Advances in Cross-Matching and Tissue Typing

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It is a long way behind us from the first days of HLA typing when we could only detect a few antigens by using primary techniques. HLA typing has started by using leukoagglutination (for leukocyte antigens) and compliment fixation (mostly for platelet antigens) methods. Soon after, lymphocytotoxicity test was introduced and became the method of choice for years.

The phasing out serological tissue typing and its replacement with DNA based tissue typing has increased the accuracy and specificity of HLA typing which allows more precise HLA matching between donors and recipients.

In 1990s, DNA based methods revolutionized HLA typing. First description of molecular typing methods was revealed in 1984 and then by the 13th workshop in 2002 more than 1000 different HLA gene variants had been identified and characterized.

With new techniques instead of molecular based typing, identifying elements at the surface of cells, we could now extract the DNA from the nucleus of the cells and characterize the DNA sequence or typing directly based on the coding sequence. This methods are much more accurate and reliable than others. With the development of technology the DNA based typing has been greatly improved.

Cerborn et al. In 2004 introduced Luminex Technology as a new flowcytometry technology enabling us to enlarge numerous reactions in a unique tube.

Along with improvement of tissue typing, cross matching methods and analysis had also been improved. In cross matching the relevance of the results is very important. The point is the detection of antibodies, afterward the sensitivity and specificity are very important for data analysis. Different methods have been used for antibody evaluation. Goals of antibody detection are:

- Is there an HLA antibody present (sensitivity)?
- Is the antibody clinically relevant (specificity)?
- Irrelevant or uncertain: autoantibodies, non-HLA antibodies, B cell reactive, IgM HLA antibodies.

Extended Criteria for Living Kidney Donation

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In contrast to the enormous scientific, diagnostic and therapeutic efforts directed at cellular (T-cell-mediated) alloimmunity, for many years, comparatively little attention has been paid to antibody-mediated rejection (AMR). The fundamental role of AMR is meanwhile well established and diagnostic criteria for this rejection type have been included in a recently published addition to the Banff ‘97 classification of renal allograft rejection. Humoral presensitization represents one of the major risk factors for AMR. Recipient presensitization is routinely evaluated by complement-dependent cytotoxicity. More sensitive assays include flow cytometric crossmatching or cell-independent ELISA- or flow cytometry-based assay systems permitting HLA-specific alloantibody screening. The value of novel assay systems for differential assessment of deleterious presensitization will be discussed. Efficient strategies for desensitization and antibody removal in high risk patients include high dose intravenous immunoglobulin (IVIG) and/or apheresis. The use of plasmapheresis combined with additional "anti-humoral" regimens (e.g. IVIG) was recently reported to allow successful living donor transplantation following conversion of a positive cytotoxic crossmatch. In addition, antibody depletion by peri-transplant immunoabsorption was demonstrated to enable successful cadaveric donor transplantation in the context of a positive crossmatch. Regarding treatment of established rejection, it is now generally accepted that strategies targeted at humoral immunity should be integral part of the therapeutic repertoire. Numerous uncontrolled series suggest thera-
Liver transplantation (LT) is the best treatment method of liver failure. In 1967, Starzl pioneered the first successful cadaveric LT, then great progress has been made in LT over the past decades. Major advances in the field of LT are:

1. Improvements in surgical technique
2. Advances in the field of immunosuppression
3. Early diagnosis and treatment of liver transplant complications; have led to an increase in both graft and patient survival rates.

As part of the team approach, Interventional radiologist have an increasing role in the management of these patients. The role of interventional radiologist:

1. Supporting the transplant candidates such as TIPS for portal hypertension, treatment of liver tumors.
2. Treatment of liver transplant complications.
3. Postoperative complications may occur in up to 25% of LT recipients.

