2012, with an average of 3 transplants per year per year.

The largest part of transplantations (80.3%) was nonpreemptive and duration of hemodialysis was 8 months ± 2.2 months. Preemptive kidney transplantation was only 19.6% (40 of 204), amount of children is 21% (4 of 19), adults is 19.4% (36 of 85). For the most part, with the kidney transplantation, the donors were relatives (69.6%), unrelated 28.4%, cadaver 1.9%.

Complications were equally frequent urinary tract infections (3.4%) and chronic transplant nephropathy (3.9%). Mortality rate was 8.8%, with the greater part for the first 6 months from the prescription of transplantation, which was more related to impaired immunosuppressive therapy.

Table 1. Etiology of CKD 5

<table>
<thead>
<tr>
<th>Type</th>
<th>Adult (%)</th>
<th>Children (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GN</td>
<td>85.4%</td>
<td>47.4%</td>
</tr>
<tr>
<td>DM II type</td>
<td>5.4%</td>
<td>0</td>
</tr>
<tr>
<td>unknown etiology</td>
<td>7.5%</td>
<td>0</td>
</tr>
<tr>
<td>Anomaly of the urinary system</td>
<td>1.1%</td>
<td>31.5%</td>
</tr>
<tr>
<td>Gout</td>
<td>0.5%</td>
<td>0</td>
</tr>
<tr>
<td>Alport</td>
<td>0</td>
<td>15.8%</td>
</tr>
<tr>
<td>AKI</td>
<td>0</td>
<td>5.3%</td>
</tr>
</tbody>
</table>

Table 2. Frequency of kidney transplantation

<table>
<thead>
<tr>
<th>Year</th>
<th>Transplantation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>1</td>
</tr>
<tr>
<td>2001</td>
<td>1</td>
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<tr>
<td>2003</td>
<td>2</td>
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<tr>
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<td>2013</td>
<td>48</td>
</tr>
<tr>
<td>2014</td>
<td>44</td>
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</table>

Table 3. Regional characteristics of transplantation

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>5</td>
<td>25</td>
<td>104</td>
<td>13</td>
<td>2</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Pakistan</td>
<td>11</td>
<td>11</td>
<td>12</td>
<td>11</td>
<td>12</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Turkey</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Conclusions:
1. The young age of patients requiring transplantation is 31.7 ± 0.4 years and the predominance of glomerulonephritis in the cause of CKD 5 requires early diagnosis of kidney pathology.
2. It is necessary to obtain informed consent for candidates for kidney transplantation describing the risks of transplant complications associated with impaired immunosuppressive therapy.
3. Development of kidney transplantation in Kyrgyzstan will improve the quality and life span of patients with terminal renal failure without leaving the republic.
ORGAN DONATION IN KAZAKHSTAN
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Rapid progress of medical sciences in recent years has turned the organ transplantation into a well-established procedure for management of renal, liver, cardiac, and respiratory failure. Although, a serious problem is that a shortage of organs still remains in Kazakhstan.

In 1979 the first kidney transplantation was performed in Kazakhstan and operation itself was technically successful, but the lack of immunosuppression caused graft rejection, and the patient died after few days.

Due to government policy an organized organ transplant program started from 2012 and the program was supported by Ministry of Health. During this period a well-designed program of transplant organization has been established. In Kazakhstan each potential donor hospital has a transplant coordinator who is responsible for the whole process of organ procurement. Ten transplant centers are working currently in Kazakhstan, and more than 1000 transplantations has been performed up to the year 2017. We found that renal, liver and cardiac transplants increased since coordination program started.

We conclude that this program was successful in Kazakhstan and organ donation, procurement, and transplantation would become commonplace events to solve the problem of the organ donor shortage.

SURGICAL CHALLENGE IN PEDIATRIC KIDNEY TRANSPLANTATION (VASCULAR ANASTOMOSIS)

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Surgical challenge occasionally must be faced in pediatric kidney transplantation. Particularly, vascular anastomosis should be considered for children with small body weight less than 12kg, vascular anomaly and blockade of IVC. Living donor renal graft is usually donated from their own parents. Therefore, renal artery and vein are too large to make anastomosis with recipient's iliac artery and vein. In such a case, renal artery and vein should be anastomosed directly with aorta and IVC, respectively.

However some children have already lost IVC partially or totally due to past-operation or procedures. Venous anastomosis site should be researched and planned following venous detailed examination. We have experienced 13 pediatric kidney transplantations for children with blockade of IVC. Seven and 6 grafts were placed in left or right side in recipients. Patent segment of IVC, left renal vein, ascending lumbar vein, azygos vein, 1st graft renal vein, and portal vein were used for venous anastomosis in 6, 2, 2, 1, 1 and 1 recipients, respectively. One child lost graft and one died immediately after operation. Three have functioned the grafts relatively long-term, but lost graft 100, 122, 137 months after operation. However, remained 8 recipients have so far kept graft function for 6 to 141 months since transplantation.

We have burdened a great risk for vascular surgery in pediatric kidney transplantation, however we will promote challenge for a benefit for children with end stage renal disease.

SURGICAL CHALLENGE IN PEDIATRIC KIDNEY TRANSPLANTATION (LOWER URINARY TRACT ABNORMALITY)

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Lower urinary tract abnormality (LUTA) is difficult to be resolved in pediatric kidney transplantation. Measure of residual urine, voiding cystourethrography, retrograde urethrography, cystometry, electromyography of urethral external sphincter muscle, urethrometry, and uroflowmetry are major studies to evaluate LUTA. Endoscopic resection of urethral valves in children with posterior urethral valve. Intravesical pressure should be controlled below 35~40cmH2O under administration of anti-cholinergic drugs and catheterization. Otherwise Vesicoureteral reflux (VUR) by high vesical pressure make worse graft function. Urinary diversion such as Mitrofanoff procedure using an appendix, Monti procedure using ileum, ileal or colonal conduit, cystostomy and augmented cystoplasty are indicated in terms of a type of LUTA. Recently we prefer continental diversion to incontinent one for self catherization. We have experienced 11 augmented
cystoplasties using sigmoid colon or ileum. Ten years' graft survival rate was 98% in children with LUTA. LUTA is not a really risk factor for pediatric kidney transplantation, however preoperative evaluation of LUTA is important to choose the best option for urinary diversion.

L43

RABIES ACQUIRED THROUGH KIDNEY TRANSPLANTATION

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Introduction: Rabies is usually transmitted to humans through bites of infected animals; however, it can rarely be transmitted through deceased donor organs or tissues when not suspected. Here, we report a case of rabies transmission in a child.

Case Report: The child was a 5-year-old girl who was admitted to the pediatric intensive care unit with encephalitis of unexplained cause 3.5 months after she received a kidney transplant from a deceased donor. The laboratory and imaging studies did not reveal any explanation for her rapidly declining clinical and neurologic condition, which ended up with death 4 days after admission. Death of another recipient from the same donor led to an investigation, which revealed rabies as the cause. Both corneas were explanted from other recipients to prevent further death. Polymerase chain reaction sequence analysis of the corneas was consistent with a rabies virus from the same donor's state of residence.

Conclusion: Rabies transmission, although rare, should be suspected when a donor comes from or has visited endemic countries. Donors with unclear causes of death should be rejected.

L44

OUTCOMES OF 335 PEDIATRIC KIDNEY TRANSPLANTS

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Introduction: Kidney transplantation plays an important role in the treatment of end-stage kidney disease to improve the quality of life and prolong the life of pediatric patients. This study aims to evaluate the outcomes of pediatric kidney transplantation in our centre.

Materials and Methods: Since November 1975, we performed 2646 RT procedures at two different centers by the same transplantation team. 335 of them were children (age ≤ 18 y). We reviewed the medical records of these 335 recipients for the following: primary cause of liver failure, age, and weight at the time of transplantation, type of graft, and medical outcomes of the recipient and donor. 110 (32.8%) were deceased donor transplantation (DDT) and 225 (67.2%) were living donor transplantation (LDT). At our institution, we perform renal arterial anastomoses and ureteral anastomoses by means of a corner saving technique. There was no major donor morbidity or no donor mortality.

Results: 210 of the patients were girl and 125 were boys with a mean age of 13.6±4.1 yo (range, 1–18 y). During the early postoperative period; we had 2 renal artery thrombosis (RAT), 1 renal artery kinking (RAK) 2 renal vein thrombosis (RVT), and 2 renal vein kinking (RVK). We performed surgery in 6 patients. We performed thrombectomy for RAT and RVT and for renal artery or renal vein kinking we rearranged the position of grafts. Urinary leak was revealed in 6 patients during the early postoperative period. During the late follow up period, renal arterial stenosis was identified in 3 patients and they were managed with percutaneous angiography and stenting. The 5-year patient survival rates were 91.9%. There were 27 patients who died during follow-up period. One patient died at the early stage of transplantation due to intracranial hemorrhage. Twenty six patients died at the late follow up period (15 urinary sepsis; 4 ARDS; 4 cardiac deaths; 2 cranial hemorrhages; 1 traffic accident).

Conclusions: Graft survival dramatically increased over the past years and is now superior to those observed in adult kidney transplantation, particularly in experienced team with microsurgery skills.
L45

STEM CELL PRESERVATION AND THERAPY

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Transmedical For Life S.A.R.L, Beirut, Lebanon

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. 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.

L46

GENOME ENGINEERING FOR STEM CELL TRANSPLANTATION

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Human genomic field research has focused on the pluripotent Stem Cells (PSC) recently. Manipulation of human genome produced opportunities for evaluating of normal and diseased genes, drug efficacy, innovation of gene-therapies, and performing site-specific manipulations within the genomes. To avoid many ethical issues from using of Embryonic Stem Cells (ESC), genome engineering could be used by Inducible Pluripotent Stem Cells (iPSC) which could develop into all three germ layers and is identified by absence of any chromosomal abnormalities, the detection of methylation patterns of iPSC, and finding of pluripotency markers. Editing of genomes is started with breaking in chromosomal DNA. In the repairing process non-homologous end joining (NHEJ) and homologous repair (HR) play active roles. Cleavage properties of the nuclease domain of the FokI are responsible for zinc finger nucleases (ZFNs) or transcription activator-like effector nucleases (TALENs). Recently Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) systems, derived from bacterial improved the genome editing, and caused widespread application of genome engineering techniques. CRISPR–Cas9 system is a potent system for genome editing. The most common types of genome manipulations performed using CRISPR–Cas9 include gene knockouts, or knock-ins through substitution of a target genetic sequence with a desired donor sequence. Two types of genome engineering will be happened: homologous or non-homologous DNA repair by the Cas9 nuclease. The delivery of the CRISPR–Cas9 and target donor vectors in hPSCs can be accomplished in multiple ways, including viral delivery and non-viral methods. The non-viral delivery methods include lipid-mediated transfection (lipofection) and electroporation. It has become the most common and efficient in vitro delivery methods in hPSCs. The CRISPR–Cas9 system can be combined with iPSCs to generate single or multiple gene knock-outs, correct mutations, or insert reporter transgenes. Additionally knock-outs can also be utilized to investigate epigenetic roles and targets, such as investigating DNA methylation. CRISPR could be combined with hPSCs to explore the genetic determinants of lineage choice, differentiation, and stem cell fate, providing the ability to evaluate the contributions of various genes or noncoding elements to specific processes and pathways. CRISPR–Cas9 system plays also as a null or 'nuclease-dead' Cas9 (dCas9), which has no enzymatic activity but has been utilized
through fusion with other functional protein domains. In conclusion RNA-guided genome targeting will have broad implications for synthetic biology, direct perturbation of gene networks, and targeted ex vivo and in vivo gene therapy in the near future.

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STEM CELLS AND AUTOIMMUNITY

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Autoimmune diseases (AD) are a group of heterogeneous disorders, affecting 5-8% of the population. They were traditionally classified as “organ specific AD” such as autoimmune thyroiditis and diabetes mellitus type I, where the organ failure can be improved by a replacement otoptherapy or an organ transplant, and as “diffuse or systemic AD”, including Systemic Lupus Erythematosus (LED), Vasculitis, Rheumatoid Arthritis (RA), Scleroderma (SSc), Multiple Sclerosis (MS) and other inflammatory bowel diseases, where treatment is more difficult. In most cases conventional immunosuppressive therapy, allows control of the AD diseases but definitive cure is rarely achieved and life-long immunosuppression is required with high morbidity and related mortality. In this context, new therapeutic approaches are warranted.

Over the past two decades, based on innovative animal and clinical data, more than 3000 patients worldwide have been treated by hematopoietic stem cells transplantation (HSCT) for an autoimmune disease. The patients have been reported from European Bone Marrow Transplant Association (EBMT), Center for International Blood and Marrow Research (CIBMTR) and Asian registry, with impressive clinical results, never previously observed in severe AD with any other therapies. Recently, three mayor innovations enriched our current therapeutic approach and opened new perspectives in the field of use of cord blood and in the pathogenesis of autoimmunity. First was the discovery of bone marrow (BM) stromal cells or mesenchymal stem cells (MSCs), which can be obtained from any other human tissues including umbilical cord based on immunomodulation and immunosuppressive properties of MSCs and on their regenerative potential. Second, after the first successful umbilical cord blood (UCB) transplantation in 1988, UCB has been increasingly used as a source of cells for HSCs to treat patients with non-hematopoietic diseases. Finally, the progress in the identification of the genetic background of each type of AD, and the differences between autoimmunity and autoinflammation, shed new lights in the field of autoimmunity.

A recent survey from all published literature on clinical use of UCB for non-hematological disorders, yielded a number of more than 700 publications, most of them referred to the use of hematopoietic stem cells in autoimmune diseases. Most studies were performed in China, and used unprocessed bulk cells from UCB that were cryopreserved in accordance with standard of UCB banking. Interestingly, MSCs expanded successfully from tissue of cord (Wharton’s jelly ) or from placenta itself, enhance the yield of MSCs expansion from UCB. The majority of patients received HLA compatible cord blood cells or third party MSCs expanded in vitro. Past and future developments in the field of autoimmunity and cord blood have shown that according to Ikehara's first hypothesis AD is an hematopoietic stem cell disorder.

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NEXT GENERATION SEQUENCING: PRECISION MEDICINE OPPORTUNITIES IN SOLID ORGAN & HEMATOPOIETIC CELL TRANSPLANTATION

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Next-generation sequencing (NGS) is a conceptual revolution in molecular biology. For the first time ever, Nature methods named a method, the method of the year in 2008. NGS was that method. NGS has not only radically changed research and clinical practice; it has also opened the door for many research and clinical investigative opportunities. This presentation will highlight current opportunities NGS brings the arena of clinical diagnostics. The NGS technology’s capacity to yield high throughput genotyping results that are clinically relevant for both solid organ & hematopoietic cell transplantation (HCT) will be discussed. The presentation will also highlight the clinical relevance and impact of leveraging high throughput NGS based clinical testing in the domain of precision transplantation medicine both in solid organ and hematopoietic cell transplantation.
BIOTECHNOLOGY OF TISSUES AND ORGANS IN TRANSPLANTATION

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Tissue and organ failure, produced as a result of injury or other type of damage, is a major health problem. Treatment options include transplantation, surgical repair, artificial prostheses, mechanical devices, and in a few cases, drug therapy\textsuperscript{1-3}. A limitation that follows transplantation is the availability of tissues and organs worldwide. This results to increased mortality of patients that are waiting for an organ in order to be transplanted\textsuperscript{1-3}.

The field of biotechnology may provide an alternative approach to overcome the current limitations in transplantation of tissues and organs\textsuperscript{4}. Biotechnology is an evolving science that includes regenerative medicine, tissue engineering, genomic engineering and microbial engineering. Regenerative medicine and tissue engineering focus on tissue and organ development, capable of transplantation in patients\textsuperscript{4,5}. The engineering of large tissues is limited by the fact that these tissues require the rapid development of a mature vascular bed for oxygen and nutrient supply\textsuperscript{4,5}. On the other hand, engineered skin and cartilage are in clinical trials, as well as first attempts to implant tissue-engineered heart valves in the pulmonary position in humans. Nowadays, several transplantations with bioengineered constructs have been performed in humans with tissue-engineered trachea in 2008 and 3D printed skull in 2014 to be of great importance\textsuperscript{5}. Additionally genomic engineering could stochastically provide an alternative strategy for organ and tissue development with the use of animal subjects. A great effort has been done in the development of porcine organs without the presence of a-gal epitope, providing a candidate source. Also, there is a strong connection between microbial engineering and transplantation given though that the immunosuppressive drugs such as cyclosporine are made in engineered bacteria\textsuperscript{6,7}. Since the first successful organ transplantation in 1954, transplantation has become a worldwide therapeutic approach for end-stage organ failure.

In conclusion, the field of biotechnology is an advancing and rapidly opening new era that possibly can provide novel options in transplantation for patients with life-threatening diseases.

References


Oral Presentations
KAPOSI SARCOMA IN THE ERA OF RAPAMYCIN: STILL CAN BE A THERAPEUTIC CHALLENGE IN ORGAN TRANSPLANT RECIPIENTS

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Introduction: Kaposi sarcoma (KS) is a multicentric neoplasm of lymphatic endothelium-derived cells infected with human herpes virus 8. Transplant recipients are at higher risk for KS, which affects 0.2-11% of them. Reduction of immunosuppressive drugs and a switch from calcineurin inhibitors to mTOR inhibitor rapamycin suggest an effective first-line treatment modality in most of the cases.

Case Report: A 64-year-old female patient was referred to our clinic for the presence of two painless lesions on her arm and foot that had been present for a month. She had undergone renal transplantation 3 months ago (April 2013), and was on maintenance immunosuppression with prednisolone (20 mg∕day), tacrolimus (2 mg∕day), and mycophenolate mofetil (720 mg∕day). Dermatological examination disclosed violaceous indurated plaques of 2 cm in diameter located on the left forearm and left ankle, while her physical examination was unremarkable. The diagnosis of KS was based on histologic examination and HHV-8 immunohistochemistry. Endoscopic examination disclosed violaceous indurated plaques of 2 cm in diameter located on the left forearm and left ankle, while her physical examination was unremarkable. The disease extent corresponded to stage 3. Although reduction of immunosuppressive drugs and switch from tacrolimus to rapamycin were performed immediately, new cutaneous lesions arose in clusters on lower legs accompanied by edema within the following 4 months. Therefore, propranolol (1 mg∕day) was added to her treatment. Yet, lesion counts increased, satellite like papules and exophytic nodules arose and enlarged within time causing difficulty in walking. However, since asymptomatic lesions of gastrointestinal system revealed involvement of sigmoid colon and gastric mucosa, while lymph node ultrasonography, chest X-ray, chest and abdomen computed tomography showed no abnormal findings. The disease extent corresponded to stage 3. Although reduction of immunosuppressive drugs and switch from tacrolimus to rapamycin were performed immediately, new cutaneous lesions arose in clusters on lower legs accompanied by edema within the following 4 months. Therefore, propranolol (1 mg∕day) was added to her treatment. Yet, lesion counts increased, satellite like papules and exophytic nodules arose and enlarged within time causing difficulty in walking. However, since asymptomatic lesions of gastrointestinal tract were found to be stable on endoscopy at 9-month follow-up, systemic chemotherapy was not planned. Finally, regression of the lesions has been started after the 11th month, and now at 4-year follow-up 90% of the cutaneous lesions got cleared leaving postinflammatory hyperpigmentation.

Conclusions: Post-transplant KS can still be a therapeutic challenge in some of the patients, as tapering down immunosuppressive drugs to the lowest possible level in conjunction with a switch to rapamycin does not always lead to stable asymptomatic disease or it can take a long time. Cryotherapy, laser, surgery, intralesional chemotherapy, and imiquimod are not good options when the lesions are numerous and widespread as in our patient. Furthermore, radiotherapy is not recommended in this patient population as it increases the risk of cutaneous neoplasms.

INVESTIGATION OF MIRNA EFFECTS ON ALLOGRAFT SURVIVAL IN PATIENTS WITH KIDNEY TRANSPLANT

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Introduction: A major obstacle in the management of kidney transplant recipients is the lack of specific biomarkers for continuous monitoring of graft function post-kidney transplantation (KT). The current gold standard is the histological evaluation of biopsies. Additional markers such as serum creatinine (Cr), estimated glomerular filtration rate (eGFR) and/or proteinuria are routinely used to monitor graft function. Unfortunately, these currently available methods are either ineffective, inaccurate, or invasive and suffer from limitations in predicting outcomes. Micro RNAs (miRNA) are non-coding RNAs that are approximately 19 – 25 base long. miRNAs are responsible for DNA and protein biosynthesis and function as well as cell regulation and pathogenesis via posttranscriptional regulations of the genes. miRNAs can be used as a diagnostic, prognostic and therapeutic tool in different medical circumstances such as kidney transplantation, ischemia-reperfusion injuries, humoral rejection and viral infections. In the long view, follow-up of kidney transplantation patients will be possible by genome-wide miRNA profiling from different biological samples. Hereby miRNA studies have a greater importance in organ transplantation. Previous studies have shown that miR142 is a potential biomarker in kidney rejection of transplantation patients.

Materials and Methods: In this study, we evaluated the kidney rejection related 9 miRNAs (hsa-miR-16-3p / hsa-
miR-32-5p / hsa-miR-142-5p / hsa-miR-146a-5p / hsa-miR-150-5p / hsa-miR-181a-2-3p / hsa-miR-181b-5p / hsa-miR-192-5p / hsa-miR-210-3p and control miRNA small nucleolar RNA, C/D box 61) in 100 patients (50% of 100 patients (n=50) had rejection and 50% (n=50) had no rejection) who had kidney transplantation. We performed the assay on serum/plasma samples with using Real-Time PCR methods for detection and quantification. This study was approved by Baskent University Institutional Review Board (Project no: KA16/199) and supported by Baskent University Research Fund.

Results: We observed significant differences in miR142-5p and miR192-5p (in rejection group) expressions in the patient groups.

Conclusions: Anglicheau et al. determined the over-expressions of three miRNAs (miR-142-5p, -155 and -223) in the cases with T-cell acute rejection. Ben-Dov IZ et al. detected the upregulation of four miRNAs (miR-21, miR-142-5p, miR-142-3p and miR-506) and the downregulation of two miRNAs (miR-30 b and miR-30c) in the assay performed from allograft biopsies and urine samples. It has shown that specific genes have roles in kidney rejections. It is hypothetically thought that RUNX3 gene is targeted by miR145-5p. Increasing the miR145-5p expression has a possible effect on RUNX3 regulation. Therefore it is considered that miR145-5p expression serves a function in kidney rejection. Furthermore, miR192 targeting CD44, PRKCB1, PSMB9 and SERPING1 genes are also under consideration. Thus, the decreasing of miR192-5p gene expression is related to kidney rejection via affecting the associated genes and pathways.

03

PSYCHOSOCIAL EXPERIENCES OF KIDNEY TRANSPLANT PATIENTS BEFORE AND AFTER TRANSPLANTATION

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Introduction: Physical, emotional and economic aspects of transplantation are an important life experience for the patient and family. Good organizational success in transplantation, surgery preparation and post-operative care is extremely important as well as biopsychosocial care and rehabilitation. Care interventions should be based on the individuality of the patient and should be undertaken in line with requirements.

Materials and Methods: In this research, in order to identify the psychosocial problems of the patients and to collect comprehensive information on their experiences in the transport process, phenomenological type of design among qualitative research types was used. The research population was consisted of 15 patients from the province of Antalya, Akdeniz University Hospital, Organ Transplant Center which were planned to have organ transplantation. The Sample was determined with the techniques like "purposive sampling" and "quota sampling", which were used in the qualitative research. Data were collected by semi-structured form, in-depth individual interview. A week in the hospital before and after surgery, including two interviews were done after 6 months. Content analysis data were analyzed with SPSS17 and N-Vivo7 program.

Results: The average age of participants was 38, 53.3 % were male, 33.3 % were primary school graduates, 13.3 % were unable to work, 73.3 % were married, renal failure period of the patients was 7.3 years, 60% were hemodialysis patients, average transplant waiting period was 4.5 years, 66.7% of them had a live donor transplants, the donor of 20% were their mothers and the donor of 20.0% were their wives or husbands. Pre-transplant themes; Experiences and Perceptions of Coping (illness perception, anxiety, interpersonal relationships, individual coping), the Emotions Regarding to transplantation (the meaning of organ transplantation for individuals), Posttransplant themes; Early Experiences (being happy or living strain); Long-Term Experience (mood changes, changes in self-perception, the meaning of organ transplantation for the individual, interpersonal relationships, productivity, individual coping studies, perception of the body, feelings towards organ donor) as thus categorized reached a large number of sub-themes.
Conclusions: This research is thought to contribute to the limited literature and expected to lead to new research.

## O4

### QUALITY OF LIFE THROUGH GENDER ROLE PERSPECTIVE IN CANDIDATE RENAL TRANSPLANT RECIPIENTS: A REPORT FROM A BASKENT UNIVERSITY USING THE SF-36 HEALTH SURVEY

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### Introduction:
End-stage renal disease (ESRD) patients have to face negative impacts of being dependent on some devices and people in both physical, psychological and social life dimensions. This dependence also did not end and continued lifelong even after transplantation. In this study, we aimed to evaluate the ESRD patients’ quality of life through “Gender Role Perspective” who were receiving hemodialysis (HD) treatment and that were on waiting list for transplantation.

### Materials and Methods:
This study conducted at Başkent University Adana, Ankara and Istanbul HD centers. Total 378 patients (F/M:190/188) filled SF-36 health survey questionnaire voluntarily to evaluate the quality of life. All components (Physical Functioning, Psychological Functioning, General Health, Global) of the SF-36 questionnaire were analyzed separately, and its scales and dimensions scored as a number between 0 and 100. To perform the SF36 measurements in our patients, we reformatted the questionnaire into Turkish. All participating patients were able to answer the SF36 questions independently within 10 to 30 min while undergoing HD treatment. Also, all social and educational life dimensions analyzed with another questionnaire form.

### Results:
The mean age of the participants was 54±16.5 years. The quality of life found to decrease with increasing age. The SF36 total score was higher in men (44.7±19.2) compared with that in women (36.1±7) (p<.01). There were statistically significant differences between the two genders regarding physical health or mental health dimensions (p<.05). The gender of the family member who was supporting patient found to have a significant influence on SF36 scores. Patients with female supporters had highest SF scores (p<.001). The lowest SF36 scores observed in patients who supported by their son and daughter in law. When we compare the educational levels of the cities, Ankara has the highest percentage of the high education (university degree 31.5%) whereas Adana has the lowest (3%) (p<.001). The components of quality of life found to increase with increasing degree of educational level (p<.001). Also, when all cities analyzed we discovered that the components of quality of life were higher in patients living in Ankara compared to patients living in Istanbul and Adana (p<.01). Average time on HD treatment, the number of weekly HD sessions, mean time of the disease, the mean duration of the disease to the first visit to the medical center, the number of abandon of HD sessions showed a negative relationship with all components of quality of life (p<.05). The history of renal transplantation did not show any influence on SF scores.

### Conclusions:
We found that gender, education level, social status and the home city of patients had a strong impact on the quality of life. Thus it is important to educate patients for both gender mainstreaming and health issues before the transplantation to increase the recipient’s physical health or mental health dimensions.

## O5

### LIVER BIOPSY RESULTS IN POTENTIAL DONOR EVALUATION IN LIVING RELATED LIVER TRANSPLANTATION

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### Introduction:
Living donor liver transplantation has been increasing due to the growing discrepancy between the number of patients in waiting lists for liver transplant and the availability of deceased-donors. The evaluation of potential liver donors should ensure the safety of the surgical procedure for the donor. In addition to this, preoperative tests should identify donor grafts that pose risks for the recipient. Liver biopsy is the gold standard for selecting optimal donors. Our aim in this study is to
Oral

evaluate the results of preoperative liver biopsy of potential donors.

Materials and Methods: Between December 1988 and June 2017, we performed 570 LT procedures at our centers (age range, 6 mo - 64 y). We evaluated the data of 611 living related liver donor candidates that we performed liver biopsy between January 2001 and June 2017.

Results: We performed liver biopsy in 611 liver donor candidates (320 male, 291 female) (age range 18-69 years). Among these candidates, 320 liver biopsy were reported as normal (52.3%); 291 liver biopsies had pathological findings (47.7%). Of 291 donors with pathological findings; 62 (21.4%) had fatty changes, 14 (4.8%) had steatohepatitis, 215 (73.8%) had other pathological findings (like fibrosis, hepatitis, portal inflammation, hepatocellular swelling).

Conclusions: The high rate of pathological findings in liver biopsy of donor candidates with healthy-appearing livers pointed the importance of liver biopsy in preoperative evaluation of donors.

O6

NEUROLOGIC COMPLICATIONS OF LIVER TRANSPLANTATION IN ADULT PATIENTS WITH THE HEPATIC FORM OF WILSON’S DISEASE

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Introduction: Wilson’s disease is an autosomal, recessive, inherited disorder of copper metabolism that results in the accumulation of copper in many organs and tissues. This disease is mainly characterized by dysfunction due to copper accumulation in the liver, kidney, brain, cornea, bone, heart and blood cells (1). The clinical spectrum is very broad in Wilson’s disease. Asymptomatic Wilson’s disease may be present, but findings related to the involvement of each organ or multiple organ failure can be seen. Neurological findings in Wilson’s disease include tremor, motor control loss, rigidity, dystonia, dysarthria, dyspraxia, ataxia, extrapyramidal. Brain Magnetic Resonance Imaging (MRI) is typical of this disease (2). Our aim here is to determine the neurological complications and to pass on our clinical experience in patients who underwent transplantation for Wilson disease in our clinic.

Materials and Methods: We retrospectively reviewed the records of transplant patients with Wilson’s disease in Baskent University Faculty of Medicine between 2005 and 2017. We recorded the patient demographics, neurological complaints, neurological examinations, imaging findings from each patient’s file records. We also recorded the Kayser-Fleischer ring presence, serum ceruloplasmin, the amount of copper in 24-hour urine, and the amount of liver dry copper in each patient.

Results: A total of 19 transplant patients were enrolled in the study. The age range of patients is between 18 and 44 years (mean age: 26.5). Seven out of 19 patients had neurological symptoms (36.8%). These symptoms were tremor in 3 patients (15.7%), epileptic seizure in 2 patients (10.5%), encephalopathy in 1 patient (5.2%), and headache in 1 patient (5.2%). The causative agent of long-term neurological complications is immunosuppressive drugs. Patients with epileptic seizures were provided with levetiracetam for seizure control. Two sinus tremors were strain after liver transplantation in patients with tremor.

Conclusions: In Wilson’s disease, neurological complication is severe, the symptom seen is tremor. Early diagnosis and treatment may slow down neurological disability.

References:

O7

THE INFLUENCE OF THE REPERFUSION TECHNIQUE OF THE LIVER GRAFT ON HEMODYNAMIC PROFILES AND OUTCOMES OF THE LIVER TRANSPLANTATION

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Introduction: While initial portal reperfusion (PV) of a liver allograft is nearly standardized, limited data suggests initial hepatic arterial reperfusion (HA) may improve hemodynamics and posttransplant outcomes.
**Materials and Methods:** We retrospectively reviewed consecutive, adult, primary orthotopic liver transplants (OLT) performed between January 2011 and February 2015 at our center. Demographics, intraoperative of hemodynamics, use of vasopressors and antifibrinolytics as well as outcomes of liver recipients with initial HA reperfusion were compared to those with initial PV reperfusion.

**Results:** Of 204 recipients, 53 (26%) were initially perfused from the HA and 151 (74%) were initially perfused from portal vein. These two groups did not differ in terms of age, gender, MELD score, type of HA, PV, caval or biliary reconstruction. When comparing recipients with HA vs. PV initial reperfusion at 3 month and 1 year, there was no difference in the incidence of acute rejection (1.9% vs. 7.9% p=ns and 7.5% vs. 10.6%, p=ns), hepatic artery thrombosis (1.9% vs. 4.0%, p=ns and 1.9% vs. 7.3%, p=ns), biliary leakage (7.5% vs. 4.0%, p=ns; 9.4 vs. 6.6, p=ns), biliary strictures (7.5% vs. 5.3%; p=ns; 11.3% vs. 7.9%, p=ns) or portal and hepatic venous thrombosis/stenosis (5.7% vs. 5.3%, p=ns; 7.5% vs. 7.9%, p=ns). Furthermore, recipients with HA and PV initial reperfusion were both hospitalized for a median of 8.5 days (interquartile range [IQR], 6.5 to 15.5 vs. 7.0 to 14.0 days, respectively) and were both in ICU for a median of 3 days (IQR: 2 to 7 vs. 2 to 4 days, respectively). HA initial reperfusion was associated with significantly less intraoperative PRBC transfusion (median, 11.9 units; IQR, 11.1 to 13.1 units vs. 15.5 units; IQR, 12.9 to 17.9 units, p<.001). The two groups did not differ in terms of patient and graft survival. Intraoperative change of femoral and radial MAPs also similar in two groups. However, IHA reperfusion group use less vasopressors and fibrinolytics than IPV reperfusion group.