In the early postoperative phase, poor graft function with elevated prothrombin time, and elevated liver enzymes, is usually due to one of three main causes:

1. Primary graft nonfunction
2. Vascular insufficiency
3. Acute rejection

The first diagnostic technique to confirm the vascular integrity and anastomosis is Doppler US. CT and MR imaging also provide noninvasive evaluation of the transplanted liver. Hepatic artery thrombosis (HAT) range from 4 to 42%. Risk factors for HAT:

1. Cold ischemia time
2. ABO blood group incompatibility
3. Small donor vessels
4. Rejection
5. Arterial kinks
6. Reduced flow secondary to HAS
7. Variant hepatic arterial anatomy

Mortality rates from HAT have been reported around 80% without retransplantation and revascularization. HAT is usually associated with biliary ischemia and strictures then necrosis, leaks, bilioma formation and abscesses may be seen. US is non invasive and good diagnostic tool to evaluate the hepatic artery. A resistive index of less than 0.5 or systolic acceleration times of greater than 0.08 seconds is highly suggestive of stenosis or thrombosis. Three-dimensional helical CT arteriography with maximum intensity projection and shaded surface display techniques offers noninvasive approach. Hepatic artery stenosis rates around 11%. Early recognition important to prevent ischemic damage to the liver. Many the HAS occurs at the site of anastomosis.

Arterial steal syndrome is characterized by arterial hypoperfusion of the graft caused by shifting of blood flow into the splenic or gastroduodenal artery. This syndrome has received little attention to date. Portal vein stenosis may be seen in less than 3% of adult LT recipients and 7% in pediatric group. Most occur at the surgical anastomosis. Patients may be asymptomatic or present with clinical signs of portal hypertension.

Portal vein can be accessed via transhepatic, transjugular or transplenic route. PTA is the preferred method. Once the treatment is completed the intraparenchymal tract can be embolized with coils and sometimes with glue. Inferior vena cava (IVC) and hepatic venous complications: IVC stenosis or thrombosis is seen less than 1% of LT recipients. Endovascular techniques can solve these problems. Hepatic venous stenosis may be seen in 4 to 5% of post transplantation. On US flattened monophasic flow with decreased velocities of less than 10 cm/sec. PTA is the first line of treatment.

**Biliary Complications:** Bile duct complications are an important cause of post surgical morbidity and graft survival. The biliary complications varies from 6 to 30%. The range represents differences of complications in orthotopic liver transplantation (OLT) and living
donor liver transplantation (LDLT). The method of surgical anastomosis, cold and warm ischemic liver injury, and pre-existing biliary disease are all factors which critically influence the frequency, development and type of complication. The intrahepatic biliary system in a transplanted liver depends solely on the patency of the hepatic artery. Therefore, it is essential to confirm patency of hepatic artery.

**Bile duct obstruction:** Strictures are the most common cause of biliary obstruction. It is multifactorial. The incidence of biliary strictures after OLT is 4 to 15% and after LDLT is 8 to 35%. Approximately two thirds of all biliary strictures are anastomotic. The majority of patients who develop anastomotic strictures can be managed by dilatation but recurrent strictures or interventional radiology failures are managed by surgical reconstruction. Nonanastomotic strictures ( hilar or intrahepatic) carry a less favorable prognosis. They often do not respond to nonsurgical techniques, necessitating surgery.

**Bile leaks and Biliomas:** Common cause of a bile leak include anastomotic leaks and a leak from the T-tube exit site. Bile leaks may be seen in 9 to 25% of LT recipients. CT and US can easily identify biliary collections and these can be percutaneously drained if needed.

**Vascular complications:** Renal transplant arterial stenosis incidence is between 1% and 12% and it accounts more than 75% of vascular complications. Duplex US is the most useful initial investigation. It is sensitivity 90% and specificity 86-100%. Gadolinium enhanced MR angiography has a sensitivity of 67% to 100% and specificity of 75% to 100%. PTA is the treatment of choice. The clinical success rate averages 82%. Recurrent stenoses occur at a reported rates of 10-33%. Stents may be necessary if there is elastic recoil, flow limiting dissection or kinks. Arteriovenous fistula (AVF) and pseudoaneurysms: The incidence of AVF and pseudoaneurysms changes between 1-18%. Mostly, percutaneous renal biopsy is the reason. Embolization is the preferred method if the situation is complicated.

**Non-vascular complications:** Ureteral obstruction occurs in 2-10% of renal transplants. Ureteric ischemia is the most common cause (90%). Antegrade percutaneous intervention, PTA and ureteric stenting are the possible treatment alternatives. Urinary leaks occur in 1-5% of renal transplants. The most common sites of urine leak are the distal ureter. Percutaneous nephrostomy and external drainage has a success rates of 63-83%.