**Conclusions:** Initial reperfusion of liver allografts with arterial, rather than portal reperfusion has a benefit to hemodynamic stability resulted in less blood utilization. However, it did not have deleterious effects on outcomes of liver transplantation.
Oral

Oral (r= 0.339, p=.005) and negatively correlated with serum albumin levels (r=−0.0416, p=.0003). In subgroup analysis, demographic characteristics (age, gender, duration of dialysis before transplantation, post-transplant time) and biochemical parameters as serum calcium, phosphorus, parathyroid hormone, CRP, lipid profile and eGFR levels were similar. The mean Upr in group 1 was 214.9±10.4 and 71.1±8.8 mg/day in group 2. LVED (4.6± 0.09 vs 4.2 ± 0.13 mmHg, p= .001), LVMI (108.5 ± 7.1 vs 81.0 ±9.1 g/m2, p=.008), Upr (340.1 ± 28.8 vs 230.1 ±26.9, p=.049) levels were higher in group 1. In linear regression analysis, LVED (p=.011) and serum albumin (p=.009) were detected as the predictors of LVMI.

Conclusions: By this trial, we found that increased urinary sodium intake leads to increased risk of cardiovascular events in renal transplant recipients. Moreover, higher sodium intake may be an additional insult to chronic allograft dysfunction leading increased proteinuria; therefore limiting sodium intake should be an important goal in the follow-up of this group.

O9
PRE-TRANSPLANT RENAL ARTERIAL VASCULOPATHY PREDICTS POOR RENAL ALLOGRAFT SURVIVAL

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Introduction: Atherosclerosis and chronic allograft dysfunction share a common pathway of chronic low-grade vascular endothelial damage and inflammation. Renal transplant vasculopathy occurring after transplantation is a 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: In total 148 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. A 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. Univariate and multivariate Cox regression analysis (variables including gender, dialysis vintage, hypertension, hyperlipidemia, acute rejection, type of transplantation, mismatch and post-transplant calcineurin inhibitor usage for recipient and gender, advanced age, presence of renal arterial intimal thickening for donor) was done to determine potential predictors of allograft survival.

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=.0016). In univariate analysis, acute rejection (RR: 2.729, 95% CI: 1.496-4.977 P=.001), advanced donor age (RR:1.970, 95% CI: 1.038-3.736, P=.04) and renal arterial intimal thickening (RR: 2.466, 95% CI: 1.382-4.401, P=.002) were associated with decreased allograft survival. Multivariate Cox analysis showed that only acute rejection (RR: 3.585, 95% CI: 1.781-7.217, P<.0001) and renal arterial intimal thickening (RR: 2.642, 95% CI: 1.355-5.150, P=.004) were independent predictors of allograft survival.

Conclusions: In 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.

O10
URINARY TRACT INFECTIONS DURING THE FIRST YEAR AFTER RENAL TRANSPLANTATION: SINGLE CENTER EXPERIENCE

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Introduction: Urinary tract infection (UTI) is the most common infectious complication after kidney transplantation. We aimed to investigate the incidence of infections, the causative pathogens, and risk factors contributing to this complication during the first year after renal transplantation in our center.

Materials and Methods: Between October 1985 and December 2016 we performed 2689 kidney transplantation
procedures at our centers. The follow-up was standard for all recipients. We included demographic and clinical data of 987 patients who underwent renal transplantation (RT) in our hospital for statistical analysis.

Results: In 987 patients, we observed 521 episodes of UTI in 221 (22.3%) patients. These were classified as asymptomatic bacteriuria (56%, n=124), uncomplicated UTIs (25%, n=56), or complicated UTIs (18%, n=40), which included allograft pyelonephritis (4.9%, n=11). Fourteen patients (18%) developed recurrent UTIs (> 3 episodes). Thirteen patients had biopsy-proven allograft pyelonephritis. The most frequently isolated uropathogen was E. coli (58%). Renal graft function measured by GFR was significantly worse in patients suffering from UTIs from the baseline. However, the evolution of renal graft function did not differ significantly between patients with and without UTIs.

Conclusions: We would like to underline that defining risk factors allows more rapid diagnosis in patients with predisposing characteristics such as female gender, history of recurrent UTIs, vesico-ureteral reflux comorbidity and episodes of AR. Because E. coli is the predominating pathogen during the first year after RT, we should consider introducing an antibiotic intraoperative prophylaxis, which would act against these bacteria or would not promote their growth.

O11

INITIAL EXPERIENCE OF KIDNEY TRANSPLANTATIONS ON THE REGIONAL LEVEL OF KAZAKHSTAN

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Introduction: Kidney transplantation operations performed in case of terminal stage of chronic renal failure, and its implementation is possible in two versions – transplantation of the cadaveric kidney and living kidney transplantation. Thanks to the success of transplantation surgery, immunology, it became possible to save lives of many patients. Yet, there are still unresolved problems in transplantology. The program on organ transplantation in “Aktobe Medical Center” (AMC) started in October 2014. The beginning of the program preceded by careful training of relevant specialists and material and technical equipment to accompany transplantation at all its stages – organ harvesting to post-operative monitoring of recipients. For this, the necessary tools and the required equipment purchased. Our purpose was to analyze the initial three-year experience of kidney transplantation in the AMC.

Materials and Methods: The observation materials of 28 patients after kidney transplantation analyzed. Of these, 22 transplanted from living related donors, 6 from cadaver. After donor nephrectomy, the graft washed with a solution of “HTK” with heparin. In all cases, the renal vein and artery anastomosed with external iliac vessels as “end-to-side”. Ureteral anastomoses superimposed by the Lich-Gregoir technique. Immunosuppression was a three-component: CNI + MMF + steroids with Basiliximab induction.

Results: In AMC for the first three years, 28 patients transplanted. Causes of CKD were: chronic glomerulonephritis – 23 (82.1%), chronic tubulointerstitial nephritis – 5 (17.9%). The characteristics of the donors presented in Table 1. The youngest donor was 20 years old, the oldest – 59. In all 22 cases of related donors we used left kidney: 3 (13.6%) donors – open nephroureterectomy was performed, 19 (86.4%) – MALN. There were no complications with the donors. Six kidney transplants from 3 cadaveric donors performed. Kidney seizures were performed according to the standard method as part of multi-organ harvesting team (heart, lungs, liver, kidneys, cornea). In one patient high hyperglycemia and persistent anemia of severe degree has developed, which required a conversion from Tacrolimus to Ciclosporin. The effect was positive. During in-hospital stay of the recipients, rejections and lethal cases not observed. In one case due to development of purulent pyelonephritis and the loss of graft function, a transplantectomy was done. One-year survival of the kidney transplant and a one-year survival of patients is 96.5%. Mortality was in 1 (4.1%) recipient in the late postoperative period after an infection complication.

Conclusions: The results of the analysis of our initial three-year experience of kidney transplantation do not differ from the average results of domestic and foreign clinics. With the accumulation of experience, the immediate and long-term complications should be reduced to a minimum and the graft survival should approach the ideal indicators.

Table 1. Donor characteristics

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<thead>
<tr>
<th>Relative relations</th>
<th>Number</th>
<th>Age</th>
<th>Kidney</th>
<th>Nephrectomy</th>
<th>Days after operation</th>
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<tbody>
<tr>
<td>Father</td>
<td>1</td>
<td>59</td>
<td>Left</td>
<td>Open MALN</td>
<td>8±3±2 6±1</td>
</tr>
<tr>
<td>Mother</td>
<td>4</td>
<td>48±4±7.6</td>
<td>Right</td>
<td>Open MALN</td>
<td></td>
</tr>
<tr>
<td>Brother</td>
<td>11</td>
<td>37.5±8.5</td>
<td>Open</td>
<td>MALN</td>
<td></td>
</tr>
<tr>
<td>Sister</td>
<td>5</td>
<td>49.5±11.5</td>
<td>Open</td>
<td>MALN</td>
<td></td>
</tr>
<tr>
<td>Wife</td>
<td>1</td>
<td>34</td>
<td>Open</td>
<td>MALN</td>
<td></td>
</tr>
<tr>
<td>Deceased donor</td>
<td>3</td>
<td>38±6</td>
<td>3</td>
<td>3</td>
<td>“multi-organ” harvesting</td>
</tr>
</tbody>
</table>
Table 2. Early postoperative complications in recipients

<table>
<thead>
<tr>
<th>Complications</th>
<th>N</th>
<th>%</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute tubular necrosis</td>
<td>1</td>
<td>3.5</td>
<td>The function of the renal graft was restored on POD 21</td>
</tr>
<tr>
<td>Postoperative hemorrhage:</td>
<td>1</td>
<td>3.5</td>
<td>Reoperation, haemostasis</td>
</tr>
<tr>
<td>Lymphorrea</td>
<td>2</td>
<td>7.0</td>
<td>Stopped on day 21 and 24</td>
</tr>
<tr>
<td>Urinary anastomosis leakage</td>
<td>2</td>
<td>7.0</td>
<td>Reoperation – 1; Conservative – 1</td>
</tr>
<tr>
<td>Postoperative hernia</td>
<td>1</td>
<td>3.5</td>
<td>Planned surgery</td>
</tr>
</tbody>
</table>

**O12**

OUR EXPERIENCE WITH PAIRED KIDNEY EXCHANGE TRANSPLANTATION

Mehmet Haberal¹, Aydıncan Akdur¹, Feza Yarbuğ Karakayalı², Ümit Özçelik², Gökhan Moray³, Eyyüp Külah³, Ali İnal³, Adnan Torgay⁴, Gülnaz Arslan⁴

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**Introduction:** Paired kidney exchange (PKE) transplantation has gained popularity worldwide as the best alternative for renal recipient candidates who are sensitized to their donors or have ABO incompatible donors. In this study we present our early results of paired kidney exchange transplants.

**Materials and Methods:** We started our PKE transplantation programme in July 2015. Various incompatible pairs were matched depending upon the availability of suitable donors and compatible recipients. Matching and donor allocation was done manually. As far as possible, donors were matched for age and glomerular filtration rate. Before transplantation, a meeting was organized with all recipients and donors present. All details of the surgery as well as the legal and ethical requirements were given and informed consent was received. Induction was offered to all patients. Antithymocyte globulin induction therapy was administered at the time of transplantation as well as the third day posttransplant; tacrolimus (target level 8-10 ng/mL), mycophenolate mofetil (1g twice a day) and prednisolone were started as immunosuppressive therapy and tacrolimus was maintained with a target level of 6-8 ng/mL three months after the operation. All the patients were followed up twice weekly for the first two weeks, once weekly for the second two weeks, once a fortnight for the second and third months. Data were collected from medical records, including demographic data, follow-up serum creatinine, acute rejections, graft, and patient loss and infections.

**Results:** Seven pairs were matched during this time period and from July 2015 to September 2017 we performed 14 PKE (5 women, 9 men) transplants. Mean recipient age was 49.8±11.5 (range: 23-61) and mean donor age was 50.4±12.4 (range: 38-64) years. Five of the donors were fathers, one of them was a mother, 3 were husbands and 5 were wives. Mean mismatch ratio was 5±1 (range: 3-6). Reason for exchange was ABO incompatibility for 10 patients and positive crossmatch and presence of donor specific antibodies for 4 patients. All were two-way donations. Median waiting time for getting suitable donor after registration was 3 months. Two of the recipients were retransplanted and desensitization with plasmapheresis was needed for panel reactive antibody positivity. One patient underwent preemptive kidney transplant. Mean serum creatinine level at one month and at third month after transplant were 1.03±0.37 and 0.97±0.25 mg/dL. There were only two early biopsy-not-proven acute rejection episodes treated with pulse steroids and two urinary tract infections treated with oral antibiotics. In one patient external iliac artery was replaced with ePTFE vascular graft because of a complete dissection. All patients are alive with no serious complications.

**Conclusions:** ABO incompatibility continues to pose a serious problem for transplantation candidates, especially in kidney and liver transplants. Our small series shows that PKE transplantation is an alternative for patients without a viable living-related donor or deceased compatible donor organ. However, it is essential that such activities take place within the legal and ethical framework of both the national laws and the accepted international principles that govern transplantation.
THE IMPACT OF HISTOPATHOLOGICAL FEATURES OF PRIMARY TUMOR TO THE LONG-TERM OUTCOME OF LIVER TRANSPLANTS FOR HEPATOCELLULAR CARCINOMA: A 10-YEAR FOLLOW-UP

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Introduction: The aim of this study was to determine the impact of the histopathological features of the primary tumor to the long-term outcome of liver transplants for hepatocellular carcinoma (HCC).

Materials and Methods: Among 552 patients, a liver transplant was performed in 61 patients (11%) for the treatment of HCC. Histopathological features such as tumor grade, tumor size, the number of tumor nodules, lymphovascular invasion (LVI) and the tumor necrosis were noted. Patients reviewed in two groups; Group 1: patients beyond the Milan criteria, Group 2: patients within the Milan criteria. The mean follow-up time for all HCC patients was 77.9±41 months (1-156 months).

Results: Overall survival of transplanted HCC patients was significantly lower than those of patients with non-malignant diseases (10-year survival rates 54% and 73.8%, respectively). HCC recurrence was detected in only 14 patients. Overall survival rates of Group 1 were 56.4% and 43.6%. Overall, 5- and 10-year survival rates of Group 2 patients were 81% and 72.6% (p<.001). The disease-free survival found to decrease in recipients with increasing grade and tumor size (p<.01). Patients who had tumor necrosis, LVI, and multiple tumor nodules tended to show low survival (p<.05). A tumor size larger than 5 cm and the presence of LVI showed significant correlation with tumor recurrence and graft survival (p<.05). Group 1 patients who had high-grade, tumor necrosis and LVI tend to show poor prognosis compared to Group 1 patients who did not have these histopathological parameters (p<.05 for all).

Conclusions: In conclusion, a liver transplant is a safe and effective treatment option with promising results, even if the tumor is beyond the Milan criteria. Histopathological features are shown to be the best parameters to specify patients with poor prognosis.

25-OH VITAMIN D LEVELS BEFORE AND AFTER LIVER TRANSPLANT IN CHILDREN: IS THERE A RELATIONSHIP WITH ACUTE CELLULAR REJECTION?

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Introduction: Vitamin D has effects on bone metabolism and it also has effects on T cell functions. We aimed to determine the levels of vitamin D before and after liver transplantation in children and to investigate the effects of vitamin D levels on liver rejection.

Materials and Methods: 138 of 212 children who had liver transplantation between 2003 and 2015 in Başkent Hospital, were enrolled in the study. Patients divided to four main diagnostic groups as; cholestasis, cirrhosis, metabolic and acute liver diseases. Patient survival, biopsy-proven rejections and RAI scores, all 25-OH-vitamin D levels before and after transplantation, simultaneous liver function tests and season of vitamin D measurement were recorded. 25-OH-Vitamin D level of <15 ng/ml were recorded as deficient, between 15-20 ng/ml were recorded as insufficient and >20 ng/ml were recorded as normal. PELD and Child-Pugh scores were calculated in cholestasis and cirrhosis group.

Results: Vitamin D levels in 90 patients examined before liver transplant (LT) was deficient in 36.6%; insufficient in 23.3% and normal in 40%. After transplant vitamin D levels were deficient in 27.5%; insufficient in 13.7% and normal in 58.7% in 109 patients. When we evaluate 61 cases whose vitamin D levels were measured both before and after LT, there was an increase in the proportion of normal vitamin D in post transplant period (p=.01).

Patients with cholestasis had significantly lower vitamin D levels before LT compared to other diagnostic groups (mean values were 22.7±19.3 and 28.8±22.7 ng/mL respectively) (p=.04). This difference disappeared after LT. In the cholestasis and cirrhosis groups, a negative correlation between vitamin D level and total and direct bilirubin was observed before LT (p=.01, r=0.29 and p=.007 r=0.30 respectively). In the whole patient group, there was a positive correlation between vitamin D level and serum albumin level (p=.05 r=0.20) before LT.
Eighty-two patients underwent posttransplant liver biopsy, acute rejection was detected in 51 (62%) patients. There was no relationship between pretransplant vitamin D levels and PELD values, RAI scores, post-transplant mortality, season of vitamin D measurements.

Conclusions: Vitamin D levels were low in LT candidates (especially cases accompanied with cholestasis) despite oral/parenteral vitamin D support. We recommend that these patients need close laboratory monitoring and additional vitamin D doses. Low vitamin D levels and impairment of liver function tests (bilirubin and albumin) were associated before LT. Vitamin D levels tended to increase after LT. In our study, no association was found with pretransplant vitamin D levels and acute cellular rejection or post LT survival.

O15

LIVER TRANSPLANTATION FOR BABIES WEIGHING LESS THAN 10 KG

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Introduction: Liver transplantation (LT) is an established curative therapy for children with end-stage chronic liver disease or acute liver failure. LT in small babies remains challenging as a result of the paucity of donor organs and the technical difficulties encountered in these small patients, especially vascular thrombosis. LT in small infants provides similar results as those in older groups. This study aims to evaluate the outcomes of pediatric liver transplantation according to body weight of recipients.

Materials and Methods: Since 8 December 1988, 552 liver transplantations have been performed, including 266 children, 70 of whom were less than 10 kg. We reviewed the medical records of these 70 recipients for the following: primary cause of liver failure, age, weight at the time of transplantation, type of graft, and medical outcomes of the recipient and donor. Three of them were deceased donor liver transplantation (DDLT) and 67 of them were living donor liver transplantation (LDLT). The left lateral segment (Couinaud segments II and III) was used for living donor transplantations. At our institution, we perform hepatic arterial anastomoses by means of a corner saving technique. The arterial anastomosis is usually performed between the recipient hepatic artery, the gastroduodenal artery junction, and the left hepatic artery of the graft. All patients received tacrolimus-based immunosuppression.

Results: Thirty four were girls and 36 were boys with a mean age of 8.9±2.8 months (range, 3–18 months); their mean weight at the time of transplantation was 7.2±1.3 kg (range, 4–10 kg). The median graft-to-recipient weight ratio was 4.2%±1.4% (range, 2.1%–6.6%). In 43 patient hepaticojejunostomi biliary reconstruction, in 23 patient duct-to-duct biliary reconstruction and in 4 patient EPTFE graft biliary reconstruction performed. During the early postoperative period, hepatic arterial thrombosis was identified in 8 patients, portal vein thrombosis was revealed in 1 patient and biliary leak was detected in 7 patients. In 9 patients, the abdomen was closed with a Bogota bag. All Bogota bags were closed in 2 weeks. In 2 patients, portal vein stenosis was identified during the late postoperative period. Biliary stenosis was revealed in 17 patients. The 1-year and 5-year survival rates were 88.5% and 81.4% respectively. There were 13 patients who died during follow-up period. Six patients died at the early stage of transplantation (n=4, sepsis; n=2, ARDS). Seven patients died at the late follow up period (n=4 sepsis; n=2, chronic rejection; n=1, cranial hemorrhage). There was no major donor morbidity or donor mortality.

Conclusions: Our data confirmed that living-related donors, especially in this age group, provide a reliable source for the organ pool. Satisfactory results can be achieved despite the anatomic handicaps of this age group.

O16

INCIDENCE OF ACUTE KIDNEY INJURY FOLLOWING ORTHOTOPIC LIVER TRANSPLANTATION

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Introduction: Acute kidney injury (AKI) is a frequent complication following orthotopic liver transplantation (OLT). The aim of this study was to analyze the incidence of AKI following OLT by using KDIGO criteria and compare patients who developed AKI with those who did not.

Materials and Methods: We retrospectively analyzed the data 65 patients who underwent OLT in Baskent University Hospital between January 2015 and may 2017.
Oral

Mortality of patients with AKI was significantly higher for OLT patients according to KDIGO criteria in our cohort. Half of adult OLT patients and about half of pediatric patients who had preoperative kidney dysfunction (46% vs 7%, p=.056) had a higher mortality rate in patients who did not develop AKI postoperatively, those who did not develop AKI postoperatively, those who did not develop AKI and patients who did not. Compared with those who did not develop AKI postoperatively, those who did not develop AKI postoperatively, those who did not develop AKI and patients who did not. Compared with those who did not develop AKI postoperatively, those who did not develop AKI and patients who did not. Compared with those who did not develop AKI postoperatively, those who did not develop AKI and patients who did not.

Conclusions: In conclusion AKI occurred in more than half of adult OLT patients and about half of pediatric OLT patients according to KDIGO criteria in our cohort. Mortality of patients with AKI was significantly higher for adult patients. This may be explained with higher incidence of stage 3 AKI in adult patients. For adult patients anemia and intraoperative inadequate intravenous crystalloid transfusions may be associated with AKI. Further studies with larger number of patients are required to better assess the incidence, risk factors, and outcomes of AKI.

O17

IMMEDIATE TRACHEAL EXUTUBATION AFTER PEDIATRIC LIVER TRANSPLANTATION

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1Intensive Care Unit, and 2Transplantation, Başkent University Faculty of Medicine, Ankara, Turkey

Introduction: An increasing frequency of immediate tracheal extubation after adult and pediatric liver transplantation has been reported (1,2). However, this practice is not extensively studied in pediatric population. The aim of our study was to examine our rate of immediate tracheal extubation among pediatric liver transplant recipients and to evaluate whether this approach is safe and feasible.

Materials and Methods: We retrospectively analyzed the records of pediatric patients who underwent liver transplantation at Baskent University Hospital from January 2012 to December 2017. The patients were extubated in the operating room (OR) at the end of surgery when they were awake, responsive, and met universally accepted criteria including metabolic and hemodynamic stability. Children were divided into two groups whether they were extubated in the OR or in the ICU. Collected data included demographic characteristics of children, perioperative laboratory values and hemodynamic parameters, extubation time, lengths of ICU/hospital stay and hospital mortality.

Results: A total of 81 pediatric liver transplant recipients were admitted to ICU during the study period. The median age of children was 4 years (4 months-16 years) and 44 of them were male (54%). The most frequent diagnosis was biliary atresia (n=18, 22%). Immediate tracheal extubation was performed in 39 patients (48%) in the OR. Median postoperative duration of mechanical ventilation for those who were extubated in the ICU was 12 hour (IQR 5, 19). Children who remained intubated had intraoperative more frequent massive hemorrhage (14 % vs 0 %, p=.015) and...
received larger amounts of packed red blood cells [293 ml (IQR 158, 405) vs 120 ml (IQR 0, 325), p=.006], and had higher levels of serum peak lactate [9 mmol/L (IQR 7, 13) vs 7 mmol/L (IQR 4, 9), p=.001] intraoperatively compared to those who were extubated at the OR. All children with open abdomen after surgery remained intubated (n=8%). There was no difference between patients immediately extubated and those who were not with respect to MELD/PELD score (p>.05). Reintubation rate was less in those extubated in the OR (3% vs 24%, p=.005). When compared to those extubated at the OR, the mean length of ICU stay was longer in children extubated in the ICU [5 days (IQR 3, 14) vs 2 days (IQR 1, 4), p=.004]. The hospital mortality was higher in children who remained intubated after surgery (12 % vs 0%, p=.026). The overall mortality rate was 6% (n=5).

Conclusions: Immediate tracheal extubation was well tolerated in almost half of the pediatric liver transplant recipients and did not compromise their outcomes. According to our results we recommend to avoid immediate extubation in pediatric liver transplant recipients who have intraoperative massive hemorrhage, receive larger amounts of red packed blood cells, and have higher lactate levels intraoperatively.

References:

THE EFFECTS OF ADIPOSE DERIVED STROMAL VASCULAR FRACTION ON STASIS ZONE IN AN EXPERIMENTAL BURN MODEL

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Introduction: Stasis zone is the encircling area of the coagulation zone which is a critical area determining the depth and width of the necrosis in burn patients. In our study we aim to salvage the stasis zone by injecting adipose derived stromal vascular fraction (ADSVF).

Materials and Methods: Thermal injury was applied on dorsum of Sprague-Dawley rats (n=20) according to the previously described "comb burn" model. After the burn injury (30 minutes) on Sprague-Dawley rats; rat dorsum was separated into 2 equal parts consisting of 4 burn zones (3 stasis zone) on each pair. ADSVF cells harvested from inguinal fat pads of Sprague-Dawley rats (n=5) were injected on the right side while same amount of phosphate buffered saline (PBS) injected on the left side of the same animal. One week later, average vital tissue on the stasis zone was determined by macroscopy, angiography and microscopy. Vascular density, inflammatory cell density and gradient of fibrosis were determined via immunohistochemical assay.

Results: Macroscopic stasis zone tissue survivability percentage (32 ± 3.28%, 57 ± 4.28%), average number of vessels (10.28 ± 1.28, 19.43 ± 1.72), capillary count (15.67 ± 1.97, 25.35 ± 2.15) and vascular density (1.55 ± 0.38, 2.14 ± 0.45) were higher on ADSVF side. Fibrosis gradient (1.87 ± 0.51, 1.50 ± 0.43) and inflammatory cell density (1.33 ± 0.40, 1.20 ± 0.32) were higher on the PBS side.

Conclusions: Macroscopic and microscopic findings determined that ADSVF has a statistically significant benefit for salvaging stasis zone on acute burn injuries.
SOCIO-ECONOMIC ISSUES RELATED TO TRANSPLANT RECIPIENT AND LIVING DONORS

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Introduction: Health care is confronted with budget restrictions, and therefore medical treatment should generally be cost effective in order to maximize quality-of-life gains at the societal level. Socioeconomic status (SES) a composite variable based on education, income, and occupation, has long been a prime predictive variable of clinical outcomes. SES determines Access to care and can contribute to Medication non-adherence when people have to make choices between health care and basic needs. Lower life expectancy and higher mortality rates are linked with SES. It is likely that socioeconomic and educational factors impacting Transplantation outcomes are surrogates for access to care, issues of compliance, and the ways in which patients engage the health-care system. Research has shown that there are disparities among ethnic minorities in access to transplantation, possibly due to lower(SES), language barriers, poor health literacy or cultural issues. A patient's insurance status plays a crucial role in this interaction and was shown to impact both Graft rejection and survival.

Medical Insurances Coverage: In the United State, during the time a person has Medicare, it will pay 80% of an allowed amount. If a person has Medicare only, this can still be problematic for the following reasons: Twenty percent of anti-rejection medications, costs approximately $600 a month (2017). Twenty percent of co-pays for physician visits and tests, Hospital deductibles, in 2017, are nearly $2,100 for each possible admission every 61st day period. These financial barriers are many and often without resolution. In Turkey, Universal health insurance which covers all transplant costs transplant services and pays costs that arise in case the individuals experience transplant risks even airplane tickets those who live away from a transplant center. Although it is seems beneficial approach for the transplant recipient but still it is not enough. The transplant recipient must prepare for additional costs, Lodging immediately post-transplant and for follow-up visits, Food while away from home, Transportation to and from the transplant center These costs are significant. Lack of adequate insurance coverage can greatly impact transplant outcome.

Costs Related to Living Donation: If the transplant candidate is covered by a Universal health insurance in Turkey. But it does not pay for the donor’s expenses like travel expenses, lodging, childcare costs and have lost wages in the process of donating. Living donors are most often from the middle socioeconomic group of society. Thus, for years living donors have been paying out-of-pocket to the best of their ability for the right to donate. Cohort Study shows that Most living kidney donors (n = 167, 92%) had one direct cost or more following donation, including ground transportation (86%), health care (41%), meals (53%), medications (36%), lodging (23%), and air transportation (12%). Living Kidney Donors missed 33,072 total work hours, 40% of which were unpaid and led to $302,175 in lost wages (mean $1660). Caregivers lost $68,655 in wages (mean $377).

Conclusions: Providing the best care for transplant recipients and Living donor may not mean always using the newest, most expensive medications. If patients have working transplants, but cannot buy bread for their families and lose their cars or can't pay their home rent, are we as care givers (Doctors, Nurses, Home care giver) truly providing the appropriate social support and the assistance they need? Frankly, patients will not always tell us they do not have money, do not have a job, or haven't taken their medications because they can't afford them. Public Health policymakers need to consider what the fair and right approach to Transplant Recipient and living donor care is. A comprehensive psycho social assessment can often predict psycho social barriers, particularly financial, to positive transplant outcome. The underlying mechanisms driving these outcomes merit further investigation.
O20

THE FREQUENCY OF FINDING FAMILY DONORS: A SINGLE CENTER EXPERIENCE

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Introduction: Allogeneic hematopoietic stem cell transplantation (allo-HSCT) is a curative treatment option for a variety of malignant diseases of the hematopoietic system and certain life-threatening nonmalignant conditions. The best donor for allo-HSCT is an HLA-matched sibling donor. When an HLA-compatible in family donor is not found, HLA-matched unrelated donor (MURD), haploidentical related donor, and umbilical cord blood (UCB) stem cell product are 3 alternative donor options. The possibility of finding an HLA-matched sibling, the first choice for allogeneic stem cell transplantation, is less than 30%. In addition, this rate has reduced to 20% in the United States as a result of a smaller average of family size. Between 2010 and 2014, in United States, the proportion of HLA matched sibling donors among allogeneic transplants reported to CIBMTR is 32%. On the other hand, according to EBMT data, the proportion of HLA-matched family donors among allogeneic transplantations is 36% in 2014.

Materials and Methods: From August 2012 to May 2017, we found matched family donors in 227 (55%) of 412 patients screened at our center (Baskent University Adana Dr. Turgut Noyan Research and Medical Center Hematology Unit) for allogeneic transplantation. All of the HLA typing is performed at Basket University Adana Dr. Turgut Noyan Research and Medical Center Tissue Typing and Transplantation laboratories.

Results: The proportion of matched family donors (n = 232) was 83% in all allogeneic transplantations (n = 279) of our center. Our frequency of finding family donors in our region is quite high and in parallel with this, the proportion of fully matched relatives in our transplantations is also high.

Conclusions: Although the possibility of finding unrelated donors in our country is improving day by day, the importance of careful family screening in our region is still very high. These findings show the importance of careful examination of family genealogy and family screening in our region.

O21

THE EFFECT OF STANDARDIZED INTERVIEWS ON ORGAN DONATION

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Introduction: Organ donation is the most important stage for organ transplantation. Organizations and governmental institutes continuously run campaigns declaring the importance of organ donation. There are several factors that affect brain dead patients families’ decision towards donation (1). In a study we conducted before, among the families of the patients treated in our intensive care unit the main reasons for denial of donation were insufficient knowledge about brain death, religious beliefs and breaching the body integrity (2). We hypothesized that supporting family awareness about the meaning of organ donation, saving lives while losing a loved one, combined with being informed about the brain death and donation process must be maintained by the intensivist through standardized interviews and questionnaires in order to increase the donation rate. Intensivists play a major role not only in treating the patients but also in donation decision. We aimed to demonstrate the importance of standardizing the interviews with the potential brain-dead donor’s relatives regarding the decision to donate. We evaluated the final decision of the families of the brain dead donors in our institution during a three year period.

Materials and Methods: After ethics committee approval this retrospective study is conducted in Marmara University Hospital Intensive Care Units between 2014 and 2017. Standard interview content (the Potential Donor Questionnaire, and Family Notification, Brain Death Criteria Fulfillment and Organ Donation Conversation Questionnaires) was generated after literature was reviewed by the authors (Figure 1). The families of 52 intubated organ donor patients were included in the study. Data were presented after descriptive analyses.
Results: In Group S with whom standardized interviews were done, 5 families out of 17 donated (29.4%) organs of their brain-dead relative's. In this group, GCS<5 patients’ families were informed 3 times daily. The interviews with the patients’ families were done in a room especially reserved for this reason rather than the patients’ bedside. The first interviews done after brain death diagnosis lasted 16.1±6 (10-30) minutes and a second interview was done with the hesitant families lasting 10±4 (5-15) minutes. During this period, they were able to see their relatives 2-5 times daily. In the other group (Group NS), interviews were not standardized and were done according the intensivists notion. During this period, families were informed once or twice daily and could see their patient once a day. The approximate interview duration was 10-15 minutes. In Group NS 5 out of 35 brain dead patients’ families (14.3%) approved organ donation (Figure 2).

Conclusions: Standard interviews between the relatives of the brain dead donors and the intensivists, combined with facilitating relatives’ visit to their patients, and being informed about him/her result in an increased rate of organ donation when compared to routine protocols. For better outcomes for giving consent for donation setting the basic rules in how to handle a situation that important (where, when, how often and how the interviews must be done) is indispensable.

References:

Figure 1.

O22 POST-RENAL TRANSPLANTATION NURSING CARE: THE CASE REPORT

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Introduction: Kidney transplantation is a leading replacement treatment method for recent renal failure patients in terms of quality of life, cost and survival. After transplantation; rejection, infection, cardiovascular diseases, malignite, immunosuppressive therapy failure and psychological problems may take place. Post-transplantation nursing care is as important as pre-transplantation nursing care in order to enhance quality of life, to prevent complications and to provide adaptation for treatment. Our aims in the case report are to increase quality of care after transplant, to provide standardization nursing attempt and to reduce work and time load by ensuring integrative and systematic approach of nurses. In the case, care experience of kidney transplanted D.C was shared after she was taken to the ward from surgery. Information about admission to hospital and patient’s story were obtained from patient herself and patient’s file.

Case Report: When, at the age of 18, she consulted for examination to hospital it was detected that she had agenesia of right kidney. At the same time, it was found that she had hydronephrosis in left kidney and medical treatment and follow-up carried on for five years because of chronic kidney disease. The patient who conceived in 2016 had to give preterm birth because of preeclampsia in 25th January 2017. Due to kidney transplant need stemming from renal impairment along with pregnancy, she applied to Akdeniz University Hospital Tuncer Karpuzoğlu Transplantation Centre. After preparations were made for living donor kidney transplant from mother, transplant came true in 1st March 2017. After kidney transplant, the patient who was taken to the ward from surgery was given favorable nursing attempts and made diagnosis below. Postoperative nursing care plan practices and evaluations; common diagnoses and nursing diagnoses; available and possible problems: Bleeding Risk, Acute Pain, Risk of Inefficacy in the Respiratory Function, Anemia, Infection Risk, Hypertension, Discontinuing breast-feeding, Risk of rejection, Risks of deterioration in liquid-electrolyte balance, Anxiety in patients’ relatives, Deterioration of parental infant attachment, Discharge Training

Conclusions: Eventually, a multidisciplinary approach is essential in organ transplantation in perioperative process. The nurse takes place in the center of this squad for patient care. Observations, attempts and evaluation of...
organ transplant nurses are of vital importance from the points of realizing and preventing complications early, increasing survival rates and getting optimal recovery. This presentation is thought to contribute to application and planning of professional nursing care.

**O23**

**OBESITY AND KIDNEY TRANSPLANTATION: LITERATURE REVIEW**

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**Introduction:** Obesity, which has become increasingly a problem worldwide, poses a risk for kidney transplant recipients both before and after surgery period. Obesity has a negative impact on pre- and post-transplant results and the selection of the candidate (Lentine et al., 2012).

**Objective:** This research was planned as a literature review, have been made so as to indicate the effects of obesity on graft function in pre-/post-transplant period.

**Materials and Methods:** Ebscohost, PubMed, Google scholar, CINAHL databases were scanned by using key points such as “obesity, kidney transplant, body mass index, pre and post-transplant weight”.

**Results:** Obesity is associated with high sympathetic activity, and this sympathetic activity causes delayed graft function by leading to renal vasoconstriction and impaired renal perfusion. In addition, obesity prolongs the surgery time and ischemic process (Lambert et al., 2010; Sharma et al., 2010). There are numerous studies and different opinions on the effect of obesity on graft function before and after transplantation. Molnar et al. (2011) in a cohort study with 11836 recipients notes that there is a close relationship between body mass index (BMI) before delayed renal tx and delayed graft function (Molnar et al., 2011). A study by Streja et al. (2011) also supports this result. However, in a study by Furriel et al.(2011) it is stated that being overweight or obese before tx doesn’t have any effect in the medium and long term. However, in the same study, it is stated that being overweight or obese adversely affects graft function in early post-transplant stage and may increase surgical complications (Furriel et al., 2011). In a study by Hoogeveen et al. (2011) including the result of a 20-year follow-up study it is indicated that the first 1-year BMI after renal transplantation of transplant recipients had more effect on graft function and survival rate than before tx. There are numerous studies presenting the relationship between BMI and before tx (Cannon, Jones, Hughes, Eng, & Marvin, 2013; Lafranca, JN, Betjes, & Dor, 2015). However, Pieloch et al. (2014) argues that BMI has no effect on graft function and survival. In the study, 3-year graft function and mortality rates of morbid obese people without diabetes, non-dialyzed functional status and live-donor transplantation are reported to be much lower than those of normal weighted ones (Pieloch, Dombrovskiy, Osband, Lebowitz & Laskow, 2014).

**Conclusions:** In conclusion, although there is no consensus on obesity and graft function, adding weight loss methods to patient selection criteria is thought to be beneficial in reducing early and late complications of weight losses. Physical activity, diet, and surgical treatment stand out to achieve weight loss before transplantation and prevent weight gain after transplantation (Stenvinkel, Zoccali, & Ikizler, 2013).

**O24**

**COMPARISON OF PEDIATRIC PATIENTS WITH PURE ANTIBODY-MEDIATED REJECTION (AMR) AND RECIPIENTS WITH BOTH AMR AND VASCULAR REJECTION IN THE DEVELOPMENT OF INTERSTITIAL FIBROSIS AND TRANSPLANT GLOMERULOPATHY**

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**Introduction:** The importance of the vascular rejection (VR) on the graft survival in recipients with antibody-mediated rejection (AMR) is controversial. Thus we aimed to understand first the prognostic value of the presence of VR in children with AMR and second the impact of AMR and VR on the development of interstitial fibrosis (IF) and transplant glomerulopathy (TG).

**Materials and Methods:** Among 45 pediatric patients 25 had pure AMR (Group 1) while 20 had both AMR and VR (Group 2). Expressions of tubular TNF-α, TGF-β, and HLA-DR were studied. All infiltrated leukocytes both in the peritubular capillaries (PTCs) and interstitium highlighted with TNF-α, HLA-DR, and CD68. PTC HLA-
ORAL

DR expression examined to determine the extension of the destruction of PTCs. Follow-up biopsies analyzed for the development of diffuse IF and TG.

Results: The response to rejection therapy was lower in Group 2 recipients compared to Group 1 patients (p<.001). The extensity of PTC C4d expression found higher in Group 2 compared to Group 1 (P<.001) and also, the PTC destruction which noted with decreasing expression of PTC-DR expression was found higher in Group 2. Compared to Group 1 patients, Group 2 patients showed a higher incidence of IF and TG in follow-up biopsies (p<.01). The development of IF and TG increases with the increasing degree of glomerulitis, C4d expression and PTC destruction (p<.01). Compared to Group 1 patients, Group 2 showed higher expression of TNF-α, TGF-β, and HLA-DR both on tubules and infiltrated inflammatory cells (p<.01). PTC C4d expression and the degree of PTC destruction increased with increasing degree of leukocyte and macrophage infiltration both in PTCs and interstitium (p<.001). The time of the development of IF and TG decreased with increasing intensity of PTC and interstitial infiltration, glomerulitis, PTC destruction and C4d expression (p<.01). Also, the development of IF and TG shortened with increasing HLA-DR, TNF-α expression in inflammatory cells and increasing TNF-α, TGF-β, HLA-DR expression in tubular cells (P<.01). Overall the 1-, 3- and 5-year graft survival was 96%, 92% and 79% respectively for Group 1 patients while it was 95%, 40%, and 10% respectively for Group 2 recipients (p<.001).

Conclusions: In conclusion, we pointed out that the prognosis and course of antibody-mediated vascular rejection are noticeably different from pure AMR, with antibody-mediated vascular rejection having the poorest outcome through leading the early development of IF and TG via augmenting inflammatory and fibrotic pathways. Thus the development of new treatment strategies for antibody-mediated vascular rejection could salvage many kidney allografts.

O25

THE EFFECT OF DONOR MAGNESIUM LEVEL ON RECIPIENT MAGNESIUM LEVEL IN RENAL TRANSPLANTATION

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Introduction: Hypomagnesemia is a common electrolyte disorder after renal transplantation. The drugs that are used in post-transplantation period make tendency to hypomagnesemia. In this study we had investigated the effect of donor magnesium level on the magnesium level of the recipient.

Materials and Methods: In our study there was on 70 patients (40 men, 30 women, mean age: 45.36±12.66 years-old) who had renal transplantation.

Results: 45.7 % recipients were hypomagnesemic (<1.6 mg/dL) at 14th day, this ratio decreased to 20% at the end of second year. Donor magnesium levels and recipient magnesium levels were compared. There was a statistically significant correlation between the donor serum magnesium levels and recipient 14th day, 1st, 6th, 12th, 18th and 24th month magnesium levels. According to donor magnesium levels there was two group of patients; serum magnesium levels ≤2 mg/dL (group 1) and >2 mg/dL (group 2). When two groups were compared the patients who received the kidney from group 1 (serum magnesium level ≤2 mg/dL) magnesium levels remained statistically lower (p<.01).

Conclusions: Determining the serum magnesium of the donor before transplantation may help to predict hypomagnesemia of the recipient in the post-transplantation period.
ULTRASTRUCTURAL FINDINGS AND CAPILLARY HLA-DR EXPRESSION IN RENAL ALLOGRAFTS WITH HUMORAL, VASCULAR AND TUBULOINTERSTITIAL REJECTION: CORRELATION WITH DEVELOPMENT OF TRANSPLANT GLOMERULOPATHY

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Introduction: The impact of early ultrastructural (US) changes of biopsies with the diagnosis of acute rejection that is causing transplant glomerulopathy (TG) evaluated in very few studies. Relationship of capillary HLA-DR expression with the parameters that give rise to developing TG was not studied. With this purpose, we evaluated the early and late US changes of 52 renal allografts, and we compared these findings with the results of capillary HLA-DR expression.

Materials and Methods: Acute tubulointerstitial rejection (ATR), acute vascular rejection (AVR), acute humoral rejection (AHR), and chronic humoral rejection (CHR) were found in 12 (23%), 12 (23%), 14 (27%) and 14 (27%) patients, respectively. All biopsies (n=38) except cases with CHR (n=14) taken within 3 months of Tx. Peritubular capillary HLA-DR (PTC-DR) and glomerular HLA-DR (GDR) expression evaluated. The lower intensity of PTC-DR was considered to indicate more extensive PTC destruction. Follow-up biopsies of 38 cases with variable AR evaluated for the development of TG.

US changes including glomerular and PTC endothelial swelling and multilamellation, glomerular subendothelial widening and early GBM duplication were found to be highest in biopsies with AHR compared to biopsies with ATR and AVR (p<.001). Biopsies with AVR and ATR were followed AHR respectively for the presence of these US changes.

Results: Biopsies with CHR showed the highest degree of multilamellation and double counter. The loss of PTC-DR expression, therefore, the destruction of PTC was found highest in biopsies with AHR and CHR compared to biopsies ATR and ACR (p<.001). TG was developed 8.3%, 33.3% and 57.1% in patients with ATR, AVR and AHR respectively (p=.01). The development of TG was 45.5±9.2 months in ATR cases, 20.7±8 months in AVR cases and 7.2±3 in AHR cases (p<.001). Glomerular and PTC endothelial swelling and multilamellation, glomerular subendothelial widening and early GBM duplication showed a great impact on the development of TG (P<.01 for all). GDR showed positive relationship with development of TG (p<.001). PTC-DR had a negative association with TG (p<.001). The risk of TG development increases with decreasing expression of PTC-DR (p<.001). Therefore the severity PTC destruction had a significant impact on the development of TG. In addition PTC-DR and GDR had significant association with all US findings (p<.01 for all).

Conclusions: In conclusion, analysis of early US changes and capillary HLA-DR expression are helpful for predicting the development of TG and graft prognosis. This type of assessment may be useful for determining the patients’ with the risk of TG and chronic rejection and thus identifying the most appropriate treatment.

COMPARISON OF TACROLIMUS MEASUREMENT WITH IMMUNOASSAY AND HPLC IN RENAL TRANSPLANTATION

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Introduction: Tacrolimus is an effective immunosuppressive agent for use in renal transplantation. Investigations of therapeutic drug monitoring have used immunoassay methodology, with antibodies that recognize the tacrolimus molecule. However, the antibody also cross reacts with a variety of tacrolimus metabolites, leading to a 10% to 25% higher estimate of level compared with more specific techniques based on high-performance liquid chromatography (HPLC). The purpose of this study was to compare the tacrolimus levels measured by either immunoassay or HPLC method in renal transplant recipients

Materials and Methods: Forty patients that had renal transplantation within two years were conducted in the study. Tacrolimus doses were adjusted depending on 12-hour trough levels. Tacrolimus levels were measured by a carbonylmetalloimmunoassay (CMIA), and high-performance liquid chromatography (HPLC). The purpose of this study was to compare the tacrolimus levels measured by either immunoassay or HPLC method in renal transplant recipients

Materials and Methods: Forty patients that had renal transplantation within two years were conducted in the study. Tacrolimus doses were adjusted depending on 12-hour trough levels. Tacrolimus levels were measured by a carbonylmetalloimmunoassay (CMIA), and high-performance liquid chromatography (HPLC) from the same sample. Twenty six (65%) of patients were men and fourteen (35%) of patients were women. Mean age
of patients were 41.92 ±11.84 years. Mean graft ages were 14.92±8.13 months.

**Results:** Mean tacrolimus dose were 3.27±1.25 mg/day. Mean creatinine levels were 1.30±0.53 mg/dL. Mean tacrolimus levels measured by CMIA and HPLC were 7.35±2.76 ng/mL and 5.88±2.36 respectively. The differences of tacrolimus levels measured by each method were in a range of 7.43% and 43.32% in our study. In the 35% of patients tacrolimus levels measured by CMIA were 25% higher than measured by HPLC.

**Conclusions:** Tacrolimus level monitoring has a great importance in the renal graft survival. Our results were compatible with the previous studies that had found that measurement with CMIA results in higher levels according to HPLC. However the difference measured by each method was found higher in our study, in comparison with the results that had been reported in the previous studies. Overestimate of drug levels may lead to dose reduction of tacrolimus and decrease in the graft survival rates.

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**O28**

**FACTORS PREDISPOSING TO THE RESORT OF COMPLEMENTARY THERAPIES IN PATIENTS WITH CHRONIC RENAL FAILURE**

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**Introduction:** Chronic Renal failure (CRF) accepted as one of the major public health problems. CRF patients are using complementary and alternative medicine applications to cope with the disease and its outcomes. The percentage of complementary medicine application usage among CRF patients is rising every other day. The aim of this study is to gather information about the complementary medicine applications used by the CRF patients, and its relation to demographic factors.

**Materials and Methods:** In this study, total 388 CRF patients included who are in hemodialysis (HD) therapy program at Ankara, Adana, Alanya, and İskenderun Baskent University Dialysis Centers. The data collected by interview to the patients with a questionnaire who had agreed to participate in the survey. A written survey is examining the use of alternative health care, health status, values, and attitudes toward conventional medicine filled during HD treatment by all patients. The patients mean age is 48.87±15.9 years (18–85 years). The patient's distribution between gender is 204 male (52.6%) and 104 female (47.4%).

**Results:** The results of this study showed that 58% of the participants are using one of the complementary medicine applications. Among the users of complementary medicine applications, most users are low educated and believe that these are beneficial for their disease (p<.001). As a source of information, most of the patients using one of the complementary medicine applications prefer either mass media or relatives and friends (p<.001). Most employed complementary medicine applications are the ones related to their religion.

**Conclusions:** In conclusion this study reflected that the CRF patients treated by HD and using at least one of the complementary medicine applications are low educated, believes in the benefits of the applications they are using and chooses the religion based applications among other complementary medicine applications. Also, the majority of alternative medicine users appear to be doing so as a result of both dissatisfied with conventional medicine and because they find these healthcare alternatives to be more congruent with their values and beliefs, toward health and life.

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**O29**

**SURGICAL TREATMENT FOR URETERAL OBSTRUCTION AFTER KIDNEY TRANSPLANTATION**

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**Introduction:** Ureteral obstruction occurs in 2% to 10% of renal transplant patients postoperatively, usually presenting within the first few weeks or the first year. Ureteric ischemia is the most common cause, accounting for around 90% of occurrences. The first option for treatment is interventional radiological methods. Percutaneous therapy of ureteral strictures consists of balloon dilatation with or without temporary stenting. If all of these methods are unsuccessful, surgical treatment should be applied. We evaluate the outcomes of 5 patients who treated with surgical techniques for ureteral obstruction.
Materials and Methods: Since November 1975, we performed 2646 RT procedures at two different centers by the same transplantation team. At our institution, we perform ureteral anastomoses by means of a corner saving technique. We performed 7 surgical procedures for ureteral obstructions. All patients with ureteral occlusion had recurrent urinary tract infection before surgical treatment and interventional radiological procedures were performed prior to surgery.

Results: Four of the patients were living donor kidney transplantation and 3 of them were deceased donor transplantation. Four of them were female. For 4 patients, the old ureteroneocystostomy was terminated and new ureteroneocystostomy was performed. In 1 patient, we performed native nephrectomy and end-to-side anastomosis between the native ureter and graft’s renal pelvis. In 2 patients, we performed ureteroureterostomy and side-to-side anastomosis between the native and graft ureters. During the surgical procedure, double J stent was placed in to the anastomosis and removed in the first month. After reconstruction procedure urinary tract infection did not occur. During the follow up period graft functions are normal.

Conclusions: Ureteral strictures are rare complications that can lead to graft loss. Prompt diagnosis and remedial treatment are vital to prevent graft loss. The interventional radiological methods are the first choice for treatment, and surgical procedures should be performed in patients who do not benefit from these treatments.

O30

THE ETIOLOGY OF HEMOPTYSIS IN RENAL TRANSPLANTATION PATIENTS

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Introduction: Hemoptysis is a symptom can be caused by airways disease, pulmonary parenchymal disease, pulmonary vascular disease, or idiopathic. Infection is the most common cause of hemoptysis, accounting for 60-70% of cases. Infection causes superficial mucosal inflammation and edema that can lead to the rupture of the superficial blood vessels. Invasive bacteria are the most common infectious causes of hemoptysis. Hemoptysis is also an initial symptom of diffuse alveolar hemorrhage syndrome (DAH), although may be absent at presentation in one-third of patients. DAH is characterized by disruption of the alveolar –capillary basement membrane either due to injury or inflammation of the arterioles, venules or capillaries resulting in bleeding in alveolar spaces. To date, there is no study investigating the etiology of hemoptysis in renal transplantation patients in the literature. In this study, we aimed to investigate the causes of hemoptysis in renal recipients retrospectively.

Materials and Methods: The data included in this study were obtained from 352 renal transplantation patients who were consulted by pulmonology department regarding hemoptysis between 2011- 2017 at Baskent University. Medical records of these patients were reviewed for demographic, clinical, radiographic, bronchoscopic features, microbiology data. Immune suppressive drugs and clinical outcome data were also noted.

Results: This study included in 352 (139 male; mean age of 34.9 ± 7 years and 113 female; 31.1 ± 5 years) renal transplantation patients. Hemoptysis was detected in 17 (4.8%) of the 352 patients and 3 (0.85%) of them had massive hemoptysis as a result of DAH syndrome in our study population. Fourteen (4%) of the patients had pneumonia and Aspergillus was detected in 5 (1.4%) of the patients. The only reason for DAH was immune suppressive agents including sirolimus and mycofenolate mofetil in our patients.

Conclusions: Hemoptysis is an important respiratory symptom in renal transplantation patients. Although community or hospital acquired pneumonia may result in hemoptysis, drug-induced DAH and aspergillus infection should be considered for etiology in renal transplantation patients.
**O31**

HAND GRIP STRENGTH IS ASSOCIATED WITH SERUM TESTOSTERONE AND ALBUMIN LEVELS IN MALE KIDNEY TRANSPLANT RECIPIENTS.

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**Introduction:** In kidney transplant recipients, reduced muscle mass and hand grip strength are associated with impaired nutritional status. Serum testosterone is highly associated with muscle strength in general population. In this trial we aimed to determine the relation between serum testosterone, hand grip strength, nutritional and inflammatory parameters as well as graft function.

**Materials and Methods:** One hundred and forty-four stable male 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) and biochemical parameters (calcium, phosphorus, parathyroid hormone, C-reactive protein (CRP), albumin, creatinine) and serum testosterone (T) levels. Body compositions were analyzed with the BIA technique (BCM, Fresenius) that estimates body mass index (BMI) and percent fat. Hand grip strength was analyzed by using a dynamometer (ProHealthcareProducts.com, Park City, UT). We calculated the estimated GFR (eGFR) using the MDRD4 equation.

**Results:** Demographic characteristics (age, gender, duration of dialysis before transplantation) and biochemical parameters as serum calcium, phosphorus, lipid profile and eGFR levels were similar in study population. Mean serum T was 588.0 ± 55.5, mean BMI was 26.8 ± 0.6 kg/m², mean hand grip strength was 42.2 ± 1.7 mm². Serum T levels were positively correlated with hand grip strength (r=0.445) (p=.033), serum CRP (r=0.399) (p=.05) and negatively correlated with serum albumin levels (r=-0.454) (p=.05). In linear regression analysis serum albumin (p=.033) and testosterone levels (p=.038) were detected as the predictors of hand grip strength. However we couldn't find a significant correlation between graft function and hand grip strength.

**Conclusions:** Serum testosterone level is correlated with hand grip strength as well as CRP and albumin which may indicate that testosterone can affect nutritional status and inflammation in male renal transplant recipients.

**O32**

IMMUNOLOGICAL CONSIDERATION IN HEART TRANSPLANTATION

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**Introduction:** It is aimed to demonstrate that tissue rejection can be predicted by a virtual cross-match test between recipient and donor before heart transplantation and there is a tissue survival relationship with endothelial antibody presence after transplantation.

**Materials and Methods:** Study conducted by Başkent University Ankara Hospital and Adana Dr. Turgut Noyan Medical and Research Center, HLA, PRA, LSA, C4d, CD68 values of patients and donors that can be obtained were examined by screening files of patients with heart transplantation and hospital records. During laboratory study, by using human umbilical cord endothelial cells (Euro-Immune Germany), presence of endothelial cell antibody evaluated by immunofluorescence microscopy technique in transplantation patients. This study was approved by Basket University Institutional Review Board (Project No: KA17/27) and supported by Basket University Research Fund.

**Results:** The parameters such as gender, age, blood group, using cigarette were evaluated. 69.75% of the 119 patients were female, 30.25% were male and by age groups, 0-10 years 6.7%, 10-20 years 31.1%, 20-60 years 65.5% and 0.8% of the patients are over 60 years. Blood group distribution was observed as ARH (+) 49.1%, ARh (-) 2.6%, BRh (+) 11.2%, BRh (-) 2.6%, ABRh (+) 8.6%, ABRh (-) 0%, 0Rh (+) 25.8%, 0Rh (-) 0%. 15.1% of the patients were cigarette smokers, 16.8% were not smoking, and could not reach enough data about 68.1% of the patients. Among the 115 patients, 46.1% had dilated cardiomyopathy (KMP), 12.2% had restrictive KMP, 15.6% had ischemic KMP, 7% had other KMP, 6.1% had congenital heart disease, 5.2% were unspecified KMP, 1.7% were chronic rejection and 6.1% were transplanted due to other heart diseases. Diagnosis of 5 patients could not be reached. With HLA, PRA and LSA tracking two patients desensitized, one of
Oral

Conclusions: Due to the patients sometimes having no other chance and the time required for immunological evaluation is long, without waiting the evaluation results cardiac transplantations are performed. However, identification of pre-determined antibodies and identification of donor tissue groups may provide information about virtual cross-match and the risk of rejection may be reduced by applying the required disease desensitization protocols to patients. Presence of endothelial cell antibodies may explain humoral rejection in PRA-negative patients and guide therapy.

**O33**

PULMONARY HYPERTENSION DETECTED DURING CARDIAC TRANSPLANT FOLLOW-UP IS PREDICTIVE OF MORTALITY AND CARDIAC TRANSPLANT REJECTION: A RETROSPECTIVE SINGLE-CENTER STUDY

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Introduction: Cardiac transplant follow-up is associated with high morbidity and mortality. Endomyocardial biopsy sampling, the method of preference to check for the presence of rejection, is associated with potentially hazardous complications of cardiac perforation and tamponade and causes repetitive right ventricular injury and fibrosis. We therefore aimed to investigate surrogate hemodynamic parameters obtained serially in an attempt to predict rejection and death.

Materials and Methods: We prospectively analyzed the medical data patients who underwent cardiac transplantation between 2004 and 2016 at Baskent University Faculty of Medicine, The follow-up clinical examinations, coronary angiography, and endomyocardial biopsy sampling were performed as part of our transplant surveillance program. We also measured right and left heart pressures and calculated cardiac output and cardiac index. We used IBM SPSS 21.0 software package for all statistical analyses.

Results: We included a total of 46 adult patients with complete medical information who underwent bicaval heart transplantation at Baskent University Faculty of Medicine, Department of Cardiovascular Surgery between 2004 and 2016. Thirty-six (78.2%) patients were male and 10 (27.8%) were female. The mean age at transplantation was 43.8 (±10.5) years. The surviving patients had a mean age of 45.3 (±10.1) years. The median number of heart catheterization and endomyocardial biopsy sampling procedures per patient was 9 (1-24) over a median duration of follow-up of 27(1-126) months. A total of 22 (44%) patients died during follow-up. Among a total of 408 available T-cell mediated acute cellular rejection results obtained via pathology examination, 314 samples were free of acute T-cell mediated rejection, 68 showed Grade 1R cellular rejection, 19 Grade 2R cellular rejection, 3 Grade 3R cellular rejection, and 4 suspected rejection. Among 420 available acute humoral rejection results obtained via pathology examination, 359 samples were free of acute humoral rejection, 19 showed acute humoral rejection, and 42 showed suspected result. Correlation analyses showed that acute cellular rejection, but not humoral rejection, was significantly correlated to pulmonary artery systolic pressure, mean pulmonary artery pressure, and right ventricular systolic pressure (for all correlations, p<.05). Death from any cause was significantly correlated to pulmonary artery systolic pressure and mean pulmonary artery pressure (for both correlations, p<.05).

Conclusions: Both acute cellular rejection and death from any cause are significantly correlated to pulmonary artery systolic pressure. Pulmonary hypertension is an adverse prognostic sign in transplanted hearts.
O34

THE PREVALENCE AND ANGIOGRAPHIC CHARACTERISTICS OF CORONARY VASOSPASM DETECTED AT SURVEILLANCE CORONARY ANGIOGRAMS AMONG PATIENTS WITH TRANSPLANTED HEARTS

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Introduction: Coronary vasospasm has been reported in transplant hearts through various mechanisms. It has been linked to allograft rejection and coronary vasculopathy, the latter also being implicated for excess mortality during follow-up. Herein, we aimed to determine the prevalence of coronary vasospasm among heart transplant recipients undergoing surveillance coronary angiography procedures.

Materials and Methods: This study was prospectively performed at Başkent University Faculty of Medicine, Department of Cardiology by retrospectively analyzing medical information of patients who underwent bicaval heart transplantation between 2003 and 2016 and subsequently coronary angiography to rule out allograft vasculopathy as part of our heart transplant surveillance program. We calculated the prevalence of coronary vasospasm among heart transplant recipients undergoing surveillance coronary angiography procedures.

Results: A total of 41 (12.1%) coronary angiography procedures were performed using the standard Judkins technique. Among these there were 5 patients with coronary vasospasm a mean of 2 years after cardiac transplantation. Four (80%) of the patients were male. Three vasospasm episodes involved the left anterior descending artery (LAD) in 3 patients and right coronary artery (RCA) in 2. The degree of luminal narrowing ranged from mild to severe. Especially LAD vasospasm episodes diffusely involved most of the vessel. In three patients vasospasm was recurrent in character. Three patients had underlying coronary artery disease, two of which progressed and relieved by stent implantation at subsequent coronary angiography procedures. All patients were prescribed oral nitrates at long term. Neither ischemic events nor reduction of ejection fraction was observed during follow-up. There also occurred no cellular, humoral rejection or death in any of the patients with vasospasm.

Conclusions: Coronary vasospasm is common in transplanted hearts. It may be diffuse or localized, and occur spontaneously or on the basis of underlying coronary artery disease. The factors including allograft vasculopathy associated with coronary vasospasm remains to be determined, and further research is needed on this subject.

O35

CLINICO-MORPHOLOGICAL DIAGNOSTIC OF LIVER DISEASES AFTER LIVER TRANSPLANTATION

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Introduction: The program of liver transplantation in Kazakhstan has been started in 2011 year. In Almaty until 2017 year performed 63 transplants from a living donor transplants, 12 from cadaveric donor.

Materials and Methods: Liver transplant recipients undergoing liver biopsy between 2012 and 2016 were retrospectively analyzed. A total of 28 liver biopsies in 19 patients after OLT fulfilled the inclusion criteria. The biopsy was classified according to the main histological diagnosis. All biopsies were clinically indicated.

Results: From 19 patients who underwent liver biopsy - 12 women and 7 men aged 20 to 52 years, average age 36 years. Indications for liver transplantation were hepatitis C (4 patients) in 21% of cases, in 21 cases - hepatitis B (4 patients), in 31% (6) cases - hepatitis B with delta agent, primary biliary cirrhosis (PBC) in 4 patients (21%), autoimmune hepatitis (AIG) in 1 patient (5.4%). Among the 11 patients examined were patients who underwent liver transplantation from a living related donor, which is 17.6% of all patients with this type of transplant. 8 people who had indications for liver biopsy were patients who underwent liver transplantation from a deceased donor, which was 66.7% in the group of patients after transplantation from a cadaveric donor. The diagnosis of “rejection” was exposed in 18 cases (64.2%), including acute “indefinite” rejection (RAI 3) in 2 cases out of 28, acute rejection of a minimal
degree (RAI 4-5) - 7, moderate degree (RAI 6-7) - 6, expressed degree (RAI 8-9) - 2 and chronic rejection - in 1 patient. Only 1 patient (5.4%) received monotherapy, the rest of the patients received triple immunosuppressive therapy. Among patients with severe rejection - one case with PBC-AIG cross-over syndrome. This patient was resistant to methylprednisolone treatment. Simultaneously with rejection, she had progression of renal failure to the terminal stage. In the second case, severe rejection was found in a patient who interrupted immunosuppressive therapy and taking antiviral medications. Patients with RAI 3 did not receive pulse therapy (methylprednisolone). They were diagnosed with biliary and septic complications. Recurrent liver diseases were diagnosed in 4 cases (14.3%), of which PBC was detected in 2, 1 - hepatitis C, and delta-hepatitis in 1 patient. Also, 1 case had to be diagnosed: cholangitis, steatosis, perfusion damage. Biliary obstruction (cholestasis) was diagnosed in 3 patients (10.7%). Recurrent hepatitis C was detected in a patient with HCV genotype 1b. This patient received peginterferon, and subsequent antiviral drugs are direct action.

Conclusions: The liver biopsy and using Banff-classification is very important for differential diagnosis between biliary complication, rejection, allograft dysfunction and recurrent liver diseases in patient on posttransplant period.

**O36**

NON MELANOMA SKIN CANCERS IN SOLID ORGAN TRANSPLANT RECIPIENTS: A SINGLE CENTER EXPERIENCE

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Introduction: Malignant skin cancers are one of the most common malignancies in solid organ transplant recipients (SOTR). The increased risk of developing skin malignancies after organ transplant is due to age and immunosuppressive drug usage. The aim of this study is to estimate non melanocytic skin cancer incidence and the development time of skin cancers after transplantation in our center.

Materials and Methods: A total of 1833 transplant recipients (Kidney, liver and heart transplantation) who have been operated between 1996 and 2016 in organ transplant unit at University of Başkent were viewed retrospectively. Melanocytic skin cancers, premalignant lesions and benign skin tumors were excluded from the study.

Results: 68.4% of the recipients were male, 31.6% female. Among these patients, 1133 were renal recipients (61.8%), 512 were liver recipients (27.9%) and 120 heart recipients (6.5%). A total of 19 patients (15 renal, 3 liver and one heart recipients) developed 20 different skin cancer. The mean age at presentation was 58.7 (44-71). Average time to develop skin malignancy after transplantation was 6.1 years (1-13 year). The most common skin cancer was Basal Cell Carcinoma (BCC) %52, followed by Squamous Cell Carcinoma (SCC) with an incidence of 48%. These tumors were located in head and neck region (15 cases), trunk (2 cases) and upper extremity (2 cases). Prevalence of skin cancer among our SOTRs in general was 1.09%.