Individualization and minimization stem from the delicate balance between under immunosuppression leading to graft rejection, and over immunosuppression leading to cardiovascular disease (CVD), infection, malignancy, and/or nephrotoxicity. These factors, especially CVD, have been clearly linked to poor long-term outcome. Individualization strategies are currently based on generalized perception of immunologic risks or on expected or existing drug toxicities. For example, patients perceived to be at high risk for allograft rejection receive more immunosuppression (induction and maintenance) as compared with those who are perceived to be at low risk for allograft rejection (maintenance only). Minimization strategies are based on minimizing immunosuppressive drug toxicities with special emphasis on reducing nephrotoxicity and other direct cardiovascular side effects of currently used agents. Individualization and minimization should not be used synonymously, as patients at high risk for immunologic graft losses for example require maximal immunosuppression as part of their individualization. On the other hand, minimization strategies are usually reserved for low risk patients (individualization of the minimization).

Desensitization is based on abrogating a positive crossmatch with the intended donor (living or deceased) therefore rendering kidney transplantation possible. A new phase of immunosuppression (preconditioning) was therefore added to the established induction and maintenance phases of immunosuppression.

Future directions in the tailoring of immunosuppression will be based on comprehensive immune monitoring of the recipient to determine whether the patient is receiving minimum, maximum or adequate immunosuppression.

**L11**

**ADVANCES IN THE DIAGNOSIS AND TREATMENT OF ACUTE REJECTION**

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**L10**

**TAILORING THE IMMunosuppressive MANAGEMENT FOR A RECIPIENT**

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The last decade has witnessed two main shifts in the interests of the transplant community: long-term renal transplant outcome and crossing the HLA and ABO barriers. Three new paradigms have therefore emerged as a direct result of these interests: individualization and minimization aiming at improving long-term outcome; and desensitization aiming at expanding the donor pool.
POST TRANSPLANT BONE LOSS

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There is about 18 percent prevalence with a range of 5 to 21 percent of a fracture occurring in the first couple of years post transplant. This is mainly due to a change in bone mass caused mainly by immuno-suppressive medications—prednisone, cyclosporin, FK506, azathioprine, immobilization. PTH levels remain elevated in many renal TX. Patients Gonadotrophin deficiency is a major problem in renal disease. There are no drugs available for the treatment of this problem. There are investigational therapies—estrogens, calcitonin, bisphosphonates, alfacalcidol, anabolic factor. Parathyroid hormone is in clinical trial.

MANAGEMENT OF POST TRANSPLANT VIRUS INFECTIONS

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ETHICAL ISSUES IN KIDNEY TRANSPLANTATION

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INDUCTION THERAPY: HISTORY AND PRACTICE

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Induction therapy in transplantation had its beginning in the immunologic notion that modulating antigen presentation by immunosuppression will allow engraftment of the newly transplanted organ. Early steroid induction was quickly replaced by polyclonal and monoclonal antibody therapies. Induction therapy has had multiple claimed benefits related to decreased incidence of early rejection, enhancement of early graft function, and delay of introduction of nephrotoxic immunosuppressants. Risks of various induction therapies vary but, in general, reflect the increased overall immunosuppression by the recipient. In recent years, there has been a gradual increase in the number of patients requiring retransplantation, those that are highly sensitized, and in the utilization of extended criteria donors. These factors, coupled with recent reports that induction therapy allows steroid or calcineurin minimization and or avoidance, continue to fuel increased utilization of induction therapy in transplantation.