Conclusions: The increased risk of skin cancer is well known in solid organ transplant recipients compared with general population. Although the most common skin tumor in transplant recipients is squamous cell carcinoma followed by basal cell carcinoma, in our study this ratio is reversed. The low prevalence of skin malignancy in our patients may be associated with regular examination to detect premalignant skin lesions and low dose of posttransplantation immunosuppressive drugs. Neither local recurrence nor distant metastases were seen in our cases. We think that this is due to our treatment protocol in involving wide surgical margins of tumor excision and strict follow up regimen. Cutaneous malignancies are still considered one of the most common malignancies in SOTR with decreasing rate due to posttransplant immunosuppressive protocol and the increased awareness about sun protection rule in preventing skin cancers. We suggest routine and close dermatological follow-up of transplant recipients to detect and treat early skin cancer and premalignant lesions and thus lowering morbidity and mortality.
ASSESSMENT OF ATRIAL FIBRILLATION AND VENTRICULAR ARRRHYTHMIA RISK AFTER TRANSPLANTATION IN PATIENTS WITH END STAGE RENAL DISEASE BY P WAVE/QT INTERVAL DISPERSION, TP-E INTERVAL, TP-E/CQT RATIO

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Introduction: The association of end stage renal disease with atrial fibrillation and ventricular arrhythmias is well documented. The aim of this study was to investigate whether kidney transplantation has any effect on P wave dispersion, a predictor of atrial fibrillation and corrected QT interval (CQT) dispersion, Tp-e interval, and Tp-e/CQT ratio, which are predictors of ventricular arrhythmias in patients with end stage renal disease.

Materials and Methods: In a retrospective study, a total of 234 subjects (125 kidney transplantation, 109 control) were examined. P wave dispersion, CQT dispersion, Tp-e interval and Tp-e/CQT ratio values before and 3rd, 6th and 12th months after the transplantation were calculated and compared in patients with kidney transplantation. Baseline values of control group were compared to the 12th month values of transplant subjects.

Results: There was a statistically significant decline in P wave dispersion, CQT dispersion, Tp-e interval, and Tp-e/CQT ratio values among preoperative, 3rd, 6th and 12th months (p<.001 for all comparisons). However, P wave dispersion, CQT dispersion, Tp-e interval and Tp-e/CQT ratio values of transplant group at 12th month were significantly higher than baseline values of the control group (p<.001, for all comparisons).

Conclusions: P wave dispersion, CQT dispersion, Tp-e interval and Tp-e/CQT ratio were shown to be attenuated after transplantation, although they remained higher than the healthy subjects. These results indirectly offer that there may be a reduction in risk of atrial fibrillation and ventricular arrhythmias after transplantation.

DESCEMET’S MEMBRANE ENDOTHELIAL KERATOPLASTY (DMEK): OUTCOMES IN THE FIRST YEAR OF EXPERIENCE

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Introduction: our purpose was to report the clinical outcomes of Descemet's membrane endothelial keratoplasty (DMEK), in our first year of experience.

Materials and Methods: Patients who underwent DMEK at Baskent University Faculty of Medicine, Department of Ophthalmology, between 2015 and 2016 were included in the study. Patient demographics, etiology of endothelial dysfunction, best corrected visual acuity, central corneal thickness, graft survival, duration of follow-up, intraoperative and postoperative complications were recorded.

Results: Five eyes of 5 patients (4 female, 1 male) with a mean age of 53.4±12.7 were included. Etiology of endothelial dysfunction was corneal endothelial dystrophy in 3 patients, pseudophakic bullous keratopathy in 1 patient and endothelial graft failure after previous penetrating keratoplasty in 1 patient. Pre-stripped descemet's membranes obtained from the Ankara State Hospital Eye Bank were used. Mean duration of postoperative follow-up was 7.4±3.7 months. Mean preoperative Snellen best corrected visual acuity (BCVA) and central corneal thickness (CCT) were 0.24±0.15 and 625.5±97.4 µm. Mean BCVA increased to 0.67±0.26 (p=.02) in the first month and to 0.84±0.11 (p<.01) at the end of the follow up. Mean CCT decreased to 546.6±28.4 µm (p=.03). Graft detachment was observed in 1 case on the first postoperative day and it was reattached successfully by injection of air into the anterior chamber. There were no intraoperative complications. All corneas were clear at the end of the follow-up.

Conclusions: DMEK provides a new and exciting option for endothelial transplantation and has the potential to become the primary procedure for surgical management of Fuchs’ endothelial dystrophy and corneal endothelial disease. Rapid visual rehabilitation with few and manageable complications and good visual outcomes are the major advantages of this procedure.
THE STATUS OF RENAL REPLACEMENT THERAPY (RRT) IN AZERBAIJAN REPUBLIC

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In the World Medical Directory, the incidence and prevalence of the Chronic Kidney Disease (CKD) are noted to be growing. The terminal stance of the latter is of a great actuality nowadays due to the increasing frequency of big medical problems (mortality and morbidity) which lead to bigger organizational and financial matters. In this sense, the indicator of a country’s well-developed medicine can be evaluated by its level of uro-nephrology services – to be more precise, by the level of its Renal Replacement Treatment (RRT) – Hemodialysis (HD), Peritoneal Dialysis (PD) and Renal Transplantation (Rx). Hence, we have tried to illustrate the current picture of RRT in Republic of Azerbaijan in our study. Historically, the first application of RRT in our country goes back to the days when Azerbaijan was a part of the USSR, in the Urological Center which was lead by acad. Javadzade. The first Hemodialysis was done in 1971, and between 1971 and 1983 about 30 renal transplants from living donors were performed. However, this was not covering the requirement of all the patients that needed RRT, besides not a lot of information (data) could be obtained on the results of those treatments. In the 90’s, after the collapse of the USSR, our country went through hard times in the background events of economical-political changes. In 2000’s only the capital city – Baku had 2 hemodialysis centers with 10-15 old machines despite a population of 8,032,800. Renal transplantation activity was unnoticeable. After our independency, a huge upscale spike was observed in this area.

In our research, we tried to bring to your attention the real situation of RRT, its development indicators, gaps and expectations of the international transplantation organizations. In the last 15 years, 38 dialysis centers have started to operate – Renal Transplantation surgeries from living donors are being performed since 2011 in the Central Hospital Oil Workers, and since 2013 in the Republic Urological Center. 2001-2005 years were transplanted 23 kidneys from the living donors by the leading prof. K. Abdullayev in Urologic center. 30 Hemodialysis centers in the country have the government and 8 have the private status. In our country, 82.1% of patients with renal replacement therapy - hemodialysis, peritoneal dialysis in the treatment of 0.2%, while 17.7% of patients were renal transplantation operation. Of these patients, 58.9% were men and 41.1% were women. Of all the patients, 1.6% were children. Etiological factor in 31% of patients with diabetic nephropathy (DN), 28.5% of the chronic glomerulonephritis (GN), 17.5% of the chronic pyelonephritis (XPN), 18.5% of the hypertensive nephrosclerosis, polycystic at 7.8% (BP) 0.6% of the amyloidosis (BA), 2% other etiology of renal disease, kidney disease of unknown cause was found in 2.8%.

Recently, the renal replacement treatment, in accordance with modern standards has improved, the number of dialysis centers increased, despite the increase in the activity of living donor transplantation, organ donation (cadaveric donors) about the practical work, improved waiting list of aggravating the problem of the lack of reasons. We think that the international societies TTS, MESOT, TDTD and international institutions need to increase cooperation in order to solve the problems mentioned above and the growth in the RRT will pave the way for further improvement.

TRANSPLANTATION SERVICE IN TAJIKISTAN

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The National Scientific Center for Human Organs and Tissue Transplantation in Tajikistan is the only transplant centre which hosts both pediatric and adult organ transplant services under one roof. Established in 2010 under the Ministry of Health of the Republic of Tajikistan, the Transplantation Centre brings together an expert team of doctors all working together to provide expert care for organ transplant recipients and donors. During the last years of the functioning over 400 kidney transplants were performed in the centre and the most active period of transplantation was observed from 2016. The number of operations has increased by 80-85%, which is due to the
positive results of the center’s activities and consequently the increased confidence of the population. Despite such a progress the number of patients on dialysis exceeds the number of patients with a transplanted kidney due to a shortage of donor organs.

It is worth to mention that our center performs transplantation procedures not only for the national people but we provide medical aid for the patients from overseas who in need for transplantation surgery. Thus, citizens of the Republic of Kyrgyzstan-25, Afghanistan-2, Uzbekistan-4, Turkmenistan-4, Sudan-1, Russia-2, Azerbaijan-18 and Israel-5 underwent kidney transplantation in the centre.

Most patients prior to the transplantation were on renal replacement therapy lasting from 1 to 24 months; 3.4% of patients underwent pre-dialysis kidney transplantation. Patients with chronic kidney disease resulted from the various pathological conditions such as glomerulonephritis, diabetic nephropathy, chronic pyelonephritis, polycystic kidney disease, urolithiasis were indicated for kidney transplantation. Most of transplantations were performed after identification of ABO donor-recipient compatibility classified according to recipient ABO blood group. Patients with a functioning renal transplant are considered under the supervision of specialists of our center. The indicators of postoperative survival of transplants and postoperative complications are comparable with the global ones. Moreover, nowadays in the Republic of Tajikistan, there is a real opportunity to provide a high-tech medical assistance in the form of liver transplantation to patients who were previously doomed to severe disability and imminent death. Within 2014-2017 more than 40 liver transplantations in patients with hepatic insufficiency was carried out. Five of them were performed in children. The age of the patients ranged from 3.5 to 55 years. The main liver diseases that led to the development of terminal liver failure were: cirrhosis of the viral etiology (HBV, HDV, HCV) in decompensation stage, primary biliary cirrhosis, hepatoporal sclerosis, Alagille syndrome, Byler syndrome, Fulminant hepatic insufficiency of unclear etiology. Recently in June, 2017 a department of bone marrow transplantation has opened in our center where already two first patients underwent hematopoietic stem cell transplantation. In conclusion, the existing organizational structure of the transplantation service in Tajikistan allows the provision of qualified transplantation services to the population; however lack of corpse donation determines slow progress of the transplant service in the country.

Introduction: Control of posttransplantation immunosuppression (CPI) is one of the most important, complex and urgent problems of modern transplantology. According to the International Society of Heart and Lung Transplants 2012 (ISHLT) there are currently more than 40 invasive and non-invasive techniques to determine the quality and behavior of posttransplantation immunosuppression, but the most reliable, efficient and economically affordable methods have not been developed yet.

Cyclosporine and tacrolimus are characterized by marked side effects, endangering for the transplanted organ and for a patient [1-3,8,9]. Of even greater importance is that both drugs are nephrotoxic [9,10] (level of evidence 1A) and at long-term use are the primary cause of kidney dysfunction, as a result leading to graft loss or irreversible changes of the kidney [2].

Materials and methods: The basis of this study is an extended study of the world and homeland experience on control of posttransplantation immunosuppression in modern conditions.

The research subject of this work are the patients after transplantation (n=228). Immunosuppressive drugs taken were: Tacrolimus, Cyclosporine, Mycophenolate Mofetil, Mycophenolic Acid. Immunosuppression induction therapy: took, Tacrolimus, Mycophenolate Mofetil was taken by 117 (51.3%) patients; Cyclosporine, Mycophenolate Mofetil – by 35 (15%) patients, , Tacrolimus, Mycophenolic Acid – by 62 (28%), Cyclosporine and Mycophenolic Acid - 14 (6.0%). Constant monitoring of creatinine and BUN values in blood serum was conducted.

Results: Main obtained results are presented in Table 2.

Conclusions: Overall survival of the transplant from 1999-2017 is 84.65%

The overall survival of patients from 1999-2017 is 91.7%
The return to program hemodialysis is general is 7.02% of them with kidney removal 4.8%, without kidney removal 2.2%
1-year survival rate of the transplant is 94.7%
1-year survival rate of patients is 95.6%
5-year transplant survival is 74.2%
5-year survival of patients is 92.2%
10-year transplant survival is 52.4%
10-year survival of patients is 87%

Table 2. The overall results of the study of the patients after allogeneic kidney transplantation. Analysis of complications of immunosuppression

<table>
<thead>
<tr>
<th>Dose (mg/kg/day)</th>
<th>1 month</th>
<th>3 month</th>
<th>4 month</th>
<th>5 month</th>
<th>6 month</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.9±1.2</td>
<td>5.6±1.23</td>
<td>3.54±0.32</td>
<td>3.12±0.71</td>
<td>2.87±0.44</td>
<td>2.49±0.52</td>
</tr>
</tbody>
</table>

THE FIRST CASE OF PURE 3D LAPAROSCOPIC LIVING DONOR HEPATECTOMY IN KAZAKHSTAN

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Laparoscopic living donor hepatectomy is performed selectively in some countries because of the small sized structures and anatomic variations which requires more precise technique. In Kazakhstan about 200 cases of living donor liver transplantation were performed starting from December 2011. We now present the first case of laparoscopic living donor hepatectomy in Kazakhstan using a 3D laparoscopic device.

A 23-year-old male volunteered for living donor to his older brother who had combined hepatitis B, D and C related cirrhosis without any history of antiviral treatment. The recipient age was 36 and His model for end-stage liver disease score was 22. Brief morphologic characteristics of donor and recipient were as follows: donor - height 177 cm, weight 74 kg, BMI 23.64 kg/m² standard liver volume 1348 ml; recipient – height 172 cm, weight 78 kg, BMI 26.44 kg/m², standard liver volume 1350 ml. Donor graft volume was 820 ml and left remnant liver volume was 32%. The surgery was performed in October 2016 with 5 port insertion using an ultrasonic dissector, Cabitron Ultrasonic Aspirator, and clips. The liver was extracted via 10 cm sized suprapubic incision. V5 and V8 were reconstructed to the right hepatic vein using the PTFE graft. The Donor’s operation time was 295 minutes and estimated bleeding was 700 ml. The recipient had sanguinous drain and bleeding control was performed postoperative day 1 due to bleeding from hilar plate. Both donor and recipient were discharged after 15 and 28 days and the donor was not eventful.
IMPROVEMENT OF CARDIAC FUNCTIONS AFTER RENAL TRANSPLANTATION IN PATIENTS WITH SEVERE CARDIAC RISK

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Introduction: Patients with chronic kidney disease (CKD) are at increased risk for cardiovascular morbidity and mortality. CKD evokes structural and functional cardiac changes such as left ventricular hypertrophy (LVH), LV dilatation, LV systolic and diastolic dysfunction. Increased blood pressure, volume overload and in particular the uremic milieu with its toxins contribute to these alterations. Restoration of renal function after renal transplantation (RTX) disrupts the negative cardiorenal interplay and may reverse some of the cardiac changes seen with CKD. The surgical procedure is risky in these patients but RTX reduces cardiac mortality and the risk for development of chronic heart failure compared with long-term dialysis. We presented the patients with high cardiovascular risk and the success of renal transplantation on the cardiac functions.

Materials and Methods: Eleven RTX patients who had severe cardiac risk were evaluated by echocardiography before and after renal RTX. Left ventricular diastolic diameter, systolic diameter, ejection fraction (%) were assessed by echocardiographic standard parameters.

Results: Mean transplantation age was 149.81±43.2 months and mean follow-up period 26.0±16.09 months after transplantation of eleven patients (F/M:6/5). After RTX, serum creatinine level was 0.67±0.16 (0.5-1.06) mg/dl and glomerular filtration rate was 102.38±23.29 (51-126) ml/min/1.73 m² in the sixth month. There was a statistically significant improvement (p<.01) in all cardiac parameters. Preoperative mean ejection fraction (EF) significantly increased after RTX within six months (37.45±9.77%, 66.45±8.39% respectively, p<.01). Preoperative mean left ventricular diastolic diameter (LVDD) and mean systolic diameter (SD) were significantly decreased, after RTX within six months (52.58±8.58 vs 42.86±9.25 and 42.57±8.16, vs 27.05±8.24 respectively, p<.01). There were 9 patients (81.8%) received multiple antihypertensive treatment before transplantation. Only 2 patients needed antihypertensive treatment after transplantation.

Conclusions: After RTX cardiac functions improve markedly and rapidly in ESRD patients with severe cardiac risk. We suggest that although the surgical procedure is risky, RTX should be considered the treatment of choice for these patients, because a longer duration of dialysis in these patients may result in progressive and ultimately irreversible myocardial dysfunction.

POLYOMAVIRUS INFECTION IN PEDIATRIC RENAL TRANSPLANT PATIENTS

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Introduction: Infection is one of the most important complications in pediatric renal transplant patients, and usually affects graft survival. Polyomavirus (BKV) is a common infections after renal transplantation and an important cause of graft loss. The purpose of this study was to determine the incidence, clinical features and risk factors of BKV infection (viruria, viraemia, virus nephropathy) in pediatric renal transplant patients in our center.

Materials and Methods: We retrospectively evaluated the data of 138 renal transplant patients. Demographic data of patients, etiology of renal failure, donor types were recorded. BKV values were measured periodically by quantitative polymerase chain reaction test in urine and plasma. Kidney biopsies of patients with viremia and graft dysfunction were evaluated. Patients with and without Polyoma BK infection were compared to assess risk factors in terms of chronic renal failure etiology, donor types, immunosuppressive treatments, ureteral stent, acute rejection episodes, and accompanying viral infection.

Results: BKV infection was detected in 12 patients (8.69%). Twelve patients (100%) developed BKV viruri; 7 patients (75%) developed BKV viremia; 4 patients (33.3%) developed BKV nephropathy. BKV replication appeared in the first year after renal transplantation (median, 11th month). Seven patients remained asymptomatic, renal biopsy was performed in five patients who had viremia and/or elevated serum creatinine level. BKV nephropathy was developed in 4 (2.89%) of all renal transplant patients. Acute humoral rejection was present in 3 (75%) of BKV nephropathy patients, acute rejection was present in 25% of BKV (+) patients. Graft loss developed in 2 (16.6%) of
BKV (+) patients. Patients with BKV infection gender, age of transplantation, donor type, etiology of renal failure, immunosuppressive treatment, ureteral stent, acute rejection were similar when compared to patients without BKV infection. Accompanying CMV infection were significantly higher in patients with BKV infection (p=.013). Rate of acute rejection, presence of ureteral stent, CMV infection association and graft loss were significantly higher in BKV nephropathy (p<.01).

**Conclusions:** BKV infection is common in pediatric renal transplant patients. Although BKV infection does not significantly affect short-term renal function; the risk of developing graft loss is still high in patients with BKV nephropathy despite the treatment. CMV infections are most commonly associated with BKV infection, with patients having an increased risk of infection due to immunosuppression. Close monitoring, early detection and diagnosis have a significant effect on the prognosis of polyomavirus BK infection in pediatric renal transplant patients.

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**O45**

**FREQUENCY OF POSTTRANSPLANT URINARY TRACT INFECTIONS IN PEDIATRIC KIDNEY TRANSPLANT RECIPIENTS**

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**Introduction:** Urinary tract infection (UTI) is the most important infectious complications after kidney transplantation. It is considered as important risk factor for graft outcome, mortality and morbidity. In this study we evaluated frequency of UTI, causative agents, and risk factors in pediatric kidney transplant recipients.

**Materials and Methods:** In this retrospective study, we investigated frequency of UTI in 135 pediatric kidney recipients. Transplantation age, gender, donor type, primary disease, immunosuppressive treatment, causative microorganisms, vesicoureteral reflux (VUR) after transplantation were evaluated in patients with UTI(+) and UTI(-).

**Results:** Twenty-eight (20.7%) patients (7 male, 21 female) developed UTI after transplantation. The mean age was significantly smaller in patients with UTI (123.32±65.81 vs 161.76±52.63 months [p<.05]). Donor type and immunosuppressive treatment were similar in both groups. Congenital anomalies of the kidney and the urinary tract (CAKUT) was main cause of chronic renal failure and significantly more common in patients with UTI (42.8% vs 28.9%; p<.05). *Escherichia coli* was the most frequently isolated pathogen (53.5%). Vesicoureteral reflux after transplantation was significantly higher in patients with UTI (32.1% vs 0%).

**Conclusions:** UTI is one of the important complications in post transplant period. CAKUT as primary disease, younger age and presence of post transplant VUR were associated with higher risk of UTI. These patients should be followed closely for the development of urinary tract infection.

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**O46**

**EXPERIENCE WITH CARDIAC IMPLANTABLE ELECTRICAL DEVICE EXPLANTATION AFTER CARDIAC TRANSPLANTATION: A REPORT OF 16 CASES FROM A SINGLE CENTER IN A PERIOD OF 5 YEARS**

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**Introduction:** Cardiac implantable electrical device explantation after cardiac transplantation is usually performed since these devices may be a source of infection or may cause vascular complications, and patients may need magnetic resonance imaging. Herein, we aimed to share our experience with cardiac implantable electrical device explantation after cardiac transplantation.

**Materials and Methods:** We retrospectively reviewed the medical records of cardiac transplant patients who underwent manual explantation of cardiac implantable electrical devices implanted previously under local anesthesia at the cardiac angiography laboratory between 01.01.2012 and 01.06.2017. We recorded the demographic properties; survival status; time from cardiac device implantation to explantation, complications of
device explantation, retained device or lead parts after explantation; anticoagulation and immunosuppression status at the time of device explantation; preoperative and postoperative hemoglobin, c-reactive protein (CRP) and white blood cell counts; preoperative creatinine, platelet count, and international normalized ratio (INR).

**Results:** A total of 16 patients with a median age 45 (18-52) years were reviewed. Of these, 5 (31.2%) were female and 11 (68.8%) were male. Two (12.5%) patients died during follow-up, but not secondary to device explantation. The majority of patients (81.3%) had non-ischemic dilated cardiomyopathy prior to transplantation. All patients were using immunosuppressives, and all but two were receiving steroids at the time of the procedure. All devices were located at the left prepectoral area, with the tips of the cut leads remaining in the superior vena cava or left subclavian vein. No procedural complication of device explantation was observed. No device part was retained after the procedure. Five (31.3%) patients were using aspirin, 1 (6.3%) warfarin, and 2 (12.5%) low molecular weight heparin (LMWH) prior to procedure. All patients on aspirin continued that medication uninterrupted perioperatively and those taking warfarin and LMWH stopped the agents prior to the procedure at a suitable time. At the postoperative period, 1 (6.3%) patient complained of pain and another (6.3%) developed hematoma at the pacemaker pocket site that was conservatively managed. The patient who developed hematoma was taking LMWH prior to the procedure. No patient developed fever or clinical infection or required red blood cell transfusion after the procedure. The median hemoglobin drop was 0.5 (0-1.0) g/dl and the median white blood cell increase was 3.1 (0.2-3.9) x 10³/µl. The median CRP increase was 1.65 (-68-59) mg/dl among 4 patients with preoperative and postoperative CRP values obtained. No demographic, procedural, or biochemical variable was significantly correlated with postprocedural complications.

**Conclusions:** Cardiac implantable electrical device explantation is a safe procedure with low morbidity risk. It appears that antipatelet agents can be safely continued uninterrupted at perioperative period. Taking immunosuppressives or steroids do not seem to put patients at risk of surgical site infection.
Poster Presentations
Financial problems associated with organ transplantation pose an important aspect of the whole process. Organ procurement, surgery, postoperative medical care of the recipient, immunosuppression therapy and donation related costs are the main items of finance. A research (Rodrigue JR 2016) has revealed that most living kidney donors had one direct cost or more following donation. These included transportation (86%), health care (41%), meals (53%) and medications (36%).

A research in USA (Milliman firm, 2008) has revealed the costs of specific organ transplantations. The intestine transplantation is the most expensive, averaging $1,121,800. The kidney is the least expensive at $259,000. The others range from $275,500 to $787,700.

A study from Japan analyzing cost analysis of transplantation (Kitazawa) has revealed that most expensive transplantation is live-donor liver transplantation and onset of pneumonia after auto-peripheral blood stem cell transplantation and allo-bone marrow transplantation increased the total cost.

In countries where the National Health Insurance does not cover the whole population, access to transplantation is highly limited and it naturally creates ethic problems.

In Turkey, 3423 kidney, 1396 liver, 69 heart, 22 lung, 6 pancreas and 5 transplants were performed in 2016 and the payment made by the National Health Service for various transplants is shown in the Table. The total number of hemodialysis patients was nearly 60,000 in the same year.

Nations allocate an important portion of their budget to health. Nationwide studies are needed to compare the cost effectiveness of different types of organ transplantation compared to conservative treatment during waiting period including hemodialysis. The major complications which lengthen hospital stay and consequently increase the costs should be analyzed.

<table>
<thead>
<tr>
<th>ORGAN TRANSPLANTED</th>
<th>TURKISH LIRA (TL)</th>
<th>US DOLLAR ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart</td>
<td>112,079.32</td>
<td>36,688</td>
</tr>
<tr>
<td>Heart+Lung</td>
<td>155,817.88</td>
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</tr>
<tr>
<td>Lung Global</td>
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<tr>
<td>Liver</td>
<td>129,848.23</td>
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<td>Pancreas</td>
<td>23,709.95</td>
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<td>Kidney</td>
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<td>151,585.44</td>
<td>42,106</td>
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P3
THE INFLUENCE OF SOCIAL, ECONOMIC, FAMILIAL, MARITAL STATUS AND THE DISEASE ADAPTATION ON THE PHYSICAL AND MENTAL HEALTH DIMENSIONS OF PATIENTS THAT ARE A CANDIDATE FOR RENAL TRANSPLANTATION

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Introduction: End-stage renal disease (ESRD) is a disease with a long duration that patients are required to live with the limitations imposed by their condition. Stressors associated with ESRD are very demanding and make patients dependent for support on their social environment. In this study, we aimed to show the influence of familial, social, economic and marital status on the quality of life in ESRD patients.

Materials and Methods: Total 378 patients (F:M=190:188) who were under hemodialysis treatment and on the transplantation waiting list included in the study. The mean age of the patients was 54±16.5 years (18-85 years). All patients filled SF-36 health survey questionnaire voluntarily while undergoing HD treatment to evaluate the quality of life. All components (Physical Functioning, Psychological Functioning, General Health, Global) of the SF-36 questionnaire were analyzed separately, and its scales and dimensions scored as a number between 0 and 100. Also, all social, economic, and business life dimensions analyzed with another questionnaire form.

Results: The SF36 total score for Physical Functioning, Psychological Functioning, General health, and Global health quality was 36±22, 42±21, 40±18 and 40±18 respectively in all patients. There were statistically significant differences between single and married patients regarding physical health or mental health dimensions (p<.001). We noted that quality of life found to be high in single patients compared to married. The lowest SF36 scores regarding both physical and mental health were found in married women. Patients who were living in the village had lower health quality compared to patients who were residing in city or town (p<.01). Also, patients who were house owner and who had a job had a higher degree of health quality than patients who did not have their own home and job (p<.01). The lowest SF36 scores found in cases who were housewife and farmer (p<.001). Also, compared to patients who were going home after HD session, patients who were going to work had better SF36 scores (p<.001). Patients with private insurance and patients who had family support had better SF36 scores (p<.001). Patients that were failing to comply with the doctor and dietician proposals showed lowest health quality (p<.05). Regular or irregular drug usage of patients did not show any influence on SF scores.

Conclusions: In conclusion, we showed that familial, social, economic and marital statuses have an independent impact on the well-being of ESRD patients, in addition to the influence of disease adaptation.

P4
THE IMPACT OF HEALTH, SOCIAL, FAMILIAL, ECONOMIC ISSUES ON THE PATIENT COMPLIANCE WITH ESRD

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Introduction: Economic, social and familial support with the marital status is an understudied, yet important, a modifiable risk factor in some chronic illnesses, including end-stage renal disease (ESRD). Increased social and familial support has the potential to positively affect outcomes through increasing the patient perception of quality of life, increasing access to health care and increasing patient compliance with prescribed therapies. Therefore we aimed to show the influence of some health, social, familial, marital and economic issues on the patient compliance with ESRD and hemodialysis (HD).

Materials and Methods: Total 378 patients (F:M=190:188) who were under HD treatment included in the study. The mean age of the patients was 54±16.5 years (18-85 years). All economic, social, familial, marital and some health issues analyzed with a questionnaire form.

Results: Average time on HD treatment, the number of weekly HD sessions, mean time of the disease, and the average waiting time for renal transplantation showed a negative influence on patient compliances with prescribed therapies, diet, HD treatment and with social or psychological proposals (p<.05). A history of transplantation, the presence of social and familial support had a positive impact on all compliances (p<.01). Also, patients who had a female supporter in their family and
who were single had better compliance with therapies. A significant relationship found between a patient compliance to therapies with the place of hometown and the sex of patient (p<.05). Patients with low income, low education and that were living in the rural area showed the lowest compliance with therapies and proposals given by doctors, social workers and psychologists. Female patients had failed to comply with the doctors, social workers, and psychologists proposals while they had shown a good cooperation with dieters.

Conclusions: We demonstrated that it is important to increase social, economic and familial support to ESRD patients to increase the patient compliance with all therapies and proposals.

P5
NURSING CARE AFTER LIVER TRANSPLANTATION ACCORDING TO OREM’S THEORY OF SELF-CARE DEFICIT: CASE REPORT
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The usage of the nursing theory and models in nursing care process offers a conceptual framework to this area forming a basis and guiding. The theory and the models contribute to the development and professionalisation of the profession of nursing. Orem’s Self-Care Deficit Nursing Theory is one of the most frequently used theories in the practice of nursing. According to Orem, nurses should reduce one’s needs to a degree that one can fulfill in the case of self-care deficit, increase one’s self care skills or undertake care needs him/herself if she/he can’t remove self-care deficit. The patients with a liver transplantation diagnosis are in need of supportive and educational nursing approaches and guidance according to Orem’s Self-Care Deficit Nursing Theory.

A 65 year old male patient who had liver transplantation a year ago because of liver cirrhosis due to Hepatitis C underwent nursing care according to the “Self-Care Deficit Nursing Theory”. This case presentation includes implementations and evaluations of a nursing care plan which improved for caring for this patient. Patient had liver transplantation from his daughter and hospitalized at a university hospital.

Our case presentation aims to prepare standard care plan for donor and recipient, to increase patient care quality and, to reduce the nurse’s work load with the systematic approach.

Diagnosis of nursing in the case:
- Fatigue
- Lack of self-care
- Less nutrition than body needs
- Inadequacy in physical movement
- Risk of deterioration of skin integrity
- Information requirement

P6
ATTENTION DEFICIT AND HYPERACTIVITY DISORDER IN CHILDREN WHO UNDERWENT LIVER TRANSPLANTATION
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Introduction: Liver-transplanted children have an increased risk for serious developmental problems. We investigated the frequency and possible causes of attention deficit and hyperactivity disorder (ADHD) in children with liver transplantation.

Materials and Methods: 62 out of 213 children who underwent liver transplant between 2003 and 2015 at Baskent University Ankara Hospital were eligible for the study. Primary diagnoses, age of transplantation, duration of pre-transplantation illness, length of stay in hospital-ward and in intensive care unit before and after transplantation, Child Pugh and PELD scores, donor type, prematurity, history of low birth weight, convulsion, familial epilepsy and maternal smoking during pregnancy were recorded. K-SADS (Schedule for Affective Disorders and Schizophrenia for School Aged Children–Kiddie-SADS-Present and Lifetime Version) was performed on all children and their parents by the clinical interviewer who is a specialist in child and adolescent mental health. ADHD diagnosis was determined according to DSM IV Axis 1 criteria. Patients were also evaluated with Conners’ Parent Rating Scale (CPRS) and Conners’ Teacher Rating Scale – (CTRS).

Results: The mean age of the study group was 11.6±3.1 (7-18 years). The most common indication of LT was
biliary atresia (19/62, 30%). The mean age at the time of LT was 4.8±3.2 (0.6-16.6 years). The time lag between LT and study was 6.8 ± 3.7 (1-12.9 years). Six of the 62 (9.7%) patients aged 10.9 ±3.1 (8-17) years were diagnosed with ADHD. Primary diagnoses of patients with ADHD were Alagille syndrome in 2, familial hypercholesterolemia in 2, biliary atresia in 1, and tyrosinemia in 1 patient. (1/25) (4%) of the girls and; (5/37) (13.5%) of the boys were diagnosed with ADHD. The only patient who was diagnosed with inattentive type of ADHD was female, while the other five were male. Four patients had combined type of ADHD and one patient had hyperactive-impulsive type of ADHD. The mean duration of illness before LT was 3.5 ± 3.8 years (0.1-16). There was no difference between patients who had and had not ADHD in terms of duration of illness before LT. Pre transplant hospitalization time in the pediatric ward and in the ICU was 27.8± 28.8 (0-168) and 0.8 ±2.4 (0-11) days. Post transplant ICU stay was 4.3±3.8 (1-21) days. Post transplant hospitalization time in the wards until the end of the study was 69±55 (7-287) days.

There was no relationship between primary diagnoses, age of transplantation, duration of pre-transplantation illness, duration of hospitalization in ward and in intensive care unit before and after transplantation, Child Pugh and PELD scores, donor type, prematurity, history of low birth weight, convulsion, familial epilepsy and maternal smoking during pregnancy and ADHD. As the duration and number of post-transplantation hospitalization increased during the follow-up years, hyperactivity scores increased in the Conners’ test conducted by teachers (CTRS) (r= 0.273 p<.05).

Conclusions: Our study is the first study investigating the ADHD in liver transplanted children in Turkey. The rate of ADHD was found 9.7%. This rate was slightly higher than the proportion of community-based studies (5.6-8.6%) in Turkey and may suggest the effects of liver transplantation on cognitive function and attention. Recurrent and prolonged hospitalization time had an impact on hyperactivity scores. We suggest simultaneous consideration of physical and mental health in patients with organ transplantation and problems should be intervened in time.

P7

PSYCHIATRIC EVALUATION OF CHILDREN DURING THE ORGAN TRANSPLANT PROCESS

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Introduction: Organ transplantation is performed frequently in Turkey. A routine psychiatric examination is performed prior to all transplant procedures, and psychiatric support is continued during the post-transplant period. In this study, we reviewed the psychiatric consultation records of child and adolescent patients admitted to Başkent University Hospital who underwent or were scheduled to undergo transplantation to determine the prevalence of psychiatric disorders in this population.

Materials and Methods: Fifty-nine transplant patients were seen by the Department of Child and Adolescent Psychiatry between 2012 and 2015 and were evaluated based on the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition.

Results: Thirty (50.8%) patients were female, and 29 (49.2%) were male. The mean age of the study population was 10.2 ± 4.5 years, and the mean age at transplant was 9.9 ± 4.6 years. In total, 69.5% of participants were diagnosed with a psychiatric disorder. The most common diagnosis was adjustment disorder, with a prevalence of 52.4%.

Conclusions: Our study found that psychiatric disorders are frequently encountered in pediatric transplant patients. This study revealed a higher prevalence of psychiatric disorders during the post-transplant period than during the pre-transplant period.
Renal transplantation is the most elite treatment method which provides renal failure patients with important positive changes in their quality of life. However, some renal transplantation patients have difficulty in adopting new conditions depending upon physical and mental problems as well as expectations. Especially such transplantation recipients are a risk group in terms of organic brain syndrome, depression, anxiety and self-annihilation. Furthermore, disorders of sex and body image have been seen in pursuit of physiological and mental changes.

According to World Health Organization (WHO), sexuality consists of the combination of physical, emotional, intellectual and social aspects. Sex disorders not only affect physical health but they also cause deterioration of mental and social health and family integrity. Sexual dysfunction is an important matter which is commonly encountered in the process of pre and post renal transplantation. Even if a successful renal transplantation heals function of erection and it increases libido, sexual dysfunction may continue in too many patients in different levels. After renal transplantation, menstrual disorders and libido reduction in women and decline in testosterone and spermagenesis in men have also been seen. Both sexes suffered from sex dysfunctions because of endocrinal changes and fear of troubled kidneys. Extensive studies are required in order to plan proper attempts by determining sources of psychological stress that patients suffer after renal transplantation. When examined, it has been seen that there were few qualitative and quantitative studies about sexuality in renal transplant patients in Turkey. Besides, we need more data about the solutions in this field. Determining the problems that patients experienced in post-transplantation process and taking precautions against probable problems are important in terms of planning training about this matter.

Because of psychological, socio-economic and physiological problems which are seen in renal transplantation patients, the rehabilitation which contains physiological and psychological care of the patients is extremely important and it is the most basic purpose of health squad; particularly nurses. This study, which is planned in order to search the effect of renal transplantation on body sense, self-respect and couple compatibility, is thought to be a guiding light in planning of treatment, care and training of patients.

In this research, in which identifiers were defined; sociodemographic info form, body image scale, Rosenberg self-respect scale and scale of couples’ compatibility, which were all formed by researchers, were used. The research started after the permission of ethical committee and institution. Sampling and nature of the research consisted of renal transplant patients in a university hospital, transplanted patients at least 6 weeks ago and those controlled once in transplant polyclinic in 2 months patients and healthy individuals with similar characteristics.

The data are in the stage of assessment and findings and discussion are going to be added after the assessment.

**P9**

**THE EFFECT OF WEB BASED EDUCATION INTERVENTION ON SELF MANAGEMENT IN KIDNEY TRANSPLANT RECIPIENTS**

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**Introduction:** As in the world, communication, information technologies and internet usage are increasing rapidly in Turkey (TUİK, 2017). One of the most effective methods of education is web-based education which allows you to surf online (Fredericks, Martorella and Catallo, 2015). The fact that kidney transplant recipients are in different parts of the country and that they cannot reach the related health professionals when they need information reveals the necessity of web based education which can be accessible at any time.

**Materials and Methods:** This study was conducted as a literature review to emphasize the effect of web based education intervention on self management in kidney transplant recipients. By using the related English and Turkish web based education, kidney transplant key words Google Scholar and EBCOHOST databases were scanned and the potentially related topics were handled.

**Results:** According to the research of information technology at houses by the Turkish Statistical Institute, Internet usage in Turkey reached 93.7% in 2016, while the Internet access rate of the houses reached 76.3% (TUİK, 2017). This data indicates that internet usage in health
education becomes essential. Kidney transplantation is a treatment method that affects individuals' quality of life positively. However, in the following months of transplantation adherence to the immunosuppressive regimen efforts increase the information needs and responsibilities of transplant recipient and their family members who support the care (Weng et al, 2007). Increasing care responsibilities and information need cause the transplant recipient and their family members to have difficulties in maintaining the treatment regimens and adapting to them (Ding, 2010). Observing the side effects of the medication, preventing infections, self-monitoring, managing physical activity and nutrition, are among the issues that the individual should adapt and pay attention to (Akyolcu, 2002; Kobus et al., 2011). Individuals may experience limitations in mental health, quality of life, and medication management issues after transplantation and this is important for individuals who live far away from the transplantation place. It has been observed that web-based education is useful in following individuals’ appointments and adaptation to nutrition. It has also been found out that web-based education has positive effects on psychological states of both patients and caregivers such as anxiety and depression (Dew et al., 2004). Web-based education is preferred for some reasons such as being accessible in any desired time, being independent of time and space, being able to reach many individuals at the same time, and being cost-effective (Toker Gökçe, 2008).

Conclusions: The fact that the information/education at hospital for kidney transplant recipients is insufficient for their home care or the individuals are not ready for education causes their needs for education during post-discharge period to continue. Web-based education in kidney transplant recipients can also be useful in the fulfillment of self-management by improving the individuals’ related knowledge and attitudes about their care in the process of recovery at home.

RELATIONSHIP BETWEEN PLASMAPHERESIS AND VITAMIN D DEFICIENCY IN PEDIATRIC RENAL TRANSPLANT PATIENTS

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Introduction: Plasmapheresis is used for preoperative desensitization in kidney transplant patients and for antibody-mediated organ rejection. It is known that plasmapheresis has an adverse effect on vitamin D levels in different patient groups with different causes and diagnoses. In this study, we aimed to examine the relationship between plasmapheresis therapy and vitamin D levels in pediatric renal transplant patients.

Materials and Methods: We evaluated 73 renal transplant patients, plasmapheresis were performed on 24 of the patients due to acute and chronic humoral rejection. We recorded their gender, age of transplantation, donor type, immunosuppressive agent type, post-transplantation follow-up, vitamin D levels measured between 7 days and 1 year after plasmapheresis treatment. Patients were divided into two groups with and without plasmapheresis.

Results: 32 of the patients were female and 41 were male. The number of transplants from deceased donor was 11 and from living kidney donor was 62. The average transplantation age was 12.2 ± 3.6 years for 24 patients with plasmapheresis and 10.7±5.2 years for 49 patients without plasmapheresis. The mean duration of immunosuppression treatment was 3.4 ± 2.7 years in plasmapheresis group and 3.5 ± 2.1 years in non-plasmapheresis group. There was no difference between the two groups in terms of gender, donor type, follow-up period, immunosuppressive agent type and post-transplantation follow-up. The mean vitamin D level in patients with plasmapheresis was lower than non-plasmapheresis group (17.86±10.9 ng/ml and 24.4 ± 8.8 ng/ml, respectively). However, there was no significant statistical difference among the groups in terms of the vitamin D levels. Rate of severe vitamin D deficiency (10 ng/ml or below) was significantly higher in plasmapheresis group than non-plasmapheresis group (21% vs 11%, p<.05)

Conclusions: Vitamin D level is affected by plasmapheresis in renal transplant patients.

Although our results were not statistically significant, we concluded that the patients with plasmapheresis
had a lower level of vitamin D and they carry a higher risk of vitamin D deficiency. Vitamin D levels should be considered in the follow-up of renal transplant patients with plasmapheresis. Further studies are needed on the relationship between plasmapheresis and vitamin D levels in renal transplant patients.

P11

LONG TERM OUTCOMES OF PATIENTS WITH JUVENILE NEPHRONOPHTHISIS AFTER RENAL TRANSPLANTATION

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Introduction: Nephronophthisis (NPHP) is the most common genetic cause of end-stage renal disease (ESRD) in childhood. Kidney transplantation is the treatment of choice patients with ESRD. We reported the outcomes of renal transplant recipients with a primary diagnosis of juvenile NPHP in our center.

Materials and Methods: We retrospectively analyzed medical records of 135 renal transplant patients. We compared donor types, dialysis modality and duration, immunosuppressive treatment, acute rejection rate and outcomes of the patients with (group 1) and without (group 2) juvenile nephronophthisis.

Results: Sixteen patients (11.9%) had primary juvenile nephronophthisis diagnosis. Of the 16 NPHP patients (group 1), 5 (31.2%) received a cadaveric donor and 11 (68.7%) received a living related donor transplantation. Of the 119 without NPHP patients (group 2), 21 (17.6%) received a cadaveric donor and 98 (82.3%) received a living related donor. The mean age of the patients in group 1 was 149.56±50.33 months and 154.36±58.59 months in group 2 (P=0.75). The mean follow-up period was 60.18±35.86 months in group 1, 46.35±30.51 months in group 2 (p=0.09). There was no significant difference between groups in terms of dialysis modality and duration of dialysis and immunosuppressive treatment. Although the rate of acute rejection (12.5% vs 29.4%) and graft loss (6.25% vs 10.9%) were found lower in patients with NPHP, the difference was not statistically significant. Both groups had similar glomerular filtration rates post-transplant at 1 and 5 years (91.95±21.10 and 78.79±28.98 mL/min/1.73 m², in group 1; 89.79±30.55 and 84.83±29.38 mL/min/1.73 m² in group 2, respectively).

Conclusions: We observed preserved graft functions for long periods and we can say that post-transplant prognosis is good among renal transplant recipients with juvenile NPHP. Chronic allograft nephropathy developed rarely on long term follow-up.

P12

THE EFFECT OF PRETRANSPLANT LONG TERM ANURIA ON GRAFT OUTCOME IN CHILDREN

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Introduction: The normal bladder stores urine at low pressure and empties nearly completely by natural voiding. However, patients with chronic renal failure, who have prolonged periods of uremia and dialysis show oliguria causing disuse atrophy and fibrosis of the bladder mucosa and muscle, resulting in a small bladder with a low compliance and high intravesical pressure. Bladder capacity and function gradually decrease as the duration of the anuria increases. In small bladders, surgical technique and rehabilitation of the bladder after transplantation becomes difficult. Long term anuria and small bladder can also affect graft survive. There is little data on the course of allografts in patients with long term anuria. We aimed to determine the effect of pre transplant long term anuria on graft outcomes in children.

Materials and Methods: We retrospectively analyzed the data of 135 renal transplant recipients. Patients divided two groups as long term and short term pre transplant anuria (less and more than six months). These two groups compared with non-oliguric patients in terms of bladder capacity, urinary tract infection and vesicoureteral reflux after transplantation and graft outcomes.

Results: 21 of 135 patients were short term anuric (10 male, 11 female), 26 of them were long term anuric (11 male, 15 female) and 88 were non-oliguric (54 male, 34 female). Bladder capacity of non-oliguric patients was 295±135 mL, whereas it was 235±76 mL in short term anuric patients and 137±35 mL in long term anuric patients. Urinary tract infection was observed in 31% of non-oliguric patients, 48% of short term anuric patients and 61% of long term anuric patients. Vesicoureteral reflux was observed in 39% of non-oliguric patients, 69% of short term anuric patients and 73% of long term anuric patients. The graft survival rates were 97% in non-oliguric patients, 93% in short term anuric patients and 78% in long term anuric patients.
ml, and 248.3±140.83 ml in short term anuric patients, 126.8±72.38 ml in long term anuric patients (p<.05). Urinary tract infection after transplantation was detected in 18 (20.4%) of the non-anuric patients, 5 (23.8%) patients in short term anuric and 5 (19.2%) patients in long term anuric. Vesicoureteral reflux after transplantation was detected in 8 (9.0%) of the non-anuric patients, 1 (4.7%) patients in short term anuric. Vesicoureteral reflux was not detected in long term anuric patients. Graft loss rate were; 5.7% in non-anuric patients, 14% in short term anuric patients, 24% in long term anuric patients. There was a positive correlation between the rate of graft loss and duration of anuria (r=0.25, p=.03).

Conclusions: Our results showed that bladder capacity is significantly smaller in patients with long term anuria and pretransplant long term anuria has negative effect on graft outcomes.

P13

EVALUATION OF DRY EYE USING ANTERIOR SEGMENT OPTICAL COHERENCE TOMOGRAPHY IN PATIENTS WITH CHRONIC RENAL FAILURE UNDERGOING HAEMODIALYSIS

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Introduction: Our purpose was to evaluate dry eye parameters with conventional tests and tear meniscus with Anterior Segment Optical Coherence Tomography (AS-OCT) in patients with chronic renal failure (CRF).

Materials and Methods: Thirty-eight CRF patients undergoing hemodialysis, and 40 healthy individuals were enrolled. An ocular surface disease index questionnaire (OSDI) was administered. Before conventional dry eye tests, tear meniscus were evaluated using AS-OCT. After a complete ocular examination, Schirmer and break-up time (BUT) tests were performed and probable corneal staining was investigated.

Results: Schirmer test and BUT values were significantly lower in CRF patients (p<.05). OSDI scores and corneal staining scores were significantly higher in CRF patients (p<.05). Tear meniscus height (TMH), tear meniscus depth (TMD), and tear meniscus area (TMA) which were obtained by AS-OCT were significantly lower in patients with CRF (p<.05).

Conclusions: Tear meniscus evaluation using AS-OCT is an effective and non-invasive method to assess tear meniscus in patients with CRF. Patients with CRF that undergoing hemodialysis should obtain regular ophthalmic examination, especially for dry eye.

P14

THE RELATIONSHIP BETWEEN SERUM GABAPENTIN LEVELS AND RESPONSE TO NEUROPATHIC PAIN IN HEMODIALYSIS PATIENTS

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Introduction: Neuropathic pain is a common problem for hemodialysis patients. Gabapentin is a medication with a wide usage for neuropathic pain on this group. It has been recommended to use the gabapentin after hemodialysis with lower dosages. Measurement of serum gabapentin levels is not routine. The effect of gabapentin on neuropathic pain has been investigated in recent studies but the relation between therapeutic levels also dosages of gabapentin and effect on neuropathic pain has not investigated yet. In this study we investigated relation between the response of gabapentin medication and serum gabapentin levels.

Materials and Methods: Forty hemodialysis patients (21 Female 19 Male mean age: 55.58±13.3 years) who required gabapentin medication for neuropathic pain are enrolled to the study. The questionnaires in the assessment of neuropathic pain: Turkish version of DN4 was used for pain scoring. Patients are divided in two groups. Group I included the patients who healed with gabapentin and group II, who healed not. Gabapentin serum levels were measured before hemodialysis and statistically analyzed with nonparametric student t test and Pearson correlation.

Results: There was no statistically significant differences according to age, gender, kidney disease etiology, present of diabetes, urea reduction rate between the two groups p>.05. However the gabapentin mean serum level was
13.29 ± 4.03 mg/dL in group I and 2.3 ± 1.3 mg/dL in group II respectively (p<.05).

**Conclusions:** The gabapentin serum levels may be monitored for the hemodialysis patients without response against to gabapentin in spite of recommended dosages. The gabapentin regimen could be rearranged up to therapeutic dosages.

**P15**

**CORNER-SAVING RENAL ARTERY ANASTOMOSIS FOR RENAL TRANSPLANTATION: LONG TERM FOLLOW-UP**

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**Introduction:** Renal transplantation is the preferred treatment for most patients with end-stage renal disease. Postoperative vascular complications that significantly affect graft loss include renal artery stenosis and thrombosis. Many arterial anastomoses have been used at various transplant centers. Haberal described corner saving renal artery anastomosis in 2003. In this study, we have presented the long term outcomes of 459 renal transplant recipients to undergo our corner-saving renal artery anastomosis technique.

**Materials and Methods:** Our transplant team has performed 2646 procedures since 1975. After December 2003, we began using the corner-saving technique. When performing the corner-saving technique, before suturing, the posterior wall of the renal artery is spatulated approximately 2 to 3 mm. Then a 7-0 Prolene running suture is made beginning 3 mm ahead of the middle of the posterior walls of the renal artery and the external iliac artery, finishing at the anterior walls of the renal and external iliac arteries.). After the last stitch, both ends of the suture material are pulled to decrease the excess, and the posterior walls of the renal and external iliac arteries are approximated tightly. Then, 1 retraction suture is placed at the anterior corner of the external iliac and renal arteries. The remaining wall is sewn with the same suture.

**Results:** 324 of the patients were male and 135 of the patients were female. Overall mean age of 31.3 ± 8.9 years (range, 7–66 years); 339 of the patients were living donor kidney transplantation and 120 of the patients were deceased donor kidney transplantation. No renal artery thrombosis developed in any of our patients. In 2 patients iliac artery dissection occurred, and treated with surgical procedure. In 4 patients (0.8%), a renal arterial stenosis was noted at the follow up period. All of them were treated with interventional radiologic procedures. 32 patients were passed away during the follow up period (Patient survival: 93%). All deaths occurred 1 year after transplant and all of them had normal renal functions.

**Conclusions:** With its low complication rates, we believe that the corner-saving suture technique is a safe and easy means of performing a renal arterial anastomosis that will decrease the rate of vascular complications. Spatulating the posterior wall of the renal artery provides a wider anastomosis.

**P16**

**CLINICAL AND ANATOMICAL IMPORTANCE OF ARTERIAL RENALIS AND VARIATIONS IN ORGAN TRANSPLANT SURGEON**

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Kidneys are the most important excretory organ that regulates water and salt metabolism. The kidneys are located at the top of the abdomen’s back wall. Retroperitoneal organs. They were located at the 11th thoracal and 3rd lumbar vertebra levels on either side of the columna vertebralis. The kidneys have two extremities called extremitas superior and extremitas inferior. There are two face facies anterior and facies posterior. There are two sides called margo medialis and margo lateralis. The inside of the kidney wraps three outfalls called capsula fibrosa, capsula adiposa and facia renalis. The kidneys take their arteries directly from the aorta abdominalis. There are two venae renalis on the right and left. It is absolutely necessary for the organ transplant surgeon to know the normal anatomy of the kidney and kidney arteries and to know their variations. Knowing the variations of the kidney and kidney arteries to avoid life-threatening complications should be remembered and demonstrated in transplant surgeons. For this reason, it is very important to know the functional, surgical and clinical anatomical features of the organ.
ASSOCIATION BETWEEN VASCULAR ACCESS TYPE AND VISCERAL AND PERIPHERAL BODY FAT, NUTRITIONAL AND INFLAMMATORY PARAMETERS IN PATIENTS ON KIDNEY TRANSPLANT WAITING LIST

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Introduction: Central venous catheters (CVC) are preferred when a patent arteriovenous fistula (AVF) could not be created (1). CVC were shown to associate to increased inflammation and mortality (2). Previously it has been revealed that vascular access failure and need to use of permanent catheters may be related to visceral and peripheral body fat (3-5). In the present study we aimed to investigate a probable association between the vascular access type and BMI, total body fat, truncal fat, muscle mass, visceral (periaortic) fat, malnutrition inflammation atherosclerosis and calcification score (MIAC) in hemodialysis patients on kidney transplant waiting list.

Materials and Methods: Total 119 patients were involved. Ninety patients had patent AVF and 29 patients were undergoing hemodialysis via permanent jugular catheter. Two-dimensional echocardiography was performed to detect valvular calcification. Computed tomography is performed in all patients to detect the amount of thoracic periaortic fat tissue (T-PAFT). Biochemical analyses were performed using c8000 Architect. MIAC scores were calculated using valvular calcification, albumin, CRP. Total body fat and truncal fat was detected using bio impedance analysis method. Aortic calcification score (AoCS) was calculated using routine chest x-ray.

Results: MIAC and AoCS was higher in patients with CVC (p=.02 and .032). T-PAFT was higher in patients with AVF (1631.5±645 vs 1112.2±606.8; p=.035). CRP was higher in patients with CVC (p=.04). Hemodialysis vintage, calcium and albumin were lower in patients CVC (p=.01). Truncal fat (%), cholesterol and 25-OH vitamin D levels were lower in patients with CVC (p=.04; .02, .03). T-PAFT was a significant predictor of vascular access type in favor of AVF (t=-2.17; p=.04).

Conclusions: Present study revealed that HD patients with CVC had increased inflammation, decreased nutrition, visceral and truncal fat. Further prospective studies are needed to illuminate the relationship between vascular access type, nutritional parameters and body composition in HD patients.

References:

THE EFFECT OF NEW INFLAMMATION MARKERS IN TRANSPLANT RECIPIENTS

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Introduction: Patients with chronic kidney disease (CKD) are characterized by a state of inflammation and oxidative stress that seems to improve after kidney transplantation (KT). However there is discussion concerning what is the best marker that better define inflammation and especially oxidative stress. In this trial we aimed to determine the relation between serum FGF-23, Klotho, IL-6, IL-10 and myostatin; hand grip strength, nutritional and inflammatory parameters as well as graft function in stable kidney transplant recipients on triple immunosuppressive therapy. Healthy volunteers served as a control group.

Materials and Methods: This study was conducted in 137 kidney transplant recipients (Group G2) and 78 healthy volunteers (Group G0). Patients with fever, heart failure, angina pectoris, acute renal failure, malignant disease, or any gastrointestinal disease were excluded. KT recipients were treated with triple immunosuppressive drugs including glucocorticoids. All patients were evaluated for their standard clinical (age, gender, duration of hemodialysis, post-transplant time) and biochemical parameters (calcium, phosphorus, parathyroid hormone,
C-reactive protein (CRP), albumin, creatinine) and serum FGF-23, Klotho, IL-6, IL-10, and myostatin levels. Glomerular filtration rate (GFR) was calculated by modification of CKD-EPI Formula. Body compositions were analyzed with the BIA technique (BCM, Fresenius) that estimates body mass index (BMI) and percent fat. Hand grip strength was analyzed by using a dynamometer (ProHealthcareProducts.com, Park City, UT). We calculated the estimated GFR (eGFR) using the MDRD4 equation.

Results: Demographic characteristics (age, gender, duration of dialysis before transplantation) and biochemical parameters as serum calcium, phosphorus, lipid profile and eGFR levels were similar in study population. There were positive correlations between BMI, myostatin(r=0.183, p=.034) and klotho (r=0.183, p=.032). There were negative correlation between klotho, the time elapsed after renal transplantation (r=-0.259, p=.003). FGF-23, IL-10 and myostatin levels were significantly lower in transplant recipients (p=.00), (p=.01) (p=.00). Klotho and IL-6 levels were not different between the two groups. In healthy group; there were negative correlations between myostatin and muscle mass (p=.047, r=-0.229) and there were negative correlations between IL-10 and walking speed (p=.02, r=-0.266)

Conclusions: Fgf-23 was significantly lower in kidney transplant in these patients compared with healthy volunteers. Klotho level after kidney transplantation meets the range in healthy individuals. Myostatin negatively regulates muscle growth, and its inhibition by suitable proteins can increase muscle bulk and exercise performance. In addition the absence of a significant increase in FGF-23, IL-10 and myostatin levels in renal transplant recipients may be attributed to successful immunosuppressive treatment. These results indicate that there is a need for new work on inflammation in renal transplant recipients.

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NUTRITIONAL CARE OF PATIENTS WITH CHRONIC RENAL DISEASE OF 5D STAGE

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Introduction: Survival rate of patients treated by hemodialysis (HD) depends not only on adequacy dialysis programs and development of complications specific for these methods of renal replacement therapy (RRT), but mostly depends on joining and progression of comorbidity and disorder of nutritional status that mostly occurs in a form of protein-energy malnutrition. Nutritional status of patients with chronic kidney disease (CKD) of 5D stages is one of the independent prognostic factors of mortality. The main objective of our study is to evaluate the effectiveness of treatment of special nutrient formula for the correction of disorder of nutritional status in HD patients and its influence on the efficiency of correction of anemia, mineral and bone disorder.

Materials and Methods: The study includes CKD patients of 5D stage who were treated by PHD. First group was consisted of 184 patients (120 men and 64 women) aged from 23 to 79 (54.1±13.9) years in complex therapy receiving special nutrient formula (SNF). Dialysis therapy lasted from 3 months to 8.5 years, with an average of - 2.5±2.18 years. Control group consisted of 180 patients treated by PHD without including SNF in complex therapy in the age group from 22 to 70 years (52.5±14.0), with an average duration of dialysis from 5 months to 9 years - 2.6±1.92 years. Among reasons that led to CKD of 5D stage were dominated arterial hypertension with hypertonic nephropathy in 148 (40.6%) patients, diabetes mellitus - 134 (36.8%), 12 (13.2%) on the background of chronic glomerulonephritis. In 18 cases (4.94%) calculous pyelonephritis led to the CKD of 5D stage and in 12 cases (3.3%) - cystic disease, 2 cases of amyloidosis (0.5%) and gout (0.5%).

In the first group 184 patients received SNF "Nutrition Nephro" with soy protein, vegetable fat, vitamins and trace minerals at the rate of 0.6 g/kg/period of 24 hours to 1.2 g/kg/period of 24 hours for 24 weeks. Nutritional status was estimated on the basis of anthropometric data and laboratory reports: hemoglobin level, concentration of albumin, transferrin, calcium, phosphorous. Evaluation of effectiveness of HD made every week (Kt/V>1.2 и URR >65).
**Results:** As a result of administer of SNF the correction of nutritional disorder was achieved in PHD patients: body mass index in first group patients was 14.9 at the beginning of the study, in dynamics increased to the recommended BMI at RRT up to 23.9. In the second group BMI has changed insignificantly - 14.0 and 17.4. correspondingly, which coincides with moderately severe stage of BEN. The analysis of level of serum albumin in the first group showed significant increase of index at week 24 from 28.4±4.3 to 38.3±4.44 g/L (<0.05) in comparison with control group 29.0±3.89 and 32.4±5.45 g/L correspondingly. On the background of SNF mending of mineral and bone metabolism was noticed as well as the adequacy of dialysis. In the 1 group the level of calcium has increased from 1.86±0.53 to 2.25±0.17 (p<.05), phosphorous has decreased from 1.79±0.43 to 1.54±0.48 mmol/L, in the second group - calcium is 1.87±0.56 and 1.90±0.84, phosphorous is 1.74±0.44 and 1.70±0.41 mmol/L. In comparison with 2 group, first group Kt/V in patients increased from 1.04±0.10 to 1.38±0.14 (p<.05), as well as percentage reduction of urea after dialysis therapy from 58.8±4.48 to 73.3±6.5 (p<.05), in control group from 1.03±0.11 to 1.03±0.11 and 58.5±4.33 and 62.4±5.64 correspondingly.

**Conclusions:** In patients with CKD of 5D stage it is necessary to make correction of protein-energy malnutrition because it has significant impact on main disease, complicates its correction and has a significant impact on the survival rate of these patients and increase risk of fatal cases. Connection of SNF to complex therapy of patients with CKD of 5D stage demonstrated high efficacy in dialysis patients and significant betterment in the quality of life of a patient.

**P20**

**EXPERIENCE WITH DIRECT ACTING ANTIVIRAL AGENTS FOR TREATING GENOTYPE 1 HEPATITIS C VIRUS INFECTION IN HEMODIALYSIS PATIENTS ON CADAVERIC KIDNEY WAITING LIST**

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**Introduction:** HCV infection is the primary cause of liver disease in post-kidney transplantation period. It is associated with increased mortality and morbidity in kidney transplant patients. To establish a sustained viral response before renal transplantation is important in these patients. The availability of direct acting antiviral agents increase sustained viral response in general HCV infected patients. The aim of this case series study is to determine the efficacy and safety of combination therapy with Ribavirin or Ribavirin-free Ombitasvir/ Paritaprevir/ Ritonavir + Dasabuvir in HCV genotype 1 infected and non-cirrhotic hemodialysis patients on cadaveric kidney transplantation waiting list.

**Materials and Methods:** Eight male and 2 female HCV RNA positive hemodialysis patients (The mean age 50.7 ± 15 years, mean hemodialysis duration 174.7 months, and mean HCV duration 18 ± 3.7 years) were included in this study. Three patients with genotype 1a received oral 12.5 mg Ombitasvir/ 150 mg Paritaprevir / 75 mg Ritonavir + 250 mg Dasabuvir + 200 mg Ribavirin for 12 weeks. Seven patients with genotype 1b received 12.5 mg Ombitasvir / 150 mg Paritaprevir / 75 mg Ritonavir plus 250 mg Dasabuvir without Ribavirin treatment for 12 weeks.

**Results:** HCV RNA was negative in all patients (100%) after 3 and 6 months of treatment. Serious side effects were not observed in each treatment group. Five patients had constitutional symptoms such as nausea, anorexia, fatigue. During the treatment period, hemoglobin (p=.893), white cell blood count (p=.253), thrombocyte (p=.673), and ferritin levels (p=.241) were similar to pretreatment levels. ALT levels were significantly lower than baseline on the 1st (24.6, ± 9.4 vs. 16.2 ± 8.5, p<.047), 2nd (24.6, ± 9.4 vs. 14.9 ± 5.5, p<.011), and 6th (24.6, ± 9.4 vs. 10.3 ± 2.5, p<.005) months of treatment. Treatment did not affect weekly erythropoietin and monthly intravenous iron treatment doses.
**Conclusions**: Direct acting anti-viral agents may increase the opportunity of cadaveric kidney transplantation in HCV genotype 1-infected hemodialysis patients by generating a sustained viral response.

**P21**

**CYTOKINE GENE POLYMORPHISM AND CYTOMEGALOVIRUS RELATION IN PATIENTS WITH RENAL TRANSPLANTATION**

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**Introduction**: The aim of the present study was to investigate the presence of polymorphism and cytomegalovirus infection by screening low, moderate and high frequency polymorphic gene regions for TNF-alpha, TGF-beta, IL-6, IL-10 and IFN-gamma for cytokine genes. Cytokines play an important role in antiviral and inflammatory responses. CMV is the most common viral infection after kidney transplant. It may increase the risk of complications on acute rejection, graft failure, mortality, opportunistic infections, malignancy, diabetes and cardiovasculars. After primer infection, the virus can remain latent or persistent throughout life. Cytokines play an important role in the reactivation and pathogenesis of CMV infection and CMV disease.

**Materials and Methods**: 100 kidney transplant recipients who applied to Baskent University Adana Dr. Turgut Noyan Application and Research Center with chronic renal failure between 2009 and 2015. This study was approved by Baskent University Institutional Review Board (Project no: KA14 / 329) and supported by Baskent University Research Fund.

For the cytokine gene polymorphism study used commercially available kit “Cytokine Genotyping Tray” (One lambda, Inc., Canoga Park, CA, USA). Quantitative CMV Test by Real-time PCR (Number of DNA Coppies >0: Positive).

Quantitative CMV IgG and IgM Assay with ELFA (Enzyme Linked Fluorescent Assay) technique (CMV IgG <4: negative, 4≤ CMV IgG <6: Suspicious positive, 6≤ CMV IgG: positive) (CMV IgM <0.7: negative, 0.7≤CMV IgM < 0.9: Suspicious positive, 0.9≤CMV IgM: positive)

The statistical evaluation of the data obtained by the studies was done by SPSS program.

**Results**: The results of all the studied data are given in Table 1.

**Conclusions**: In this study of solid-organ transplant recipients, we assessed the potential influence of polymorphisms TNF-alpha (G/G) and TGF-beta (T/C G/C, C/C G/G, T/T G/C, T/T G/G, T/C G/G) on the incidence of CMV. These results indicate that these polymorphisms might be considered risk factors for developing CMV related status.