INDIVIDUALIZING MAINTENANCE IMMUNOSUPPRESSION

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DETECTION AND MANAGEMENT OF CNI TOXICITY

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ROLE OF THERAPUTIC DRUG MONITORING IN POST TRANSPLANT MANAGEMENT

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MULTI-ORGAN PROCUREMENT

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CADAVER LIVER TRANSPLANTATION

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LIVING DONOR LIVER TRANSPLANTATION (LDLT)

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The first LDLT was performed in Brazil by Raia in December 1988 but the recipient did not survive long. The first successful LDLT was reported by Strong and colleagues in 1990. Nowadays, LDLT is one of the most effective procedures to expedite liver transplantation and reduce significantly the waiting list mortality before transplantation. In most countries without deceased donor resources, it is the only way for organ donation. Precise donor and recipient selection for an elective procedure is a key step to success. In pediatric age group, mostly left lateral segment is sufficient so operation in donor is less hazardous. In the majority of children, a portion of donor liver with 0.8 to 1 per-
TISSUE RECOVERY, PROCESSING AND DISTRIBUTION

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Tissue Banks have been created with the purpose of facilitating the use of allografts for the repair or substitution of different types of damaged tissues. A tissue donor has specific characteristics that make it quite different than an organ donor. This main difference relies on the method of preservation of the graft. An organ should be evaluated and transplanted in a short period of time, whereas a retrieved tissue can be processed and maintained in quarantine so as to provide sufficient time to make all the analytical and microbiological controls or recover all the information required according to the standards followed by the corresponding tissue bank. The objective of tissue donation is the same as organ transplantation, to substitute or repair a function of an organ or tissue damaged. And the main concern is to guarantee the quality of the entire process: on one hand, the non-transmission of diseases must be assured, and on the other, the retrieval, processing, preservation and distribution must be developed under best conditions, always ensuring full traceability of the transplanted tissues. The Quality and Safety of tissue transplant is essential, as we bear in mind that normally, it is not a medical urgency (as it is for organ transplant) and therefore, the assumption of any risk is not justified. In addition, it is of great importance that a donor may be a tissue source for hundreds of recipients, instead of 7 recipients of solid organs.

Tissue transplant has a fundamental impact in the quality of recipients’ life. In the United States, about 200000 tissues are transplanted per year, whereas the number of organs transplanted per year is approximately 28000. The activity of a tissue bank can be summarised in four main steps. These are donor screening/identification, procurement, processing/preservation and distribution of human tissues intended for transplantation into a human.

There is a wide variety of tissues that are comprised in a tissue establishment. These can be divided in four main groups: cardiovascular, ocular, musculoskeletal and skin tissue that can be processed or preserved in different ways: freeze dried, cryopreserved, frozen, cold...

All these steps must be controlled to ensure the quality and safety of the tissues, so a Quality System will be mandatory, and certifications or accreditations like ISO recommended.

Due to the growing clinical indications for human transplantation, advances in cell therapy are currently being developed and included in tissue banking activities. The cells that are used for this kind of therapy include condrocytes, keratinocytes, hepatocytes, limbal eye cells and pancreatic islets, and others.

In conclusion, it is of essential matter that the control of the entire tissue banking process – from donor screening to tissue distribution – is guaranteed, so as to ensure the quality and safety of tissues to be transplanted into human recipients.

We must be aware of the continuously-growing indications for transplantation, both in number and type, as well as of the great expectations that the new therapies are providing.

REDUCING ISCHEMIA REPERFUSION INJURY IN RENAL TRANSPLANTATION

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It has been proved that the short- and long-term results of deceased donor organ transplantation are significantly worse to those obtained when the transplanted organ is obtained from a living donor. These two types of organ transplants differ by the extent of ischemia. Ischemia and accompanying proinflammatory changes have been an inevitable part of deceased donor organ procurement and transplantation and are as important factor as the immune response which influence both an early and long term function of the organ after transplantation. It occurs in several stages of the process. First begins after the brain death which is associated with hemodynamic and neuroendocrine storm, proinflammatory cytokines upregulation, nitric oxide production, oxidative stress - free radical and lipid peroxide generation, and complement activation. Hypothermic storage of the kidney and preservation variables extends the injury. Reperfusion of the organ after transplantation leads to additional injury by produc-
Morbid obesity has reached epidemic proportions in developed nations worldwide causing considerable mortality and increased healthcare expenditures. The use of gastric bypass to achieve weight loss in morbidly obese dialysis and post renal transplant patients has not been studied adequately. Forty-one patients with different stages of chronic renal failure (CRF) (25 already on dialysis) underwent a gastric bypass (GBP) and nine of these had a subsequent renal transplant. An additional 10 patients underwent a GBP after becoming morbidly obese following transplantation. Of the 41 patients with CRF, 5 stabilized or resolved their kidney disease and 9 were able to be successfully transplanted. These patients had a loss of 68% excess body weight by 12 months. There were no operative mortality in this series, and all but one death was related to previously existing disease of the cardiovascular system.