**Table 1**

<table>
<thead>
<tr>
<th>Cytokine Gene Polymorphism</th>
<th>CMV/PCR - IgG (+) (n=100)</th>
<th>p-value</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNF-α (Low)</td>
<td>52</td>
<td>.006</td>
<td>5.452</td>
<td>1.633-18.203</td>
</tr>
<tr>
<td>TNF-α (High)</td>
<td>4</td>
<td>.006</td>
<td>0.193</td>
<td>0.055-0.612</td>
</tr>
<tr>
<td>TGF-β1 (Low)</td>
<td>1</td>
<td>.804</td>
<td>0.142</td>
<td>0.016-1.262</td>
</tr>
<tr>
<td>TGF-β1 (Moderate)</td>
<td>12</td>
<td>1.000</td>
<td>1.061</td>
<td>0.401-2.802</td>
</tr>
<tr>
<td>TGF-β1 (Moderate - High)</td>
<td>54</td>
<td>.020</td>
<td>6.000</td>
<td>1.204-29.893</td>
</tr>
<tr>
<td>TGF-β1 (High)</td>
<td>42</td>
<td>.273</td>
<td>1.714</td>
<td>0.724-4.059</td>
</tr>
<tr>
<td>IL-10 (Low)</td>
<td>11</td>
<td>.045</td>
<td>0.388</td>
<td>0.158-0.951</td>
</tr>
<tr>
<td>IL-10 (Moderate)</td>
<td>18</td>
<td>.352</td>
<td>0.732</td>
<td>0.329-1.719</td>
</tr>
<tr>
<td>IL-10 (Moderate - High)</td>
<td>28</td>
<td>.313</td>
<td>0.630</td>
<td>0.282-1.404</td>
</tr>
<tr>
<td>IL-10 (High)</td>
<td>11</td>
<td>.806</td>
<td>0.831</td>
<td>0.317-2.182</td>
</tr>
<tr>
<td>IL-6 (Low)</td>
<td>4</td>
<td>1.000</td>
<td>1.051</td>
<td>0.223-4.963</td>
</tr>
<tr>
<td>IL-6 (High)</td>
<td>49</td>
<td>.751</td>
<td>0.700</td>
<td>0.191-2.362</td>
</tr>
<tr>
<td>IFN-γ (Low)</td>
<td>15</td>
<td>1.000</td>
<td>0.976</td>
<td>0.401-2.373</td>
</tr>
<tr>
<td>IFN-γ (Moderate - High)</td>
<td>40</td>
<td>1.000</td>
<td>0.938</td>
<td>0.388-2.263</td>
</tr>
</tbody>
</table>

OR : Odds Ratio, CI : Confidence Interval
ULTRASONOGRAPHY FINDINGS OF URINARY TRACT INFECTION AFTER KIDNEY TRANSPLANTATION: A CASE REPORT

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Urinary tract infection is the most common complication after kidney transplant and often associated with graft loss and mortality. Ultrasonography is considered as the primary imaging technique for the early diagnosis of urinary tract infections after kidney transplant. Here, we report a case of a 52-year-old male who underwent renal transplant one month earlier, presented with fever, leucocytosis and leucocyturie. Klebsiella pneumoniae was found in the urine and blood cultures. Ultrasonography revealed multiple, ill-defined margined, hypoechoic areas and cysts within the cortex. Both clinical findings and ultrasonography findings were resolved following antibiotherapy. One month later, patient presented with fatigue, leucocytosis and leucocyturie. Blood and urine culture results were consistent with Klebsiella pneumoniae. Ultrasonography revealed large hypoechoic mass, including multiple cysts in the upper pole of the transplanted kidney. Doppler ultrasonography showed increased vascularity within the hypoechoic mass and surrounding paranchyma. Renal paranchymal echogenicity has also increased in the upper pole. Ultrasonography guided percutaneous drainage was performed. Clinical, laboratory and ultrasonography findings were resolved following antimicrobial therapy. After kidney transplant, ultrasonography play an important role in the diagnosis and evaluation of treatment response of urinary tract infections.

PNEUMONIA IN RENAL TRANSPLANT RECIPIENTS: A SINGLE-CENTER EXPERIENCE

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Pulmonary infections are significant causes of morbidity and mortality in solid organ transplant recipients despite enhanced facilities for perioperative care. The medical records of all renal transplant recipients were retrospectively reviewed from January 2010 to December 2014, and the patients diagnosed with pneumonia were evaluated. Eighteen (13.4%) of 134 renal transplant recipients developed 25 pneumonia episodes within the study period. More than half (56%) of the pneumonia episodes developed within the first 6 months of transplantation, whereas 44% developed after 6 months (all >1 year). Eight cases (32%) were considered nosocomial pneumonia and 17 (68%) were considered community-acquired pneumonia. Bacteria were the most common cause of pneumonia (28%), and fungi ranked second (8%). No viral or mycobacterial agents were detected. No patients required prolonged mechanical ventilation. No statistically significant difference was found in the need for intensive care or mortality between patients with nosocomial and community-acquired pneumonia. Two (11%) patients died; all of the remaining patients recovered. In conclusion, the present study confirmed that pneumonia after renal transplantation is not a rare complication but a significant cause of morbidity. Long-term and close follow-up for the development of pneumonia is necessary after renal transplantation.
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**CYTOMEGALOVIRUS COLITIS IN KIDNEY TRANSPLANTATION PATIENT**

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**Introduction:** Cytomegalovirus (CMV) infections are one of the most common infectious complications and it is associated with graft dysfunction in kidney transplant recipients.

**Case Report:** A 31 year old female patient from living kidney transplantation admitted with vomiting and watery-non-bloody diarrhea after 7 months of kidney transplantation. Serum creatinine, Blood Urea Nitrogen (BUN), serum electrolytes and liver function tests were normal. Stool examinations revealed many white blood cells and no red blood cells. Stool cultures were negative. On colonoscopy aphthous like lesions were detected in rectosigmoid colon. Histopathological examination showed acute inflammation, inclusion bodies and positive specific immunohistochemical (IHC) staining for CMV. We started treatment with ganciclovir (5 mg/kg/twice daily intravenously). One week after treatment she had improved symptomatically. Intravenous ganciclovir treatment was switched to oral valganciclovir (15 mg/kg/day, po) after the 1st month and oral treatment continued for 3 months.

**Conclusions:** Although CMV infected patients usually present with renal dysfunction after kidney transplantation, other organ involvements must be kept in mind.

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**URINARY TRACT INFECTIONS AFTER KIDNEY TRANSPLANTATION IN FOURTEEN MEDICAL CENTERS IN TURKEY**

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**Introduction:** Urinary tract infection (UTI) is the most common complication after kidney transplantation. It may cause prolonged hospitalization, severe sepsis and graft loss. The aim of this study was to evaluate the number of UTIs that occur after kidney transplantation (KT) and to identify the antimicrobial resistant causative agents.

**Materials and Methods:** We retrospectively analyzed all the KTIs performed between the dates 1st June 2016 and 30th May 2017 and the positive urine cultures of these patients in fourteen different medical centers in seven cities of Turkey.

**Results:** A total of 488 adult patients underwent transplantation during twelve months period. Male gender was predominant with the ratio of 62%. UTI developed in 152 patients (31%), most of the UTIs (40%) were in the period between the second week and the first month after transplantation. In this study 153 UTI attacks were symptomatic and most of patients (%70) had upper urinary tract symptoms. The most common causative agent was Escherichia coli (86) followed by Klebsiella spp. (61). Ratios of extended spectrum beta-lactamase (ESBL) producing Klebsiella spp. and E.coli were respectively 65% and 64%. The ratio of carbapenem resistant Klebsiella spp. strains was 21%, vancomycin resistant enterococcus 3%. Trimethoprim-sulfamethoxazole resistance of all gram negative agents was 60%. We determined nineteen patients with candiduria in this period.

**Conclusions:** Increasing antibacterial resistance is a major concern for the management of urinary tract infections after kidney transplantation in our country. Accordingly, in this study the high ratios of ESBL producing E.coli and Klebsiella spp. strains and also carbapenem resistance of Klebsiella spp. strains cause difficulties in the empirical treatment in Turkey.
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RENAL ALLOGRAFT WITH CALCIUM OXALATE DEPOSITION: ITS ASSOCIATION WITH URINARY TRACT INFECTION AND DEVELOPMENT OF INTERSTITIAL FIBROSIS

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Introduction: The interaction between calcium oxalate (CaOx) deposition and urinary tract infection (UTI) is not well established. The aim of this study was two-fold; first to identify the association between CaOx deposition and UTI and second to determine the role of CaOx deposition on the development of interstitial fibrosis (IF).

Materials and Methods: Renal allograft biopsies of 967 patients who transplanted between 1990 and 2010 were reviewed to identify those with CaOx deposition. Medical files of patients examined and all follow-up and indication biopsies of patients evaluated for the degree of CaOx deposition and the development of IF.

Results: Among 962 patients, only 27 (2.8%) patients had CaOx deposits in their biopsies. Of 27 patients 7 had primary oxalosis (PO), and 20 had secondary oxalosis (SO). The time of CaOx deposition in allograft found 1.1 ± 0.37 months and 43.9 ± 31 months in patients with PO and SO respectively. A significant difference found between two groups (p<.01). Among 27 patients 7 had tubulointerstitial nephritis (TIN) (25.9%), 4 had only UTI (14.8%) and 2 had both TIN and UTI (7.4%) at the time of CaOx deposition. The cause of TIN was secondary to bacterial infection in 4 cases and secondary to viral infection in 5 cases (Adenovirus: 2, CMV: 1, Polyoma virus: 2). E. Coli identified in all cases with UTI. Patients with UTI showed increased CaOx depositions in their follow-up biopsies. The time of the development of IF after CaOx deposition was 3.5 ± 4.3 months and 10.2 ± 4.2 months in patients with PO and SO respectively (p=.01). Graft loss after CaOx deposition was 9.2 ± 9.8 months in cases with PO and it was 21.8 ± 12.2 months in cases with SO (p<.05). Among PO patients, 1-, 2- and 5-year kidney graft survival was 43%, 28%, and 0%. Whereas 1-, 2- and 5-year kidney graft survival was 100%, 100% and 67% in SO patients.

Conclusions: In conclusion we suggested that the presence of CaOx deposits increased the risk UTI and TIN. We also suggested that when both CaOx deposits and E.coli were present, CaOx deposition has a tendency to increase in the allograft. Also, we also showed that CaOx deposition had a significant influence on the development of IF and therefore a negative impact on graft survival.

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THROMBOTIC MICROANGIOPATHY IN RENAL ALLOGRAFTS

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Introduction: Thrombotic microangiopathy (TMA) in the renal allograft is a form of renal capillary injury that may associate with many disorders including calcineurin inhibitor (CI) toxicity, antibody-mediated rejection (AMR), infections, and recurrent diseases. In this study, we aimed to show the incidence of thrombotic microangiopathy in patients with the diagnosis of acute humoral rejection (AHR), chronic active humoral rejection (CAHR), polyomavirus nephropathy (PVN), acute cellular rejection (ACR) and IgA recurrence.

Materials and Methods: All patients who had diagnosed as PVN and IgA recurrence between 2006 and 2016 included into the study and reevaluated for the final diagnosis and presence of TMA. Consecutive renal allograft biopsies diagnosed as AHR, ACR, and CAHR within 24 months also evaluated for the final diagnosis, presence of C4d expression and TMA. The positive C4d expression criteria reconsidered according to the latest Banff criteria and the final diagnosis given in all cases. Clinical data and the immunosuppressive (IS) therapy reviewed and noted for all cases.

Results: Total 272 patients with a mean age of 42.8 ± 12.7 years studied. Of 272 patients 90 patients had AHR, 51 had ACR, 55 had PVN, 53 had CAHR and 23 had IgA nephropathy. Among these 272 patients, only 74 patients (27.2%) had TMA. TMA found in 30 of 90 (33.3%) AHR, 9 of 51 (16.7%) ACR, 22 of 53 CAHR, 10 of 55 (18.2%) PVN and 3 of 23 (13%) IgA nephropathy recurrence. Twelve patients who had TMA also showed CMV IgM positive serology at the time of diagnosis. Significant differences found between the type of IS therapy and the development of TMA in 272 patients (p<.001). Patients who had under
cyclosporin A (38.5%) therapy were tended to show a higher incidence of TMA development compared to patients with tacrolimus (20.7%) and sirolimus (7.7%) therapy. The incidence of TMA found to be higher in C4d positive AHR (39%) and CAHR (51.4%) groups compared to C4d negative AHR (14.3%) and CAHR (18.8%) groups (p<.05). Graft loss was significantly greater in C4d positive TMA group compared to C4d negative group (p=.013).

**Conclusions:** In conclusion we found that AHR, CAHR, PVN, ACR and IgA recurrence are risk factors for TMA in renal allografts. Also, we noticed that PTC C4d is a significant risk factor for TMA, and the concurrence of C4d and AMR may portend a greater probability of graft loss due to the effect of TMA.

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**THE RISK AND PROGNOSTIC FACTORS OF C4D-POSITIVE ACUTE HUMORAL RENAL ALLOGRAFT REJECTION**

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**Introduction:** The risk of graft loss has typically been high in recipients with acute humoral rejection (AHR) with 1-year graft survival rates varying between 15 to 50%. The aim of this study was to determine the incidence and clinical characteristics of C4d+ AHR in renal allografts and to determine further the prognostic factors which have an impact on graft survival.

**Materials and Methods:** Between 2005 and 2015, a total of 814 kidney transplants (Tx) were performed in 529 males and 285 females. All donors and recipients were ABO compatible.

**Results:** Of the 814 patients, 89 (10.9%) had at least one episode of biopsy-proven C4d+ AHR. The risk of development of C4d+ AHR was found to be 12.7% (67/529) and 7.7% (22/285) for male and female patients respectively. The mean total biopsy number and the average biopsy number that had C4d+ AHR were 2.5±1.4 and 1.78±0.9 respectively. Also, 44 patients (49.4%) had acute cellular rejection (ACR) at the same time with AHR episode. The mean time of the development of AHR was 4.5±9.2 months. Development of C4d+ AHR in the 1st week, 1st, 3rd and 6th month after Tx were found to be 27%, 58.4%, 70.8% and 82% respectively. One year after Tx, 73 patients had good graft function, 11 patients (12.4%) had developed chronic humoral rejection (CHR), and only 5 patients (5.6%) had lost their graft. The risk of the development of CHR (p<.001) and the graft loss (p<.05) in the 1st year after Tx were significantly higher in patients with mixed AHR+ACR compared to patients with the only AHR. The overall 1-year graft survival was 100% and 88% of cases with pure AHR and cases with mixed AHR+ACR respectively (p<.05). Also, the risk CHR and graft loss were found to increase with increasing number of AHR episodes (p<.05). It noted that the number of AHR episodes and the presence of ACR found to increase with increasing recipient and donor age (p<.05 for all). The risk of the development of AHR in the 1st, 3rd and 12th months was higher in patients with age over 40 years old and in cases with donor age over 50 years old (p<.01 for all). None of the aged-matched patients lost their graft while all graft loss found in non-aged matched group. Nine of 11 CHR cases (81.8%) were from non-aged matched group (p=.01). Development of CHR and graft loss increased in patients who had AHR in the first 3rd, 6th and 12th months compared to patients who did not have AHR in these periods (p<.05 for all).

**Conclusions:** This study outlines the histological profiles of AHR patients with poor graft prognosis. Recipients aged over 40 years, donors aged over 50 years, first AHR episodes in 1st, 3rd, 6th months and patients with mixed AHR+ACR had worse graft prognosis.
FGF-23, NGAL AND ENDOSTATIN: THE PREDICTORS OF ALLOGRAFT FUNCTION AND ARTERIAL STIFFNESS IN RENAL TRANSPLANT RECIPIENTS

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Introduction: Increased circulating level of fibroblast growth factor 23 (FGF23), neutrophil gelatinase-associated lipocalin (NGAL) and endostatin are independent risk factors for mortality, cardiovascular disease, and progression of chronic kidney disease (CKD), but their role in transplant allograft is controversial. The aim of this study is to evaluate the relationship between FGF-23, NGAL, endostatin and graft dysfunction and to identify their relation with arterial stiffness.

Materials and Methods: We performed a prospective study of 146 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. All patients were evaluated for their clinical (age, gender, duration of hemodialysis, post-transplant time), biochemical parameters (serum creatinine, uric acid, calcium, phosphorus, parathyroid hormone, C-reactive protein [CRP], albumin, lipid profile). We calculated the estimated GFR (eGFR) using the MDRD4 equation. Pulse wave velocity (PWv) was determined from pressure tracing over carotid and femoral arteries using the SphygmoCor system. Serum FGF-23, NGAL, endostatin levels were measured by ELISA.

Results: Demographic characteristics (age, gender, duration of dialysis before transplantation, post-transplant time, systolic and diastolic blood pressure) and biochemical parameters as serum calcium, phosphorus, parathyroid hormone, C-reactive protein [CRP], albumin, lipid profile. We calculated the estimated GFR (eGFR) using the MDRD4 equation. Pulse wave velocity (PWv) was determined from pressure tracing over carotid and femoral arteries using the SphygmoCor system. Serum FGF-23, NGAL, endostatin levels were measured by ELISA.

Conclusions: We concluded that elevated FGF23, NGAL and endostatin were associated with loss of graft function in kidney transplant recipients. Moreover, endostatin can be used as an independent predictor for cardiovascular morbidity in this population.

EFFICACY AND TOLERABILITY OF DIRECT-ACTING ANTIVIRAL AGENTS FOR HEPATITIS C VIRUS INFECTION IN KIDNEY TRANSPLANT RECIPIENTS

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Introduction: Hepatitis C virus (HCV) infection is associated with increased risk of mortality in kidney transplant (KT) recipient as a consequence of graft failure, progressive liver disease and cardiovascular disease. The introduction of direct –acting antivirals (DAAs) has revolutionized the treatment of HCV with high cure rates and low rates of adverse events. The aims of this study were to evaluate the efficacy and tolerability of DAAs in KT recipients.

Materials and Methods: We report on data from ten KT recipients chronically infected with HCV treated with DAAs in our center. The decision to treat and the choice of DAAs was determined according to the regulations considered by ministry of health.

Results: The patients were predominantly male (n=6) and median age was 50.5 years. Seven patients had undergone cadaveric KT. Most patients (n=7) were infected with genotype 1b. Cirrhosis was present in only 2 patients. Eight patients received ombitasvir-paritaprevir-ritonavir and dasabuvir combination therapy for 12 weeks and the others...
underwent treatment with sofosbuvir and ledipasvir for 24 weeks. Ribavirin was used in non-cirrhotic two patients infected with genotype 1a. Two patient discontinued therapy due to adverse events. Nine patients cleared the virus at the end of the treatment. Sustained virologic response after 12 weeks was achieved in 90% of the patients. Importantly, 5 patients required immunosuppression dose adjustment. Two patients experienced renal dysfunction during antiviral therapy. Extensive skin rash and severe mucositis were observed in two patients.

**Conclusions:** Antiviral therapy with DAAs was highly efficacious in KT recipients with chronic hepatitis C. Nevertheless, drug interaction, revision of immunosuppressive dose and allograft dysfunction necessitate a close follow-up during therapy.

**P31**

**SUCCESSFUL TREATMENT WITH DIRECT-ACTING ANTIVIRAL AGENTS OF HEPATITIS C IN THE SETTING OF END-STAGE RENAL DISEASE**

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**Introduction:** Patients with chronic hepatitis C and end-stage renal disease (ESRD) have encountered negative conditions not only liver-related complications, but also increased extra-hepatic comorbidities. Using of efficient, well-tolerated and safe direct-acting antivirals (DAAs) is major step forward in the treatment of these patients. This study aimed both to carry out the efficacy and tolerability of DAAs in patients with ESRD and also to analyze early viral response in the preparation of patients for kidney transplantation.

**Materials and Methods:** We performed a prospective analysis of 15 patients with ESRD and HCV infection treated with ombitasvir-paritaprevir-ritonavir and dasabuvir combination with or without ribavirin based on genotype of HCV in our center.

**Results:** The patients were predominantly male (n=10) and median age was 52 years. Most patients (n=10) were infected with genotype 1b. None of the patients were cirrhotic. All patients were on chronic renal replacement therapy, one patient on peritoneal dialysis and others on hemodialysis. Ribavirin was added the treatment regimen in three patients infected with genotype 1a. HCV-RNA was negative at the fourth week of the treatment in all patients. Fourteen patients completed treatment and they achieved viral clearance at the end of the treatment. Sustained virologic response after 12 weeks was observed in 93.3% of the patients. Only one patient with previous history of coronary bypass graft died because of progressive heart failure and ventricular arrhythmia at the fourth week of antiviral treatment. Indeed, this patient showed early virologic response as well. There were no severe adverse effects or drug interactions. Two out of patients who received Ribavirin needed dose reduction and red blood cell transfusion.

**Conclusions:** Our study demonstrated once again that ombitasvir-paritaprevir-ritonavir and dasabuvir combination with or without ribavirin is well-tolerated, safe and efficient antiviral therapy in patients with ESRD and hepatitis C. From another perspective, high success in early virologic response provides early and uneventfully access to kidney transplantation.
**P32**

**MORPHOLOGICAL AND IMMUNOLOGICAL CHARACTERISTICS OF HEPATOCELLULAR CARCINOMA FOR PROGNOSIS OF SURGICAL INTERVENTION OUTCOME**

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**Introduction:** Hepatocellular carcinoma (HCC) is the most frequent type of liver malignants, which occurs in patients with viral hepatitis B (HBV), C (HCV), D (HDV), cirrhosis and other liver diseases. The risk factors include age and gender identity. Gold standard of HCC treatment is partial liver resection, liver transplantation and transcatheter arterial chemoembolization (TACE). Our purpose was to assess the prognostic value of morphological and immunological characteristics HCC for surgical interventions.

**Materials and Methods:** The prospective study was performed in the hepatopancreatic department of National scientific center of surgery named after A. N. Syzganov during from 2015 to 2017. There were 19 patients treated for HCC at ages ranging from 34 to 70 years old (58.1±2.8), of them 66.7% men and 33.3% women. For all patients was performed ultrasound, enzyme-linked immunosorbent assay to HBV/HCV and blood biochemistry, also histological analysis of tumor tissue or biopsy specimen. In our center there were 16 interventions by TACE and 3 partial liver resections by laparotomy or minilaparatomy, of them for 1 patient fulfilled TACE in the second stage.

**Results:** We were detected a high level of antibodies to HBV at 7 (50%) patients and HCV at 6 (42.8%), from which 1 (7.1%) was with both tests positive, also 1 (7.1%) with both negative tests, under n=14. The average mean of alfa-fetoprotein (AFP) consisted is 22.2±10.3 U/ml, under n=15, and only at 7 (46.7%) patients AFP 41.1±17.7 U/ml was increased than norm. The mean values of ALT considered of 90.34 ± 13.1 U/ml, under n = 26, and at 21 (80.7%) patients ALT 106.8 ± 13.9 U/ml was higher than norm. The difference in ALT was 85.11 ± 29.1 U/ml, CI (24.9; 145.3), with P=.0075. The average value of total bilirubin was 33.4 ± 8.3 μmol/ l, CI (16.2; 50.6), with P value=.0005. Ultrasound detected signs of ascites at 8 (42.1%) patients and cirrhosis at 5 (26.3%) patients, tumor size more than 5.5 x 5.5 cm at 6 (31.6%) patients before intervention. Morphological data was characterized of hepatocellular carcinoma signs, with a predominance of 18 (94.7%) trabecular HCC type over 1 (5.2%) solid tumor type. Stromal germinating, tumor cells invasion in portal vessels and the presence of dysplastic lesions were noted. Degree of malignancy according to the Edmondson, Steine system was defined: 4 (21.1%) GI; 8 (42.1%) GII; 5 (26.3%) GIII and 2 (10.5%) patients as GIV. The surgical treatment led to lethal at 5 (26.3%) patients. One-year survival rate is 73.7%.

**Conclusions:** Accurate histomorphological diagnosis of HCC before surgical treatment has a valuable predictive meaning, which is difficult to do it for choosing non-surgical intervention ablations, leading to a high incidence of tumor recurrence and reduce long-term survival outcomes.

**P33**

**OUTCOMES OF LIVER TRANSPLANT RECIPIENTS ACCORDING TO THE MELD SCORE**

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**Introduction:** Liver transplantation (LT) is the best treatment of patients with chronic liver disease and acute liver failure, as well as those with selected liver malignancies. There is a significant gap between number of patients waiting for liver transplantation and number of donor organs. Because of the persistent shortage of donor livers and the high waiting list mortality, numerous centers are searching for the most effective method of allocation of organs, and the Model for End Stage Liver Disease (MELD) score is frequently used as the basis of liver allocation. The purpose of the present retrospective study was to assess for postoperative mortality among liver transplant recipients with high MELD scores (≥35).

**Materials and Methods:** A total of 570 liver transplants were performed in the Department of General surgery at the Baskent University in Turkey between January 1988
and June 2017. The data were analyzed retrospectively. During that period, there were 56 liver transplants among patients with pretransplant biochemical MELD score ≥35.

**Results**: A total of 15 out of 56 (26.7%) patients died during the median follow-up period of 64.5 months. Most of the deaths occurred during the 90-day postoperative period (10 of 15, 66.6 %) with a postoperative 90-day mortality rate of 17.8 % (10 of 56). When all of our patients were evaluated; patients with a MELD<35 have a 5-year survival rate of 82%, while those with a MELD ≥ 35 have dropped to 75%. Also, when the MELD ≥ 45, 5-year survival falls below 50%.

**Conclusions**: Pretransplant MELD score is a significant risk factor for postoperative mortality, even among liver recipients with high MELD scores. In particular, MELD scores ≥45 should be considered as very high-risk liver transplantation.

**P34**

**RESULTS OF BILIARY RECONSTRUCTION WITH PTFE GRAFT IN LIVER TRANSPLANTATION**

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**Introduction**: Biliary complications are often referred to as the ‘Achilles heel’ of liver transplantation (LT) with their high incidence rate, the need for repeated and long treatment, and the potential effects on graft and patient survival. The main problem is the development of fibrosis in the anastomotic area. By decreasing the rate of fibroses on both sides, it is possible to prevent biliary complications from developing. In our experimental study on pigs, we showed that by using spiral polytetrafluoroethylene (PTFE) graft, the complication rates dropped to almost zero. As such, we now use this technique as standard procedure in a clinical setting. To date, we have performed this technique with PTFE graft in 16 patients. In this study we aimed to review the results.

**Materials and Methods**: Between December 8, 1988 and June, 2017 we performed 570 LT procedures at our centers (age range, 6 months - 69 years). We used PTFE graft in 16 patients. PTFE grafts were used in biliary stricture reconstruction after LT in 6 of these patients and in primary liver transplantation in the remaining 10 patients.

**Results**: Six patients are doing well with normal liver function after biliary stricture reconstruction. In the remaining 10 patients; 2 patients died due to sepsis with normal liver function. The remaining 8 patients are doing well with normal liver functions.

**Conclusions**: Biliary anastomosis using spiral PTFE graft is feasible with satisfactory anastomotic circumference and histologic evidence of healing. Our experimental studies as well as our small series of patients show that use of spiral PTFE graft is effective in reducing biliary complications in clinical transplantation.

**Table 1**: PTFE grafts were used in biliary stricture reconstruction

<table>
<thead>
<tr>
<th>LT age</th>
<th>Sex</th>
<th>LT date</th>
<th>Etiology</th>
<th>Graft</th>
<th>BSR date</th>
<th>Reconstruction</th>
<th>PTFE length</th>
<th>PTFE diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>42 y</td>
<td>M</td>
<td>30/01/2015</td>
<td>HBV</td>
<td>Right Lobe</td>
<td>24/03/2016</td>
<td>DD&gt;DD</td>
<td>3 cm</td>
<td>10 mm</td>
</tr>
<tr>
<td>4 mo</td>
<td>M</td>
<td>15/01/2016</td>
<td>Biliary atresia</td>
<td>Left lateral</td>
<td>12/06/2016</td>
<td>HJ&gt;HJ</td>
<td>1.5 cm</td>
<td>7 mm</td>
</tr>
<tr>
<td>12 y</td>
<td>M</td>
<td>28/06/2007</td>
<td>Biliary atresia</td>
<td>Left lateral</td>
<td>13/07/2016</td>
<td>HJ&gt;HJ</td>
<td>3 cm</td>
<td>8 mm</td>
</tr>
<tr>
<td>65 y</td>
<td>M</td>
<td>14/03/2008</td>
<td>HBV</td>
<td>Right Lobe</td>
<td>14/07/2016</td>
<td>DD&gt;DD</td>
<td>2.5 cm</td>
<td>8 mm</td>
</tr>
<tr>
<td>10 y</td>
<td>M</td>
<td>20/02/2003</td>
<td>Wilson</td>
<td>Left lateral</td>
<td>02/12/2016</td>
<td>HJ&gt;HJ</td>
<td>3.5 cm</td>
<td>10 mm</td>
</tr>
<tr>
<td>7 mo</td>
<td>M</td>
<td>09/11/2016</td>
<td>Mitochondrial D</td>
<td>Left lateral</td>
<td>05/12/2016</td>
<td>DD&gt;HJ</td>
<td>2.5 cm</td>
<td>6 mm</td>
</tr>
</tbody>
</table>

**Table 2**: Bile reconstructions were performed through PTFE graft during LT

<table>
<thead>
<tr>
<th>P</th>
<th>LT age</th>
<th>Sex</th>
<th>LT date</th>
<th>Etiology</th>
<th>Graft</th>
<th>Reconstruction</th>
<th>PTFE length</th>
<th>PTFE diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18 y</td>
<td>M</td>
<td>29/03/2016</td>
<td>Sclerosing cholangitis</td>
<td>Left lateral</td>
<td>DD</td>
<td>3 cm</td>
<td>7 mm</td>
</tr>
<tr>
<td>2</td>
<td>65 y</td>
<td>M</td>
<td>30/03/2016</td>
<td>HCV</td>
<td>Whole</td>
<td>DD</td>
<td>1 cm</td>
<td>5 mm</td>
</tr>
<tr>
<td>3</td>
<td>9 mo</td>
<td>M</td>
<td>09/04/2016</td>
<td>Biliary atresia</td>
<td>Left lateral</td>
<td>HJ</td>
<td>1 cm</td>
<td>6 mm</td>
</tr>
<tr>
<td>4</td>
<td>36 y</td>
<td>F</td>
<td>17/05/2016</td>
<td>Neuro-wilson</td>
<td>Left lateral(*)</td>
<td>DD</td>
<td>1 cm</td>
<td>6 mm</td>
</tr>
<tr>
<td>5</td>
<td>15 y</td>
<td>F</td>
<td>28/06/2016</td>
<td>Cryptogenic</td>
<td>Whole</td>
<td>DD</td>
<td>1 cm</td>
<td>6 mm</td>
</tr>
<tr>
<td>6</td>
<td>9 mo</td>
<td>F</td>
<td>24/06/2016</td>
<td>Biliary atresia</td>
<td>Left lateral</td>
<td>HJ</td>
<td>1 cm</td>
<td>6 mm</td>
</tr>
<tr>
<td>7</td>
<td>63 y</td>
<td>M</td>
<td>4/10/2016</td>
<td>HBV</td>
<td>Right</td>
<td>DD</td>
<td>1.5 cm</td>
<td>7 mm</td>
</tr>
<tr>
<td>8</td>
<td>6 mo</td>
<td>M</td>
<td>6/11/2016</td>
<td>Biliary atresia</td>
<td>Left lateral</td>
<td>HJ</td>
<td>2 cm</td>
<td>6 mm</td>
</tr>
<tr>
<td>9</td>
<td>6 mo</td>
<td>M</td>
<td>15/11/2016</td>
<td>Biliary atresia</td>
<td>Left lateral</td>
<td>HJ</td>
<td>1.5 cm</td>
<td>6 mm</td>
</tr>
<tr>
<td>10</td>
<td>8 y</td>
<td>M</td>
<td>17/01/2017</td>
<td>Metilmalonic acidemia</td>
<td>Left lateral(*)</td>
<td>DD</td>
<td>2 cm</td>
<td>6 mm</td>
</tr>
</tbody>
</table>

(*) Auxiliary partial orthotopic living donor LT
LIVER TRANSPLANTATION AND AUXILIARY PARTIAL ORTHOTOPIC TRANSPLANTATION OUTCOMES IN WILSON’S DISEASE: RESULTS OF A SINGLE CENTER

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Introduction: Liver transplantation (LT) is an effective option for Wilson’s disease (WD) patients with neurologic symptoms, acute liver failure and with advance decompansated liver disease. In this retrospective study we aimed to review our LT results for WD patients.

Materials and Methods: Between December 1988 and June 2017 we performed 570 LT procedures at our center (age range, 6 months-69 years). We performed 53 LT in WD (45 living donor LT, 8 deceased donor LT) and after discharge we followed them for 12-350 months. We evaluated the regression of neurologic symptoms and reported survival, graft function of WD patients after LT.

Results: We performed LT for acute liver failure in 7 WD patients and for end stage liver failure in 41 WD patients. Five patients had LT for neurological WD. One of these neurological symptom WD patients had auxiliary partial orthotopic LT (APOLT) due to neurological symptom in WD without hepatic failure (child A). After APOLT he is doing well with normal liver functions and ceruloplasmin levels. All neurologic symptoms were regressed in all of these 5 neurological WD patients. We evaluated the regression of neurologic symptoms and reported survival, graft function of WD patients after LT.

Conclusions: Liver transplantation for WD with end stage liver failure and neurological WD has good outcomes. We may also consider auxiliary partial orthotopic LT for progressive neurological symptoms in WD patients with no hepatic insufficiency.

EARLY POSTOPERATIVE INFECTIONS IN LIVER TRANSPLANTATION

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Introduction: Infectious complications during early postoperative period of liver transplantation are frequently a direct result of the surgical procedure. In addition, nasocomial pathogens can also cause early postoperative infections like pneumonia, urinary system infection, catheter related bacteremia, and sepsis in recipients. The aim of this study is to evaluate our early postoperative infections following liver transplantation.

Materials and Methods: We retrospectively investigated all 561 liver transplantation (LT) procedures that were performed in patients between November 1988 and January 2017 in our center and evaluated all cases of infection during the first hospital stay from LT until discharge (mean, 14 days). We classified the infections into 2 groups: non-surgical site infections (NSSI) and surgical site infection (SSI), including deep infections related to transplanted organ site and superficial infections related to skin and fascia of surgical site.

Results: In the 561 procedures, we detected infections in 131 patients (23.3%; 60 adults, 71 pediatric). 56 patients had NSSI (42%), 67 had SSI (51%), and 8 patients had NSSI+SSI (6%). We stratified the consequences and treatment protocols of infectious complications according to the Clavien scale (Table 1).

<table>
<thead>
<tr>
<th>Clavien Score</th>
<th>NSSI</th>
<th>SSI</th>
<th>NSSI+SSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>34</td>
<td>37</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>27</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

There was no mortality due to NSSI; of the 56 NSSI patients, 34 (60%) were treated with antibiotherapy, 9 (16%) received other pharmacological treatment in addition to antibiotherapy, 7 (12%) required endoscopic or radiologic intervention to recover, 6 (10%) recovered from single or multi organ dysfunction.

There was no mortality due to NSSI; of the 56 NSSI patients, 34 (60%) were treated with antibiotherapy, 9 (16%) received other pharmacological treatment in addition to antibiotherapy, 7 (12%) required endoscopic or radiologic intervention to recover, 6 (10%) recovered from single or multi organ dysfunction.

There was no mortality due to SSI of the 67 SSI patients, 34 (60%) were treated with antibiotherapy, 9 (16%) received other pharmacological treatment in addition to antibiotherapy, 7 (12%) required endoscopic or radiologic intervention to recover, 6 (10%) recovered from single or multi organ dysfunction.

There was no mortality due to SSI of the 67 SSI patients, 34 (60%) were treated with antibiotherapy, 9 (16%) received other pharmacological treatment in addition to antibiotherapy, 7 (12%) required endoscopic or radiologic intervention to recover, 6 (10%) recovered from single or multi organ dysfunction.

Of the 8 NSSI+SSI patients, we lost 4 (50%) in the early postoperative period after LT patients, 3 NSSI+SSI
patients required endoscopic or radiologic intervention to recover, 1 NSSI+SSI patient recovered from single organ dysfunction.

**Conclusions:** As in infections in other surgical procedures, most of the early post-LT infections are related to surgical procedure, medical devices and early interventions. Initiation of appropriate prophylactic and therapeutic protocols at the right time decrease morbidity and mortality.

**P37**

**LIVER TNF-α EXPRESSION PREDICTS ACUTE ALLOGRAFT REJECTION AND GRAFT SURVIVAL**

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**Introduction:** The part of cytokines in acute rejection (AR) after liver transplantation is unclear. Previously some studies reported an association between proinflammatory cytokines and AR. We aimed to show the relationship of tumor necrosis factor-α (TNF-α) both with AR and graft survival.

**Materials and Methods:** Total 66 liver allograft recipients included to the study. The inflammatory score of all biopsies and the presence and the number of AR episodes noted. Biopsies of all patients were immunostained with TNF-α. The expression of TNF-α investigated both in hepatocytes and inflammatory cells. Mean follow-up time was 79±39.5 months.

**Results:** Among 66 patients only 23 had AR at the date of study biopsy. Total 31 patients showed AR episode at least one time during follow-up. The mean number of AR episodes was 0.8±1.1 for 31 patients. During follow-up, 18 (27.3%) patients developed recurrence and only 7 (10.6%) patients developed cirrhosis. Total 22 (33.3%) patients died at a mean time of 20.3±24.7 months. Both the degree of hepatocyte and inflammatory cell TNF-α expressions increased with increasing degree of inflammatory cell infiltration. Also, both hepatocyte and inflammatory cell TNF-α expressions showed significant association with the presence of AR at the date of biopsy, the presence of AR during follow-up and with the mean number of AR episodes (p<.001 for all). The development of recurrence and cirrhosis showed a significant association both with hepatocyte and inflammatory cell TNF-α expressions (p<0.01). The overall 10-year survival was 94, 95, 31 for negative, mild and severe hepatocyte TNF-α expression respectively (p<0.001). Similarly, overall 10-year survival was 96, 63, 36 for negative, mild and severe inflammatory cell TNF-α expression respectively (p<0.001).

**Conclusions:** Our results suggest that increased liver TNF-α expression plays a significant role in the pathogenesis of acute rejection. Also, we showed that TNF-α expression had significant association both with the development of disease recurrence and cirrhosis. Thus in addition to conventional immunosuppression such as calcineurin inhibitors combination of immunotherapy with monoclonal anti-TNF-α may increase graft survival.

**P38**

**HISTOPATOLOGIC AND PROGNOSTIC FEATURES OF HEPATOBLASTOMAS IN LIVER TRANSPLANTS**

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**Introduction:** The aim of this study is to evaluate the histopathologic variables and relation with prognosis of hepatoblastomas.

**Materials and Methods:** In this retrospective analysis, there were 6 orthotopic liver transplant cases in children with hepatoblastoma from 2001 to 2017. One patient's native liver didn't send to our department so this case was excluded from the study. We evaluated the demographic features, pre-transplant treatment, alpha-fetoprotein levels, histopathologic variables, and follow-up results.

**Results:** All patients underwent living-donor orthotopic liver transplantation. The mean age of the patients was 48.5±27.0 (range, 14-75) months. The male/female ratio was 3/3. Of 5 patients, 3 had epithelial type tumors, while remaining 2 had mix type morphology. Mean follow-up time was 79±39.5 months.

The development of recurrence and cirrhosis showed a significant association both with hepatocyte and inflammatory cell TNF-α expressions (p<0.01). The overall 10-year survival was 94, 95, 31 for negative, mild and severe hepatocyte TNF-α expression respectively (p<0.001). Similarly, overall 10-year survival was 96, 63, 36 for negative, mild and severe inflammatory cell TNF-α expression respectively (p<0.001).

**Conclusions:** Our results suggest that increased liver TNF-α expression plays a significant role in the pathogenesis of acute rejection. Also, we showed that TNF-α expression had significant association both with the development of disease recurrence and cirrhosis. Thus in addition to conventional immunosuppression such as calcineurin inhibitors combination of immunotherapy with monoclonal anti-TNF-α may increase graft survival.
Conclusions: Our institute have limited numbers of pediatric transplantation cases for hepatoblastoma. Although Ki-67 doesn't take place in daily routine for evaluating the liver tumors, we found that the high proliferation index as well as vascular invasion effects the patient survival.

P39

ANATOMY OF CAROLI SYNDROME WITH LIVER TRANSPLANTATION AND NURSING APPROACHES ACCORDING TO OREM: CASE REPORT

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The liver is located under the diaphragm in the upper right quadrant of the abdominal cavity. It has two sides and two sides. Facies diaphragmatica on the upper face contacting the diaphragm, and facies visceralis on the lower face adjacent to the abdomen. In the section called hepatitis hepatica, porta hepatis consists of vena porta hepatis, arteria hepatica propria, ductus hepaticus dexter and sinister, ductus hepaticus communis, which enter and exit the liver. The liver is divided into four lobes. These include lobus hepatis dexter, lobus hepatis sinister, lobus quadratus and lobus caudatus. The liver parenchyma is divided into eight segments. The branches of the hepatic artery, portal vein and bile ducts play an important role in liver segmentation.

Caroli has recently been described as two varieties, Caroli disease and syndrome. Caroli’s disease is manifested by non-occlusive “sagittal” dilatation of the large intra-hepatic bile ducts. Autosomal recessive is a childhood disease associated with polycystic kidney disease and pancreatic cysts. At 9 years of age, portal hypertension developed and esophageal variceal bleeding and associated bleeding occurred. Examinations and examinations performed were decided to be the only recommended treatment for end-stage liver transplantation. Complications associated with immunosuppressive treatment such as rejection, infection, hypertension, malignancy, incompatibility with the immunosuppressive regimen and psychological problems may occur in patients after transplantation. Orem’s self-care inadequacy theory plays an important role in the self-care of the individual and his family in terms of minimizing the complications that can be seen in the patients and increasing the quality of life.

P40

LIVER PELIOSIS - A LIFE-THREATENING CONDITION WITH NO CLEAR INDICATION FOR LIVER TRANSPLANTATION

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[Abstract not available]

P41

CLINICAL EXPERIENCE OF THE USE OF ALBUMIN DIALYSIS IN ACUTE LIVER FAILURE CAUSED BY AUTOIMMUNE HEPATITIS

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Introduction: Extracorporeal albumin dialysis is one of the methods of treatment for hepatic insufficiency, which aims to reduce endogenous toxins such as bilirubin, ammonia, lactate and aromatic amino acids, clinical manifestations of hepatic encephalopathy and acute renal failure. This method is currently carried out with the aid of the molecular-adsorbing recirculation system (MARS). Our aim was to assess the effectiveness of albumin dialysis in clinical conditions in patients with acute liver failure.

Case Report: In this report, we present a 21 year-old woman, who entered the therapy department of JSC “NNMC” with acute hepatic insufficiency of an unknown genesis. The woman’s illness started by a abdominal pain syndrome, portal hypertension, cholestasis syndrome, hepatic-cell insufficiency syndrome. She has skin jaundice, sclera and visible mucous membranes are icteric, ascites. Blood pressure was 100/60 mm Hg, heart rate 78 per min. The debut of the disease with cholestasis, asthenic syndrome in 2003. In November 2011, she was examined and her diagnosis was established as Cirrhosis in the outcome of
non-alcoholic steatohepatitis. She received ursodeoxycholic acid 500 mg per day and prednisolone 20 mg is added per day. Laboratory results are presented in Table 1.

Apparatus: MARS® 1 TC (Molecular Adsorbents Recirculating System).

Parameters: The flow rate of dialysate albumin is 100-150 ml/min. Ultrafiltration is 600.0 ml. Bicarbonate buffer, sodium profile 14.2.

Anticoagulation: heparin 10000 U, flow rate – 500-400-200-100 U/Hour; Total for the procedure – 2000 units of heparine.

During the procedure, APC-control (activity of platelet coagulation) was 290-278-195-148-150 sec (was in the limits of the norm). The duration of therapy was 7 hours 30 minutes. One session of albumin dialysis was performed. The tolerability of the procedure is satisfactory. MARS-therapy combined with glucocorticosteroid therapy according to the Sumerskiil scheme, hepatoprotective, detoxification, symptomatic therapy. As a result, positive dynamics was revealed on the basis of clinical and laboratory data. Significantly decreased albumin-binding toxins and water-soluble toxins, improved of liver function, regressed hepatic encephalopathy, cholestasis syndrome and renal failure. She discharged with improvement for liver transplantation. Her laboratory results after the albumin dialysis session are presented in Table 2.

Conclusions: Thus, the use of albumin dialysis in acute hepatic insufficiency in combination with other therapies can be effective to maintain organ function before liver transplantation.

Table 1. Labs before MARS

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Unit</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Protein</td>
<td>g/l</td>
<td>72.3</td>
</tr>
<tr>
<td>Albumine</td>
<td>g/l</td>
<td>25.06</td>
</tr>
<tr>
<td>Bun</td>
<td>mmol/l</td>
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</tr>
<tr>
<td>Creatinine</td>
<td>mmol/l</td>
<td>40.23</td>
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<tr>
<td>Total bilirubin</td>
<td>mmol/l</td>
<td>364</td>
</tr>
<tr>
<td>Direct bilirubin</td>
<td>mmol/l</td>
<td>304.6</td>
</tr>
<tr>
<td>ALT</td>
<td>U/l</td>
<td>341</td>
</tr>
<tr>
<td>AST</td>
<td>U/l</td>
<td>359</td>
</tr>
<tr>
<td>ALF</td>
<td>U/l</td>
<td>201</td>
</tr>
<tr>
<td>GGTP</td>
<td>U/l</td>
<td>103</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>mmol/l</td>
<td>1.45</td>
</tr>
</tbody>
</table>

Table 2. Labs after MARS

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Unit</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Protein</td>
<td>g/l</td>
<td>57.3</td>
</tr>
<tr>
<td>Albumine</td>
<td>g/l</td>
<td>23.25</td>
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<tr>
<td>Bun</td>
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<td>Creatinine</td>
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<td>Total bilirubin</td>
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<tr>
<td>Direct bilirubin</td>
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<tr>
<td>ALT</td>
<td>U/l</td>
<td>96</td>
</tr>
<tr>
<td>AST</td>
<td>U/l</td>
<td>112</td>
</tr>
</tbody>
</table>

P42

PROGNOSIS OF PATIENTS FOLLOWING LIVER TRANSPLANTATION FROM CADAVERIC AND LIVE DONORS

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Introduction: Liver transplantation is the only treatment option for the patients with the end-stage liver disease. 496 patients with end-stage liver disease were listed for liver transplantation in Kazakhstan in 2016, but only 13.5% of them were transplanted the same year.

Materials and Methods: Liver transplantations performed in the clinic starting from establishing transplant program in June 2013 to March 2017 were evaluated. We aimed to evaluate post-operation period in recipients of liver from cadaveric and live donors.

Results: 31 liver transplantations in 30 recipients were performed from June 2013 to March 2017 in our clinic, 12 of them from cadaveric and 19 live donors, respectively. The analysis was made for the data from all transplantations, excluding 1 pediatric transplantation in a 6-year old boy and 5 transplantations in recipients' with the survival of less than 1 month. Thus, the final analysis included 24 liver transplantations (male 11, female 13), with 10 of them from cadaveric and 14 from live donors, respectively. No death, life-threatening and debilitating complications were registered in liver donors. All living donor liver transplantations were performed utilizing the right lobe, volume of which was calculated using contrast-enhanced computed tomography. Etiology of the initial liver disease was as follows for live/cadaveric liver recipients: autoimmune hepatitis – 0/1, primary biliary cirrhosis – 0/3, hepatitis B – 2/0, hepatitis B and D – 6/1, HCV-инфекция 2/0, hepatitis B and C and D – 1/0, nonalcoholic steatohepatitis – 2/0, alcoholic liver disease – 1/2. Median age in cadaveric and live liver recipients was 39.3 years (range 15-57) and 45.4 years (range 30-62) with the median admission duration of 28.1 days (range 23-54) and 36.4 days (range 28-50), respectively. All patients were started on immunosuppression protocol including...
basiliximab on day 0 and 4, tacrolimus, micophenolate and prednisolone. Prednisolone dose was tapered down and all recipients were still on it at discharge with the eventual withdrawal of the drug in all recipients in 6 months post-liver transplantation. Out of 24 transplantations at the point of hospital discharge, only 5 patients were on prednisolone dose 10 mg/day and less, while remaining 19 patients still were taking 10 to 20 mg/day.

**Conclusions:** Most of our liver transplant operations were performed from the live donors (61.3%). Analysis shows that the majority of transplantations due to viral hepatitis were performed from the live donors and all cases related to autoimmune liver disease were performed from cadaveric donors. Patients with viral end-stage liver disease being transplanted utilizing live donors may be related to the possibility of antiviral therapy on virtually any stage of the liver disease opposed to no chance of controlling autoimmune liver disease and need for urgent operation from cadaveric donors. Recipients of liver from live donors need more time to recover from the operation due to need for reaching initial liver volume. Only 20.8% of recipients were discharged from transplantation units with prednisolone dose of 10 mg/day or less. This warrants need for further development of non-steroid immunosuppression strategies in order to minimize infections and steroid-related side effects.

**P43**

**LIVER TRANSPLANTATION AND REEXPANSION PULMONARY EDEMA (RPE): A CASE REPORT**

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Hydrothorax is frequently encountered in the patients with end-stage liver disease and usually requires drainage of pulmonary effusion in the heptectomy phase of liver transplantation. Reexpansion pulmonary edema (RPE) is a rare but potentially fatal complication seen after rapid reexpansion of the lung collapsed following the thoracentesis of pleural fluid or tube drainage of pneumothorax. This situation, which clinically manifests with various degrees of severity, has been rarely reported following liver transplantation. Herein, we presented a 62-year-old male patient with RPE, which developed after the drainage of massive pleural effusion that caused total collapse in the right hemithorax during liver transplantation. In the 6th hour following pleural fluid drainage, the patient developed non-productive cough, mild tachypnea, shortness of breath and low oxygen saturation (88%). On his chest radiograph, diffuse heterogeneous opacities were observed in the entire right hemithorax. Computed tomography of thorax revealed consolidations containing air bronchograms and ground glass opacities in the entire parenchyma of the right lung not extending to the periphery and less frequently in the infero-posterior zone of the left lung. These symptoms and radiological findings were interpreted as reexpansion pulmonary edema (RPE). The patient achieved complete clinical and radiological improvement within 72 hours with mechanical ventilatory support.

**P44**

**BUDD-CHIARI SYNDROME DIAGNOSED IN A PATIENT LISTED FOR LIVER TRANSPLANTATION AND CONSIDERED A CONTRAINDICATION FOR THE OPERATION**

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[Abstract not available]
HEART TRANSPLANTATION IN “IRON GIRL”

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Introduction: Beta thalassemia is a genetic hematological disorder which is caused by reduction in synthesis of β-globin chain. These patients are prone to having repeated blood transfusions which in turn would lead to iron deposition in the heart ultimately causing severe cardiac complications. Cardiac iron accumulation is the single greatest risk factor for cardiac dysfunction in thalassaemia. Here we report the treatment of cardiac failure in a patient with thalassemia through heart transplantation.

Case Report: The patient was a 19-year-old female who had received periodic transfusions with intermittent chelation therapy and came to our clinic with complaint of dyspnea on exertion in the past two months. She was hospitalized and started on positive inotropic agents. She was fully-evaluated and ultimately diagnosed with cardiomyopathy caused by severe iron overload. Cardiac echocardiography showed a dilated left ventricle with severely impaired function (LVEF: 15%), right ventricle (RV) was slightly dilated with moderate to severe impaired function (TAPSE: 12 mm). Blood tests showed a normal kidney and liver function, a very high ferritin level: 17000 μg/l, and elevated BNP level (3450 ng/l). Her past medical history included splenectomy at the age of 10. Beside inotropes, intravenous diuretics and oral iron chelators (Deferiprone), the patient was started on intravenous high dose of Deferoxamine (60 mg/Kg) since the day of admission. We registered the patient on the high priority transplantation list. After 3 days, we performed heart transplantation and the patient was discharged uneventfully 3 weeks after the operation.

Conclusions: The incidence of iron-overload cardiomyopathy in thalassemia major ranges from 11.4% to 15.1%. Cardiac complications are still the leading cause of mortality, accounting for 71% of deaths. After the onset of heart failure, with intensified blood transfusions and regular iron chelation in addition to conventional heart failure therapy, the 5-year survival rate is 48%. Only few reports exist concerning heart transplantation in recipients with end-stage heart failure caused by iron overload occurring with beta-thalassaemia. Koerner et al reported seven transplanted cases for primary and secondary hemochromatosis. One of these candidates had to be bridged, first with a right ventricular, then with a biventricular assist device. Five of the seven patients survived, following transplantation. These results demonstrate the feasibility of transplantation in patients with heart failure.

We reported an interesting case of advanced heart failure presenting with cardiogenic shock in a 19 years old thalassaemia major patient, successfully treated heart transplantation. Intensifying the iron chelation regimen is crucial to avoid progression to cardiomyopathy in the newly transplanted heart.

SMOKING BEHAVIOURS OF HEART TRANSPLANT PATIENTS: A RETROSPECTIVE STUDY

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Introduction: Smoking is one of the cardiovascular risk factors related to morbidity and mortality in heart transplant patients. We examined the relation of the smoking status with the survival of the heart transplantation patients.

Materials and Methods: We retrospectively reviewed 51 adult heart transplantations performed in a university hospital between years 2005 and 2016. We divided patients into non-smokers, ex-smokers who quit smoking more than 1 year before heart transplantation and those who smoked until heart transplantation. The statistical tests were Pearson correlation test and Kaplan-Meier analysis.

Results: Out of 51 heart transplanted patients 11 (21.5%) were female. Mean age was 35±89. 33 of the transplant patients are still alive and 18 (54.5%) of them are non-smokers. Out of 18 patients who died after transplantation 14 (77.7%) were ex-smokers. Only one of them smoked until the transplantation and even after it and was died. There was a statistically significant relation between survival of the transplant patients and smoking status (p<.005)

Conclusions: Smoking may be an important contributor to mortality in heart transplantation patients. We believe that smoking cessation prolongs survival of the heart transplanted patients since waiting lists and waiting periods before transplantation are known to be too long.
Therefore, in these patients starting smoking cessation therapies as early as possible can increase the success of this hard and precious procedure.

**P47**

**TREATMENT OF LEFT VENTRICULAR ASSIST DEVICE THROMBOSIS: SINGLE CENTRE EXPERIENCE**

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**Introduction:** Left ventricular assist device (LVAD), which has improved the quality of life and survival of patients who have end-stage heart failure refractory to medical therapy. The occurrence of a pump thrombus is a dreaded complication due to the morbidity associated with its treatment and the attendant costs. In this study, we examined the pump thrombosis events.

**Materials and Methods:** Pump thrombosis is defined as clot within the flow path in any portion of the LVAD device and should be suspected with the clinical signs of heart failure, abnormal pump parameters (such as sustained power spikes), elevated LDH, or clinical signs or symptoms of hemolysis. We analyzed all LVAD recipients (n = 57) in our centre between April 2012 and June 2017. Patients included (9 patient) in this analysis were hemodynamically stable and underwent pump exchange if they failed tissue plasminogen activator (TPA) treatment. The TPA protocol consisted of a 5 mg intravenous bolus followed by 5 mg/h infusion in normal saline for 24 hours. If symptoms persisted, another cycle of TPA at 5 mg/h was continued up to 48 h. (total dose range, 20–100 mg). Successful medical therapy of a suspected pump thrombus was defined as clinical resolution of pump thrombus, improvement in biochemical markers of hemolysis, and return to normal pump parameters.

**Results:** Between April 2012 and June 2017, a total of 17 lysis interventions were done in 9 patients. The pump thrombus events occurred at an average of 420 ± 95 days after LVAD implantation, with a median time to thrombus event of 245 days. In 66.6% (6 patients), the lysis therapy was successful with normalization of LVAD parameters and LDH levels. A total of 1 patient underwent pump exchange, and 2 underwent urgent transplantation. Bleeding complications occurred in 10% (1 patient) after the lysis therapy. One patient died due to intracranial bleeding.

**Conclusions:** Low dose lysis therapy has a low complications rate but has to be done in most of the patients several times. Exchange of the LVAD pump is a high risk surgical procedure but can be avoided by using lysis therapy only in one third of the patients with pump thrombosis. The decision to perform thrombolytic therapy or proceeding to pump exchange or urgent heart transplantation should therefore be made on an individual basis.

**P48**

**THE EFFECT OF SUTURING TECHNIQUE ON POST-PENETRATING KERATOPLASTY ASTIGMATISM IN KERATOCONUS PATIENTS**

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**Introduction:** The aim of this study was to determine the effect of a modified surgical technique on postkeratoplasty myopia, astigmatism, and anisometropia.

**Materials and Methods:** The study group consisted of 98 consecutive penetrating keratoplasties performed using 12 interrupted 10-0 nylon sutures and a tight 12-bite continuous suture and an average K reading of 46.00 diopters for eyes undergoing combined and intraocular lens exchange procedures. Penetrating keratoplasty (PK) was carried out by a single experienced surgeon (DDA). Postkeratoplasty refraction, keratometry and best corrected visual acuity (BCVA) were evaluated 1, 3, and 12 months postoperatively and 2 months after complete suture removal. Suture adjustment and selective suture removal were performed after 6 weeks in eyes with more than 3 D of corneal astigmatism.

**Results:** Before suture removal, the average spherical equivalent was -0.160 ± 3.59 diopters; it was 1.58 ± 3.66 diopters at the completion of suture removal at 1 year and -1.44 ± 3.72 at the last follow-up visit, averaging 20.7 months. Final refractive and keratometric astigmatism was 2.81 ± 1.82 and 4.19 ± 2.94 diopters, respectively. Anisometropia, using the spherical equivalent of the operated and fellow eyes, was 2.49 ± 2.25 diopters at completion of the study. A best-corrected visual acuity of 20/50 or better was achieved in 59% of patients.
**Conclusions:** Using 12 interrupted 10-0 nylon sutures and a tight 12-bite continuous suture and an average K reading of 46.00 diopters for eyes undergoing combined and intraocular lens exchange procedures is associated with a favorable keratometric and refractive outcome.

**Conclusions:** Thus, the FPSC transplantation led to significant increase in TGF β1 level after 3 months in patients with type 2 DM in comparison with the group of patients with type 2 DM who did not undergo FPSC transplantation.

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**P49**

**TRANSFORMING GROWTH FACTOR β1 IN PATIENTS WITH TYPE 2 DIABETES MELLITUS AFTER FETAL PANCREATIC STEM CELL TRANSPLANTATION**

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**Introduction:** Transforming growth factor β1 (TGF β1) is cytokine regulation of cellular responses, such as proliferation, differentiation and migration. According to some studies, TGF β1 was elevated in patients after organ transplantation. TGF β1 has a positive correlation with neovascularization after organ transplantation. Therefore, the dynamics of TGF β1 level of in patients with type 2 diabetes mellitus (DM) after transplantation of fetal pancreatic stem cells (FPSC) is sure to be a scientifically interesting subject.

**Materials and Methods:** TGF β1 levels in 5 patients with type 2 DM after FPSC (cells were of 12 to 14 weeks of gestation) perfumed by an intravenous infusion and in 5 patients with type 2 DM of control group were surveyed with the use of ELISA method by ChemWell analyzer before FPSC and 3 months after transplantation.

**Results:** Before the FPSC transplantation the mean TGF β1 levels in group of patients with FPSC and control group were, respectively, 16364.8 ng/ml and 13401.4 ng/ml (p=.222). After 3 months in the group of patients with type 2 DM who underwent FPSC transplantation, TGF β1 level increased significantly to 35730.4 ng/ml (p=.008). In the control group of patients with type 2 DM – the level of TGF β1 didn't change significantly – 15250.8 ng/ml, respectively (p=.547).

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**P50**

**NNIS (NATIONAL NOSOCOMIAL INFECTIONS SURVEILLANCE) RISK SCORING IN DETECTING THE RISK OF SURGICAL SITE INFECTION IN TRANSPLANTATION PATIENTS**

Ebru Karazeybek, Nilgün Aksoy

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Surgical site infections (SSI) are wound infections that occur after a surgical procedure and are one of the healthcare-associated infections. They constitute one-third of all health care-associated infections. SSI according to CDC (Centers for Disease Control and Prevention) are defined as the infections observed in the surgical site that may develop within 30 or 90 days following the surgical procedure.

Most surgical site infections, one of the risks that put patient safety at risk, are among preventable healthcare-associated infections. JCI’s (Joint Commission International) 7th of national patient safety goals for 2008 is to reduce the risk of health care-associated infections. Efforts to reduce surgical site infections among healthcare-associated infections are very important and this complication places an important burden on health care systems around the world in terms of patient morbidity, mortality and additional costs. For these reasons, initiatives to prevent SSI become important.

Surgery itself is a risk factor for SSI. There is a close relationship between the performed surgical procedure and the incidence of SSI. In some surgeries, the risk of surgical site infection incidence is higher than the other surgeries. This risk is directly proportional to the increase in contamination in the surgical site by bacteria. According to this, a wound is divided into four groups: “clean”, “clean-contaminated”, “contaminated” and “dirty wound”. The incidence of SSI after clean surgery is lower. The incidence of SSI after cardiovascular procedures was reported to be 2-5%, whereas the incidence of SSI in pediatric cases with liver transplantation was reported to be 32.5%.

A risk index was developed which based on pre-defined SSI risk and risk factors associated with patients and the
used method. The US National Nosocomial Infections Surveillance (NNIS) system is a system developed in the USA in 1970 to monitor the incidence of healthcare-associated infections and related risk factors. The NNIS system provides cooperation between the CDC and hospitals. In the NNIS risk scoring wound class, ASA score (American Society of Anesthesiologists) and surgery durations are evaluated.

In the evaluation of the surgery duration, standard T durations reflecting the 75th percentile of the surgeries and varying according to the surgical procedure type are taken into account. The surgeries longer than this duration get 1 point.

In the NNIS risk index patients with 3 or more ASA score get 1 point, patients with III and IV wound class get 1 point, patients with more than 75th percentile surgery duration get 1 point. Accordingly, a risk index between 0 and 3 was determined.

By using NNIS risk scoring, increasing infection prevention measures for patients with high SSI risk will reduce the risk of developing SSI. It can be said that using this scoring would increase the success chance of surgical treatments and contribute to provide a qualified health care service by reducing costs.

**P51**

**CLINICAL CHARACTERISTICS OF ACINETOBACTER BAUMANNII INFECTION IN SOLID ORGAN RECIPIENTS**

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**Introduction:** Acinetobacter baumannii depending on the immune status of the host, may result in one of the serious infections in the hospitals. Reported data suggested that A. baumannii infection is rising recently. Little known about the clinical features of the A. baumannii infection in solid organ transplant (SOT) recipients. We aim to share our clinical experiences of A. baumannii infection in our SOT recipients.

**Materials and Methods:** We found 41 solid organ transplanted patients who developed A. baumannii infection between 2011-2017 at Baskent University Hospital. Medical records were reviewed, patient’s demographics, microbiology results, pre-treatment before A. baumannii infection was documented and overall outcome data were collected.

**Results:** A total of 41 patients (29 male, 12 female) infected with A. baumannii with a mean age of 47.15 ± 13.24 years were included in the study. Most common sites of infection were deep tracheal aspirate (48.8%), blood stream (36.6%), bronchoalveolar lavage (31.7%), intra-abdominal region (26.8%). In 61% of all sites A. baumannii was the only isolated microorganism as an agent of the infection. The onset of infection a year after transplant was identified in 58.5% of all recipients. A great majority of the patients’ (97.6%) A. Baumannii infection was hospital-acquired and septic shock developed in 61% (25 of 41) of them. As a risk factor, presence of invasive procedures (nephrostomy, biliary stent, surgical site drainage tube and tracheostomy) were found in 56.1%, administration of high dose corticosteroid for rejection one year prior to infection was 68.3% respectively. The prior use broad spectrum antibiotics within two weeks before the documented A. baumannii infection which may enhance the multidrug-resistant causing hospital-acquired A baumannii infection was proved in all recipients as well as occurrence of multi drug resistance (MDR) or extensive drug resistance (XDR). 30-day mortality was 41.5% (17 of 41 patients) and was not associated with the infection site, microbiological cure, previously known risk factors and drug resistance in our study group.

**Conclusions:** Acinetobacter is an important cause of hospital acquired infections and mortality all around the world. One of a major problem in A. baumannii infection is delayed appropriate antibiotic treatment initiation and rising amount of XDR organisms. Predicting the potential risk factors especially for the risky population as SOT recipients has important role for the patients’ outcome.

**Keywords:** acinetobacter, solid organ recipients, mortality
P52
EXTENSIVELY DRUG RESISTANT (XDR) BACTERIA: IS THERE ANY DIFFERENCE BETWEEN SOT RECIPIENTS AND OTHER PATIENTS?