**L28**

**CURRENT STATUS OF PANCREAS AND ISLET TRANSPLANTATION**

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**L29**

**IMMUNOLOGICAL FACTORS IN PREVENTION AND MANAGEMENT OF CHRONIC ALLOGRAFT NEPHROPATHY**

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CAN is the final common pathway of renal allograft damage and thus arises from many different causes. The specific features of interstitial fibrosis and tubular atrophy are widespread within the kidney, reproductible in small biopsy samples and most easily classified by the pathologist. Grading of CAN under the Banff schema has involved an assessment of the severity of chronic interstitial fibrosis and tubular atrophy. In the new iteration of the Banff schema the term CAN has been abandoned in favour of an impossibly clumsy inference to sclerosis and tubular atrophy, but the intent to describe the fibrosis and tubular changes remains. Renal allograft fibrosis occurred in two phases with most of the impact seen within the first year. Early interstitial fibrosis is greater than the amount of tubular damage suggesting a role for both ischaemia-reperfusion injury and direct immune mediated mechanisms in causing interstitial injury. Acute tubular necrosis is predictive of CAN with risk factors for the development of CAN by 26 weeks including transplantation of a kidney from a deceased donor, a longer cold ischaemic time and acute rejection episodes. Subclinical inflammation which under the Banff schema would merit the diagnosis of rejection, but which is not associated with acute changes in creatinine, leads to increased interstitial fibrosis and CAN. Persistent subclinical rejection in sequential biopsies taken after the first year, though confined to small numbers of patients also leads to progressive increases in fibrosis and decline in renal function. Untreated inflammatory cell infiltration of the renal allograft insidiously destroys tubules and fibroses the interstitium, and because it is not associated with acute changes in serum creatinine remains undetected until graft function deteriorates beyond retrievable levels. Treatment is able to ameliorate this damage and prevent deterioration of graft histology and long term function.
L30 NON IMMUNOLOGICAL FACTORS IN CAD

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L31 PATHOLOGY OF CHRONIC ALLOGRAFT DYSFUNCTION

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Renal transplant recipients now enjoy excellent short term graft survival. However, modern immunosuppression protocols have not led to proportional improvements in long term outcome. When progressive allograft dysfunction develops, clinical signs and symptoms are frequently not specific enough to pin point the underlying etiology. A biopsy is an extremely useful tool to distinguish between immunologic causes of graft dysfunction (chronic rejection) and non-immunologic causes such as chronic calcineurin inhibitor toxicity, recurrent disease, glomerulonephritis, obstructive uropathy, and renal artery stenosis. In recent years, antibody mediated injury and chronic BK virus nephropathy have become recognized as significant players in the pathogenesis of so-called chronic allograft nephropathy. Histopathologic examination can also quantify the degree of chronic injury, which can assist in the decision to list patients for re-transplantation.

L32 PREDICTORS OF LONG TERM GRAFT OUTCOME

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L33 TERATOGENICITY OF IMMUNOSUPPRESSIVE DRUGS AND GUIDELINES IN PREGNANCY AFTER TRANSPLANTATION

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Successful pregnancy outcomes are possible after solid organ transplantation and thousands of successful pregnancies in women with all types of solid organ transplants have been reported. As immunosuppressive therapy is required to maintain adequate graft and maternal survival, an ongoing concern for this population is the effect of the immunosuppressive therapy on the fetus and the effect of pregnancy on the well being of mother and graft. The general advice to any pregnant woman is to avoid unnecessary medications during pregnancy. Clinicians do worry about teratogens, those agents that cause abnormal development, whether this is an overt structural birth defect or more subtle derangements of embryonic or fetal development. There is the concern that any agent or combination of agents and maternal condition(s) may be teratogenic and that this risk is increased in the transplant recipient population. The goal of immunosuppressive therapy is to allow graft and patient survival by preventing rejection. Due to their toxicities, combinations of agents allow for synergistic effects while minimizing drug toxicities. Combinations of immunosuppressive agents may, however, potentially be teratogenic and it is difficult to derive accurate fetal risk assessments from animal studies alone. Although there are known theoretical risks to mother and fetus, successful pregnancies are now the rule in transplant recipients. Most recipients appear to tolerate pregnancy well, while only a small percentage develop graft dysfunction and or irreversible deterioration either related to prepregnancy graft problems or unpredictable gestational factors. A reasonable approach to management of the pregnant transplant recipient has been to maximize recipient, graft and fetal survival by using combinations of agents that will optimize graft outcome. Thus, what is best for the mother and her survival would hopefully provide the best outcomes for the fetus. As yet no specific combination of immunosuppressive agents has been deemed optimal for pregnancy. The effects of the newer combinations of agents, however, require further study. A balance of good maternal and graft outcome with the lowest risk of fetal toxicity must be the goal of management in this setting.