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Introduction: Infections due to multi-drug resistant (MDR) bacteria is a worldwide growing problem. Antibiotic use is the most commonly reported predisposing factor for the high resistance rates. For the treatment of infections in immunocompromised patients, antimicrobials are commonly used for even more prolonged periods leading to significant changes in a patient's normal endogenous microbiota. These changes increase the risk for colonization and infection with MDR bacteria. The term XDR -which is absolutely covered by the term MDR- bacteria denotes that only one or two drugs are available as therapeutic options. The aim of this study is to determine the differences –if any- in the distribution of XDR bacteria between SOT recipients and other patients.

Materials and Methods: Medical records of patients who had positive cultures regarding XDR bacteria between January 2014 and June 2017 were evaluated retrospectively. Only one particular isolate from each patient was included in the study.

Results: The total number of XDR bacteria isolated from non-transplant patients were 424 during the study period. Of these 424 isolates 252 (59%) were Acinetobacter baumannii, 110 (26%) were Klebsiella pneumoniae, 32 (8%) were vancomycin resistant enterococci, 30 (7%) were XDR Pseudomonas aeruginosa. The total number of XDR bacteria isolated from SOT recipients is 22 during the study period. Of these 22 isolates, 11 (50%) were XDR A.baumannii, 4 (18%) were K.pneumoniae, 4 (18%) were Paeruginosa, 3 (14%) were VRE. The most commonly isolated XDR bacteria is A.baumannii followed by K. pneumoniae among both transplant recipients and non-transplant patients.

Conclusions: The distribution of XDR bacteria among transplant recipients and non-transplant patients are similar in our series. The distribution of MDR or XDR among specific patient groups such as transplant recipients is of pivotal importance for the management of difficult-to-treat infections. Surveillance of local patterns of antimicrobial resistance in transplant centers should be carried out with a review of the situation once or twice yearly. These trends should serve as a guide both for empirical treatment and surgical prophylaxis.

P53
CANDIDAEMIA AMONG ADULT SOLID ORGAN TRANSPLANT RECIPIENTS

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Introduction: Our purpose was to evaluate the local epidemiology, Candida species distribution and compare the distribution, demographic, clinical characteristics and outcome of candidaemia episodes in between Candida albicans and non-albicans Candida (NAC) candidaemia episodes among adult solid organ transplantation (SOT) recipients.

Materials and Methods: The data of this report were collected from medical records for each adult SOT recipient from January 2007 to August 2014. Candidaemia was defined as at least one blood culture positive for a Candida species in patients with clinically apparent signs and symptoms of infection. The interval between two separate candidaemia episodes was accepted as thirty days. Polymicrobial bloodstream infection was defined as the growth of more than one organism in blood culture, excluding coagulase-negative staphylococci, Bacillus spp. and Corynebacterium spp.

Results: There were 183 candidaemia episodes among 179 adult patients with female predominance (67%) throughout all adult inpatients within the study period. Of these, ten solid organ transplantation recipients with female predominance (n=7) developed 11 candidaemia episodes: six episodes in five liver recipients, four episodes in four kidney recipients and one episode in one heart transplantation recipient. The median age of SOT recipients at the time of candidaemia was 58 years (interquartile range: 26 years). Preinfection hospital stay and length of hospital stay did not differ statistically among C. albicans and non-albicans candidaemia groups (Table 1). The results besides preinfection hospital stay and length of hospital stay were
given as percentages as because sample size was not enough to make statistical comparison.

**Conclusions:** The source of candidaemia among SOT recipients was intraabdominal (6/11, 56%) predominantly occurring especially among liver recipients (67%) (Table 2). The candidaemia source was unknown secondly (4/11, 36%). Although both the presence of central venous catheter (CVC) (91%) and total parenteral nutrition (TPN) (82%) in the previous month before candidaemia were more commonly seen, CVC was the least source of candidaemia among SOT recipients. All transplant recipients with candidaemia had a history of antimicrobial therapy within the last month. Antifungal usage history was not statistically significantly associated with any of the *Candida* species (one of each: *C. albicans, C. glabrata, C. lusitaniae, C. krusei*). Concomitant bacterial bloodstream infections, namely polymicrobial infections, was detected in 46% of the candidaemia episodes. Crude mortality within first month after candidaemia was 46%.

**Table 1.** Comparing findings among *C. albicans* versus non-*albicans* candidaemia groups in solid organ transplant recipients

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total</th>
<th>C. albicans</th>
<th>Non-albicans</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (y, median, IQR)</td>
<td>58 (26)</td>
<td>63 (17.5)</td>
<td>43 (22.5)</td>
<td>.067</td>
</tr>
<tr>
<td>Preinfection hospital stay (d, median) (IQR)</td>
<td>27 (52)</td>
<td>11 (36)</td>
<td>40.5 (66.5)</td>
<td>.234</td>
</tr>
<tr>
<td>Length of hospital stay (d, median) (IQR)</td>
<td>49 (65)</td>
<td>21 (50)</td>
<td>64.5 (72.25)</td>
<td>.201</td>
</tr>
</tbody>
</table>

**Table 2.** Demographics and clinical characteristics of candidaemia episodes

<table>
<thead>
<tr>
<th>Variable</th>
<th>C. albicans</th>
<th>Non-albicans</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=5</td>
<td>n=5</td>
<td>n=6</td>
<td>n=11</td>
</tr>
<tr>
<td>Female</td>
<td>4 (80%)</td>
<td>3 (50%)</td>
<td>7 (64%)</td>
</tr>
<tr>
<td>Previous TPN (last month)</td>
<td>4 (80%)</td>
<td>5 (83%)</td>
<td>9 (82%)</td>
</tr>
<tr>
<td>Previous abdominal surgery (last month)</td>
<td>2 (40%)</td>
<td>2 (33%)</td>
<td>4 (36%)</td>
</tr>
<tr>
<td>Previous non-abdominal surgery (last month)</td>
<td>1 (20%)</td>
<td>1 (17%)</td>
<td>2 (18%)</td>
</tr>
<tr>
<td>CVC in situ</td>
<td>4 (80%)</td>
<td>6 (100%)</td>
<td>10 (91%)</td>
</tr>
<tr>
<td>Previous antibiotic therapy (last month)</td>
<td>5 (100%)</td>
<td>6 (100%)</td>
<td>11 (100%)</td>
</tr>
<tr>
<td>Previous antifungal therapy (last month)</td>
<td>1 (20%)</td>
<td>3 (50%)</td>
<td>4 (36%)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>3 (60%)</td>
<td>2 (33%)</td>
<td>5 (46%)</td>
</tr>
<tr>
<td>Dialysis</td>
<td>0</td>
<td>3 (50%)</td>
<td>3 (28%)</td>
</tr>
<tr>
<td>Mechanical ventilation</td>
<td>1 (20%)</td>
<td>4 (67%)</td>
<td>5 (46%)</td>
</tr>
<tr>
<td><strong>Source of candidaemia</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Unknown</td>
<td>2 (40%)</td>
<td>2 (33%)</td>
<td>4 (36%)</td>
</tr>
<tr>
<td>· Intraabdominal</td>
<td>2 (40%)</td>
<td>4 (67%)</td>
<td>6 (56%)</td>
</tr>
<tr>
<td>· Catheter-associated</td>
<td>1 (20%)</td>
<td>0</td>
<td>1 (9%)</td>
</tr>
<tr>
<td>30-day crude mortality</td>
<td>2 (40%)</td>
<td>3 (50%)</td>
<td>5 (46%)</td>
</tr>
</tbody>
</table>
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RADIOLOGICALLY OCCULT INVASIVE PULMONARY ASPERGILLOSIS IN A PATIENT WITH LIVER TRANSPLANT

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Introduction: Invasive fungal infections are a matter of concern in immunocompromised patients and especially the solid organ transplant recipients. The presence of non-specific and mild symptoms in these patients leads to a delay in diagnosis of such infections even in a disseminated state which unfortunately increases the overall mortality rates.

Case Report: A 46 years old patient who was diagnosed with cirrhosis underwent a cadaveric liver transplantation. After the operation he underwent hemodialysis because of acute renal failure and received high dose corticosteroids as acute rejection was reported from the liver biopsy 10 days later. The patient was consulted for cough and purulent sputum at the 26th day post-transplantation. His physical examination was unremarkable and the chest x-ray didn't show any obvious infiltration. Ceftriaxone and clarithromycin treatment was started after screening for possible pathogens was performed and a thorax tomography was requested. The tomography showed some nodular infiltrates in the right upper lobe. Bronchoscopy was planned as the inflammation markers did not decrease and the blood galactomannan was found to be positive. Surprisingly there were disseminated white plaques in the mucosa of both main bronchi. Mucosal biopsy and bronchoalveolar lavage (BAL) was obtained for further investigation. The galactomannan antigen in BAL specimen was high and the pathologic examination confirmed the fungal infection compatible with aspergillosis. The patient was started amphotericin B treatment. Bronchoscopy performed one week later showed a remarkable regression of the mucosal findings, however a deterioration in the patient's mental status was detected. Brain MRI showed nodular lesions compatible with abscess and voriconazole was added to the treatment in addition to intrathecal amphotericin B. One month later regression of both lung and brain findings were detected and the overall health status of the patient was improved.

Conclusions: Invasive aspergillosis occurs in 1-9.2% of liver transplant recipients and renal failure, together with retransplantation, is the most important risk factors for such infection. Hemodyalisis was shown to increase the risk about 15-25 fold. Most invasive fungal infections usually appear the first month of posttransplant period and the median time was shown to be 16 or 17 days in different studies. The overall mortality rates are very high ranging from 83 to 88% in liver transplant patients diagnosed with invasive fungal infections thus early diagnosis and intervention remains a critical step. The non-specific symptoms can make it difficult to suspect disseminated invasive fungal infections thus caution and close follow-up of high risk patients should be performed. On the other hand there is no consensus for prophylaxis with antifungals in liver transplant patients. Identification of the high risk population from the start and the initiation of prophylaxis in this group of patients might help decrease the overall morbidity and mortality.

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INTRACRANIAL FUNGAL INFECTION AFTER SOLID ORGAN TRANSPLANTATION

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Fungi constitute nearly 5% of all Central Nervous System (CNS) infections. It mainly occurs in immunocompromised patients. The most common causative agent is Aspergillus spp. It presents either as maxillary sinusitis or pulmonary infection.

Brain involvement of aspergillus carries mortality rate of as high as 90.9% (20/22) in patients with organ transplantation (Cisneros JT, 1993). A study from our center reported 75% (6/8) mortality in patients with invasive fungal infection following solid organ transplantation (Ergin 2003). Aspergillosis presents in the forms of meningitis, mycotic aneurysms, infarcts and mass lesions.

Neurologic symptoms due to aspergillosis are mental status changes, epileptic fits and focal neurologic deficits. Since these are nonspecific symptoms, diagnosis of intracranial aspergillosis is difficult and diagnosis relies on radiology, presence of fungi at different locations and microbiologic investigations.

Aspergillosis does not have a specific radiologic appearance. Parenchymal aspergillosis shows heterogenous signal intensity; hypointense on T1 and hyperintense on
T2 images. Intracranial aspergillosis has been noted in 4% of children and 10% of adults after liver transplantation. Fungal infections may also be associated with intracerebral hemorrhage.

Neurosurgical interventions aim to relieve neurologic symptoms by removing mass lesions, aid diagnosis in suspicious cases, treat increased intracranial pressure by CSF diversion techniques and placement of reservoirs. Many authors have emphasized that patients undergoing neurosurgical procedures during treatment of fungal CNS have significantly improved survival. Preoperative antifungal treatment, particularly with itraconazole, has been reported to have a positive effect on outcome. Infectious Diseases Society of America (IDSA) has stated that the response to antifungal therapy is closely associated with host factors including resolution of neutropenia, control of immunosuppression and the return of graft function from an organ transplant.

We present three patients, one with histopathologic verification, whom were considered harboring intracranial fungal infection on radiologic basis, positive response to medical treatment and probable lesion elsewhere in the body.

<table>
<thead>
<tr>
<th>Patient</th>
<th>Transplanted Organ</th>
<th>Radiology</th>
<th>Neurosurgical Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>38 F</td>
<td>Kidney/Rejected</td>
<td>Bilateral Thalamic Abscess</td>
<td>External Ventricular Drainage</td>
<td>Died</td>
</tr>
<tr>
<td>46 M</td>
<td>Liver</td>
<td>Hydrocephalus</td>
<td>External Ventricular Drainage/ Shunt</td>
<td>Cured</td>
</tr>
<tr>
<td>61 M</td>
<td>Liver</td>
<td>Left Thalamic Right Occipital Right Temporal Abscess</td>
<td>Surgery, Total Removal Of Occipital Mass</td>
<td>Stable With Neurologic Deficit</td>
</tr>
</tbody>
</table>

P57

MALASSEZIA FOLLICULITIS IN SOLID ORGAN TRANSPLANTATION RECIPIENTS WITH ACNEIFORM LESIONS

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Introduction: Solid organ transplant recipients (SOTRs) undergoing long-term graft-preserving immunosuppressive therapy are predisposed to a variety of cutaneous infections. Malassezia folliculitis (MF) is an opportunistic yeast infection characterized by acneiform eruption on the face and upper trunk. It can be misdiagnosed as steroid acne particularly in SOTRs, leading to unnecessary and prolonged antibiotic treatment. The aim of this study was to determine the prevalence of MF in SOTRs with acneiform lesions.

Materials and Methods: In all, 23 consecutive SOTRs with acneiform lesions were screened for the presence of PF by cytologic examination for the presence of Malassezia yeasts. Samples were obtained from lesional skin by a slit-skin smear and stained with May–Grünwald–Giemsa (Bio-optica, Milan, Italy). MF was diagnosed if there were more than 6 budding spores in one microscopic field (400 magnification).

Results: The study included 23 SOTRs (4 female and 19 male). The mean age was 30.7 ± 12.7 years (range, 18 - 58 years). 19 (82.6%) of SOTRS had renal, while 4 (17.4%) had liver transplantation, and the mean time since transplantation was 5.4 ± 4.6 months (range, 1-17 years). Acneiform lesions arised after transplantation in 22 (95.7%) of the patients, and the lesions involved face in 18 (78.2%) subjects, trunk in 4 (17.4%), and both the face and trunk in one (4.3%) patient. Thirteen (56.5%) SOTRs were diagnosed with MF, while 10 subjects had the diagnosis of steroid acne. Three patients (23%) with MF had also pityriasis versicolor lesions on their trunk.

Conclusions: Steroid acne is a common skin disease after solid organ transplantation, yet our preliminary data show that MF is responsible from a significant proportion of the acneiform eruptions in SOTRs. Therefore, it should be kept in mind in the differential diagnosis to avoid misdiagnosis and improper management.
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THE ROLE OF MEAN PLATELET VOLUME TO DIAGNOSE PNEUMONIA IN PATIENTS WITH SOLID ORGAN TRANSPLANTATION

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**Introduction:** Solid organ transplantation (SOT) has become a well established therapy for patients with end stage organ failure. The immunosuppressive therapies used in SOT patients to evolve with a goal of minimizing toxicity and side effects while optimizing organ function. Despite the improved transplantation success, there is an increased risk for infection due to immunosuppressive regimens in SOT patients. Pneumonia is a serious complication can lead to death in SOT patients. Physical examination, laboratory and radiologic findings of pneumonia can be nonspecific and diagnosis of pneumonia may have some difficulties in SOT patients because of several causes (etc. drug lung, hypervolemia, infections, hemorrhage) can led to pulmonary infiltrates in these patients. It has been reported that elevated values of mean platelet volume (MPV) is inversely correlated with inflammatory problems. To date, the role of MPV in the diagnosis of pneumonia in SOT patients has not been investigated so far. In this study, we aimed to investigate the role of MPV in diagnosis of pneumonia in SOT patients retrospectively.

**Materials and Methods:** Seventy SOT patients with pneumonia who had procalcitonin levels determined at Baskent University between 2011- 2016 were included in the study. Medical records of these patients were reviewed for demographic, clinical, radiographic, laboratory and microbiology data. The diagnosis of pneumonia based on clinical respiratory symptoms and signs, imaging findings (chest radiography and/or computed tomography), positive microbiological tests, pathologic findings, laboratory findings or effective clinical treatment trials. Type of SOT, immune suppressive drugs and clinical outcome data were all noted.

**Results:** This study included in 70 (male/female: 47/23 and with the mean age of 46 ± 14 years) SOT patients (26 liver and 44 renal recipients). Pneumonia was diagnosed by radiologically in 42.9% (n=30), procalcitonin was positive in 36.7% (n=11), CRP was elevated in 96.7% (n=29) and leukocyte account was increased in 20% (n=6) of the patients. Serum procalcitonin, Creactive protein levels, complete blood count and MPV were compared in SOT patients with pneumonia. MPV values were significantly lower in patients with elevated serum procalcitonin levels during pneumonia (p=.038).

**Conclusions:** The results suggest that assessment of MPV in SOT patients with pneumonia may indicate systemic inflammation. Thus, MPV may be used as a negative acutephase reactant in SOT patients.

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NATURAL THERMAL SPA WATER VS HYPERTHERMIC TAP WATER FOR THE TREATMENT OF RECALCITRANT HAND WARTS IN ORGAN TRANSPLANT RECIPIENTS: A PATIENT-BLINDED, COMPARATIVE PRELIMINARY STUDY

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**Introduction:** Cutaneous warts represent a major problem in organ transplant recipients (OTRs) because of their extensive involvement and persistent course. Current therapeutic modalities often fail to achieve a successful response in patients with warts. We experienced a case involving an OTR with recalcitrant mosaic warts who observed complete clearance of her lesions in 3 days after thermal spa bathing. The aim of this study was to evaluate the efficacy of natural thermal water versus hyperthermic tap water for the treatment of recalcitrant hand warts in OTRs.

**Materials and Methods:** In this preliminary study, the right hands of five OTRs with hand warts were immersed in thermal water, while the left hands were soaked in tap water at 44°C to 47°C. Treatment involved three 45-minute sessions per week for 1 month. The total number and size of the warts and the hyperkeratosis severity grade were noted.

**Results:** After 12 sessions, none of the OTRs exhibited any marked improvement in the size or number of warts, while 3 OTRs had a slight decrease in their hyperkeratosis severity grade.
Conclusions: Our preliminary data indicate that neither thermal spa water nor hyperthermic tap water is effective for the treatment of recalcitrant hand warts in OTRs. However, new trials using thermal waters supplied from different geographical locations should be performed before this observation can be generalized.

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SCREENING OF RECIPIENTS PRIOR TO LIVER AND HEART TRANSPLANTATION

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Departments of ¹Infectious Diseases and Clinical Microbiology, and ²Transplantation, Baskent University, Ankara, Turkey

Introduction: Our purpose was to screen the recipients of liver and heart for endemic infectious diseases and to organize vaccination recommendations prior to transplantation surgery to minimize infections.

Materials and Methods: The data of this report were collected from medical records of adult candidates of both liver and heart transplantation from September 2014 to June 2017 who were consulted to the Department of Infectious Diseases and Clinical Microbiology. Pretransplant screening includes cytomegalovirus (CMV), Epstein-Barr virus (EBV), varicella-zoster virus (VZV), measles virus, mumps virus, rubella virus, hepatitis A virus (HAV), hepatitis B virus (HBV), hepatitis C virus (HCV), human immunodeficiency virus (HIV), venereal disease research laboratory (VDRL) test for syphilis screening and toxoplasma antibody screening especially for heart transplantation candidates.

Results: As a total 46 candidates for transplantation surgery were consulted for pretransplant screening who were distributed as 35 liver and 11 heart transplantations with male predominance (63% and 73%, respectively). The median age of recipients at the time of pretransplant screening was 53 years (18-68 years). 15 from 46 candidates had transplantation: 11 liver and four heart transplantation. All candidates had negative results for both VDRL and HIV. All candidates were serologically positive for CMV. One of each candidates for liver and heart candidates were nonimmune to EBV. Toxoplasma antibody positivity was 45% (5/11) among heart candidates. Chronic hepatitis due to HBV and HCV diagnosed only among liver candidates distributed as 11 and two, respectively. Seropositivity to HAV were found to be higher among candidates: 97% among liver candidates and 91% among heart candidates. Antibody to VZV tested among 45 candidates. All heart candidates were tested and immune to VZV. VZV immunity tested among 34 (97%) liver candidates and 33 candidates were found to be immune (97%). There is an ongoing measles outbreak in Europe and 39 (29 liver and 10 heart) candidates were screened for antibody to measles virus. Two candidates (one liver and one heart) were nonimmune to measles (3% liver and 10% heart, respectively).

Conclusions: Turkey still has no national policy although there are national guidelines/consensus statements regarding pretransplant screening for organ transplantation in Europe, Norway, Sweden, United States of America, Australia and New Zealand (1-4). Transplantation centers follow up their own protocols, not a national one. Pretransplant screening of potential organ recipients is essential to the success of solid organ transplantation (5). Pretransplant screening also helps to determine immunity to vaccine-preventable diseases and is a chance for updating of immunizations for the rest of safe living after transplantation surgery. National policy for pretransplant screening for endemic infectious diseases is needed urgently.

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3. The Scandiatransplant Working Group. Guidelines for prevention of transmission of infectious diseases from organ donors to recipients. http//www.scandiatransplant.org/members/preventio...
**P61**

**MUCORMYCOSIS IN TURKEY**

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**Introduction:** Our purpose was to evaluate the mucormycosis cases in Turkey in the last five years by a structured survey form.

**Materials and Methods:** A structured survey form filled out by nine centers.

**Results:** The number of mucormycosis cases varies from center to center: three centers (33%) reported 11-15 cases, two centers (22%) reported 1-5 cases and other two (22%) reported 6-10 cases. Each of either one center reported 16-20 cases and more than 20 cases. Of these, six centers have both solid organ and hematopoietic stem cell transplantation services. Males represent the majority of cases reported by 89% of centers. The prevalence of mucormycosis is particularly high both in spring (44%) and in autumn (33%). Rhinocerebral mucormycosis was identified in the majority of cases (89%) whereas only one center reported cutaneous form principally. Six centers (67%) identified commonly Rhizopus species at the species level. The majority of diagnoses of mucormycosis are based on results of histopathology (78%). Molecular methods for the identification did not used. The most common underlying diseases was diabetes mellitus (78%). Hematological malignancies reported secondly from four centers (44%). Two centers (22%) reported mucormycosis cases occurring in either solid organ or hematopoietic stem cell transplant recipients. Headache (44%), fever (33%), sinus involvement (33%) and edema and pain in the affected eyelid (33%) were the most frequently encountered signs and symptoms of infection. Cutaneous lesion, visual loss, proptosis and lethargy reported rarely. Liposomal amphotericin B was the treatment of first choice by all centers. Although all centers combined both antifungal therapy and surgical intervention, early surgery within 48 hours was reported only from five centers (56%).

**Conclusions:** Climate affects infection prevalence: mucormycosis reported commonly in tropical and subtropical climates during autumn. Herein, in Turkey mucormycosis reported commonly both in spring and autumn. Previously autumn was reported to be the most common season of mucormycosis cases because of the highest airborne spore concentrations in the Middle East (1,2). As in accordance with previous studies, diabetes was the most common underlying disease and the rhinocerebral form was the most common form of mucormycosis (1,2). Despite antifungal therapy with liposomal amphotericin B and surgical intervention, mortality rates were higher. Mucormycosis is a life-threatening invasive fungal infection especially in immunocompromised patients. Molecular identification is needed for the accurate and specific diagnosis of Mucorales species.

**References:**

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**AESTHETIC SURGERY IN TRANSPLANT PATIENTS: A SINGLE CENTER EXPERIENCE**

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**Introduction:** Transplant patients like the non transplant population can have body shape disorders surgical intervention. There is a lack of literature about aesthetic surgeries in transplant patients. Our aim in this study is to share our experience in various aesthetic procedures in solid organ recipients.

**Materials and Methods:** 8 (5 female, 3 male) transplant patients who were operated for surgical correction of the aging face, pytozis and lypodistrophy of the breast, abdomen in Baskent University Plastic Reconstructive and Aesthetic Surgery Department between 2010-2017 included in the study. 7 patients had renal transplants and one patient had liver transplant. Minimal aesthetic procedures like botulinum toxin and dermal filler injections, scar revisions were excluded. All patients were consulted to transplant team preoperatively and hospitalized in transplant inpatient clinic.

**Results:** Mean age was 47.4 years. Aesthetic surgeries were breast reduction (2), high smas face lift (2), blepharoplasty (2), dermo fat grafting (2). Mean hospitalization duration was 2.5 days. 6 patients had no minor or major
complications. One patient had skin flap necrosis which healed with secondary intention. Another patient had ectropion after lower lid blepharoplasty; corrected with another procedure.

**Conclusions:** Transplant patients are a special group of patients who receive long term immunosuppressive treatment and medications like high dose steroids. These treatments can lead to dermal atrophy and cause pseudo skin laxity. Remove of excess skin and fat tissue should be considered. Effort should be made to avoid complications such as skin necrosis and unpredictable wound healing problems when resecting the excess tissue. Preoperative consultation to transplant surgeons keeping the operative time shorter is another important factor. Body dysmorphoces interfere with normal life activities, demand for a younger appearance are the main reasons of aesthetic procedures. Transplant patients can be operated safely with preoperative planning, consultation to transplant surgeons and close follow-up.

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**EFFECT OF ADIPOSE STROMAL VASCULAR FRACTION ON RANDOM PATTERN FLAP VIABILITY IN RATS WITH DIABETES AND CHRONIC RENAL DISEASE: AN EXPERIMENTAL STUDY**

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**Introduction:** Diabetes (DM) and chronic renal disease (CRD) are epidemic diseases with increasing prevalence. Wounds due to microangiopathy and macroangiopathy tend to heal slowly which can lead to severe morbidites such as amputations. High flap failure rates reported in the reconstruction of these wounds. Studies have shown increased flap viability by adipose derived stromal vascular fraction (SVF). However; there is no study in the literature about the effect of adipose stromal vascular fraction on skin flap viability in chronic renal disease and diabetes with chronic renal disease.

**Materials and Methods:** 48 male Sprague Dawley rats were used. Diabetes was induced by 65 mg/kg intraperitoneal streptozocin administration. Chronic renal disease was induced by 5/6 nephrectomy. Four groups consisting of 12 rats were formed. 2 rats were used for obtaining adipose tissue from the inguinal regions for stromal vascular fraction preparation in each group. Group I (Control group): Two dorsal flaps were elevated, phosphate buffered saline (PBS) were injected to the flaps. Group II (DM), Group III (CRD), Group IV (DM+CRD): After disease induction and period, two dorsal flaps were elevated, SVF were injected to the left flap, PBS was injected to the right flap. Flaps were harvested for macroscopic and histopathological assessments at postoperative 7th day. Percentage of flap viability measurement and microangiography were performed for macroscopic assessment. Capillary density assessment was evaluated in both hemotoxylin-eosin and CD31 stained specimens for microscopic assessment. Plasma levels of VEGF were studied in all rats at day 1 and day 7.

**Results:** SVF was improved flap viability significantly (p<.05). New capillary formation found significantly more in SVF groups in capillary density assessment (p<.05). This result was compatible with the scarcity of the vasculature in microangiography. When blood VEGF levels were compared, increase in day 1 and day 7 were significant according to control group (p<.05). When groups were compared with each other there was no significant difference except Group II (diabetes).

**Conclusions:** The result of the study has shown that DM and CRD impaired flap viability. Diabetes with chronic renal disease deteriorated the flap viability much more. It has shown that SVF were increased flap viability via neovascularization by endothelial differentiation. Flap viability percentage was found lower in diabetic and uremic groups when compared with healthy control group. Blood VEGF levels were not elevated in uremic groups. These results were indicated that in vivo function of stem cells were possibly impaired by uremia dominantly and diabetes due to microenviromental changes.
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A MULTICENTER SURVEY: HOW DO THE TRANSPLANT DERMATOLOGISTS MONITOR ORGAN TRANSPLANT RECIPIENTS WITH NEVI?

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Introduction: The incidence and mortality of melanoma is increased in organ transplant recipients (OTR). Multiple acquired common and dysplastic nevi are risk factors of melanoma. A new or changing nevus may suggest melanoma. The strategies used by transplant dermatologists for monitoring nevi are unknown. Our objective was to assess the methods used by transplant dermatologists for monitoring multiple acquired common nevi, dysplastic nevi, or new or changing nevi.

Materials and Methods: A questionnaire was e-mailed to 63 members of the Skin Care in Organ Transplant Patients, Europe (SCOPE).

Results: A total of 41 dedicated transplant dermatologists, working at university or state hospitals, from 19 European countries participated in the survey and answered the questionnaire. Thirty-eight (92.7%) responders instruct their patients to perform regular self-skin examination. Seventeen (41.5%) responders screen their patients every 6 months, 15 (36.6%) every 12 months, five (12.2%) every 3 months, and four (9.7%) perform screening without regular intervals. Thirty-three (80.5%) participants performed full body skin examination with naked eye, 29 (70.7%) performed dermoscopy of clinically suspicious nevi, 22 (53.6%) took dermoscopic photographs of dermoscopically suspicious nevi, 15 (36.6%) took close-up photographs of clinically suspicious nevi, and 14 (34.1%) performed baseline total body photography. Three (7.3%) responders performed only full body skin examination with naked eye, two (4.9%) performed only dermoscopy of clinically suspicious nevi, and two (4.9%) did not perform any specific screening for “new” and “changing nevi”, and two used only full body skin examination with naked eye for melanoma screening. One noted that the morphological features of melanocytic nevi in OTR frequently differ from those of melanocytic nevi in immunocompetent patients, and one stated that OTR with difficult nevi should be followed up in a dedicated pigmented lesion clinic.

Conclusions: Dedicated transplant dermatologists perform a wide variety of nevi screening procedures in their OTR. According to the recent systematic review, they need to include sequential digital dermoscopic imaging in their armamentarium to follow melanocytic lesions in their patients. Combination of as many techniques as possible may be useful to detect early posttransplant melanomas.

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SKIN CANCER RISK AWARENESS AND SUN-PROTECTIVE BEHAVIOUR AMONG SOLID ORGAN TRANSPLANT RECIPIENTS

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Introduction: Solid organ transplant recipients (SOTRs) are at an increased risk of developing skin cancer due to long-term graft-preserving immunosuppressive therapy, and excessive sun exposure is a major contributing factor to this process. The aim of this study was to evaluate the skin cancer awareness and sun-protective behavior in SOTRs.

Materials and Method: In all, 40 consecutive SOTRs were evaluated regarding the knowledge of increased skin cancer risk and its influence on their sun-protective practices by applying questionnaires during their visits at our dermatology clinic. The patients were also questioned whether they had been informed thoroughly about the importance, reasons and protective measures for sun protection by any medical source, and if they had, the
identity of the informer (surgeon/dermatologist/nurse), frequency of dermatology clinic visits and their attitude of sun protection.

**Results:** The study included 40 SOTRs (7 female and 33 male). The mean age was 35.2 ± 12.9 years (range, 18-60 years). Thirty-five (87.5%) of SOTRs had renal, while 5 (12.5%) had liver transplantation, and the mean time since transplantation was 6.6±5.4 years (range, 1-20 years). Twenty-eight (70%) of the 40 SOTRs had the information of sun exposure may give rise to hazardous consequences, however only 16 (40%) of them have known the causal relationship between sun exposure and skin cancer development. Nineteen (47.5%) patients were unable to recall anybody giving any information about sun protective-behavior, whereas 21 (52.5%) subjects were informed by a dermatologist (n=13) and/or a nurse (n=8). However, merely 14 (35%) SOTRs have been examined by a dermatologist at least once since transplantation, and 4 (10%) of them had regular, while 10 (25%) had irregular visits to the dermatology department. Twenty-six (65%) subjects have never visited a dermatology clinic, thus have never applied a sunscreen cream. Four (10%) SOTRs who have the habit of daily sunscreen use, were the ones that have been undergoing dermatologic examinations regularly. Ten patients have been using sunscreen creams only in sunny days or at vacation time. Remarkably, 3 of those patients pointed out that they had formerly used to visit the dermatology clinic regularly and in that period they were using sunscreens on daily basis. Regarding sun protective clothing, only 11 (17.5%) SOTRs have been wearing a suitable hat or long sleeves when outdoors. None of the SOTRs had used to apply a sunscreen cream before transplantation.

**Conclusions:** Our data shows that regular dermatologic examination and education of patients regarding cutaneous malignancies and sun screening measures improve the sun-protective habits of SOTRs. Therefore, orderly visits once or twice a year should be strongly advised to this patient population by all their medical care providers.