L34 GUIDELINES IN PREGNANCY AFTER TRANSPLANTATION

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L35 GRAFT DYSFUNCTION DURING PREGNANCY IN A TRANSPLANT RECIPIENT: DETECTION, DIAGNOSIS AND MANAGEMENT

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L36 CONTRACEPTIVE ISSUES IN TRANSPLANT RECIPIENTS

Karkar A
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L37
INDICATIONS AND CONTRAINDICATIONS OF LIVER TRANSPLANTATION

Al-Ali F
KUWAIT

L38
COMPLICATIONS OF LIVER TRANSPLANTATION

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L39
IMPACT OF IMMUNOSUPPRESSION ON RECURRENCE OF HEPATITIS C GENOTYPE IV IN LIVING DONOR LIVER TRANSPLANTATION

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Hepatitis C virus (HCV) infection of the graft is universal. Many factors have been studied in the recurrence of hepatitis as; Recipient age, BMI, HCV-RNA before transplantation, HCV-RNA after transplantation, Donor age, Graft Size, type of immunosuppression. Our Immunosuppression Protocol: Tacrolimus, Cyclosporin micro emulsion, Mycophenolates, Corticosteroids which is tapered within first 3 months and Basiliximab as induction therapy in selected cases. Impact of tacrolimus versus Cyclosporin micro emulsion in hepatitis C virus-infected living related liver transplant recipients on recurrent hepatitis.

Liver Transplantation started five years ago in several centers in Egypt (more than 280 patients). In Wadi El Neel Hospital, Since October 2001; 107 patients underwent Living Donor Liver Transplantation 92 Adults and 15 Children. Mortality rate was: 32 patients (29.9%). Early Post Operative Mortality (27 patients) was 26.4%. Late Mortality (5 patients) was 4.7%.

This Study was started on 57 HCV Recipient; they were classified into two groups; Recurrent Group: 16 patients and Non Recurrent Group: 41 patients. Recurrent Group: Mean Recipient age 48.56, Mean Recipient weight 78.44, Mean Donor Age 29.38, Mean HCV-RNA before transplantation 250.56 (X 10^3), Mean HCV-RNA after transplantation 880.5 (X 10^3), Mean Graft size 1.178 kg.

II. Non Recurrent Group: Mean Recipient age 47.94, Mean Recipient weight 83.33, Mean Donor Age 28.72, Mean HCV-RNA before transplantation 238.83 (X 10^3), Mean HCV-RNA after transplantation 492.11 (X 10^3) and Mean Graft size 1.108 kg.

Immunosuppression: For Recurrent Group; 56.3% of patients were receiving Basiliximab as induction of immunosuppression and 43.8% didn’t. While Non Recurrent Group; only 9.8% receives and 90.2% didn’t, with P value: 0.0002 Very highly significant. The Correlation between Tacrolimus & Cyclosporin micro emulsion and the recurrence of HCV.

<table>
<thead>
<tr>
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<th>Number of Patients</th>
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<tr>
<td>Recurrent</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Non Recurrent</td>
<td>25</td>
<td>16</td>
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* P value: 0.2469 Non Significant

The correlations were not significant between (patient’s age, donor’s age, donor’s relation, graft size, HCV-RNA before transplantation, type of immunosuppressant) and occurrence of recurrence. Significant correlations were detected between (HCV-RNA after transplantation, Basiliximab) and occurrence of recurrence. Tacrolimus is more associated with recurrence than Cyclosporin micro emulsion however this association is not significant may be due to small sample size. From This Study we recommend for patients with HCV genotype IV to start immunosuppression protocol as Cyclosporin micro emulsion, Mycophenolates and Basiliximab should be used as induction of immunosuppression in selected cases.

L 40
LIVER SUPPORT DEVICES

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Despite the progress of intensive care medicine, liver failure still has a poor prognosis. To bridge the period of acute decompensation, extracorporeal liver support devices have been developed. In contrast to bioartificial devices (“bioliver”), artificial devices (“liver dialysis”) are already widely used to support liver detoxification, especially MARS (Molecular Adsorbents Recirculation System; Gambro, Germany) and Prometheus (Fresenius Medical Care, Germany). Both systems remove protein-bound and water-soluble toxins from the blood with a different technical approach. In MARS, toxin removal takes place by diffusion over an albumin-impermeable membrane against a secondary circuit filled with albumin. The loaded albumin is then “recycled” by adsorber and low flux dialysis inside the secondary circuit. In Prometheus, the albumin fraction is separated into the secondary circuit through an albumin-permeable filter. There, the albumin fraction is directly purified by adsorber (Fractionated Plasma Separation and Adsorption; FPSA). Afterwards, high flux hemodialysis is performed. In-vivo comparisons of both systems demonstrated higher extraction capacities for bilirubin, urea and ammonia under Prometheus than under MARS.

Several publications have consistently reported an improvement of hepatic encephalopathy and biochemistry for both systems. However, only a few randomized controlled clinical trials exist. Some of them described an improved survival in patients with liver failure. The FDA approval study confirmed the significant improvement of encephalopathy by MARS. Recent data suggest a reduction of portalvenous pressure. Further indications may be severe refractory pruritus and intoxications with protein-bound...
L41  
STEROID AVOIDANCE IN RENAL TRANSPLANTATION  
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Patient death with a functioning graft is one of the major reasons for graft loss. Naturally it is our objectives to ascertain that the patient may keep his graft function until death, but renal transplant patients have an increased risk of untimely death. The major cause is of death in these patients is cardiovascular disease (CVD). Renal transplantation may reduce the risk for CVD and, conversely, side-effects of immunosuppressive drugs may increase the risk. Therefore steroid-free immunosuppression may be a beneficial alternative for many patients.  

There is a number of clinical studies in renal transplantation with the objective to identify the corner stone immunosuppressive drugs that may allow for a steroid-free regimen. For example Vitko S, et al. (2005) showed that induction is necessary and that tacrolimus in combination with mycophenolate mofetil (MMF) given long-term and combined with initial daclizumab induction was similarly effective as tacrolimus/MMF given with steroids instead of induction. The incidence of post-transplant diabetes and the need for treatment of hypertension were significantly reduced in the patients given a steroid-free regimen. It is, however, important to select patients for steroid-free regimens, excluding those with an immunological high risk (Woodle, 2005).  

Conclusions drawn from these studies and other recent studies such as the SYMPHONY study will be outlined including suggestions for a standard protocol of immunosuppression for normal risk patients, those appropriate to receive a steroid-free regimen, and high-risk and low-risk patients respectively.  

References:  

L42  
CNI MINIMIZATION/WITHDRAWAL REGIMES IN RENAL TRANSPLANTATION  
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The results of these trials should provide better insights into these new devices.

L43  
CAMPATH I-H IMMUNOSUPPRESSION MINIMIZATION  
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L44  
LAPAROSCOPIC DONOR Nephrectomy: TRANSPERITONEAL APPROACH  
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The introduction of minimally invasive surgery and laparoscopic techniques to urology has had their greatest impact on the unique procedure of laparoscopic donor nephrectomy. This has converted the utilized morbid operation of open nephrectomy, performed through a flank or subcostal approach, to a minimally invasive procedure associated with minimal morbidity and early discharge from the hospital. The scope of this abstract is to review the techniques utilized at our institution with specific emphasis on recent modifications developed to make it safer for the donor and the recipient. Furthermore, we believe that attention to every detail is imperative to ensure proper kidney retrieval via the laparoscopic approach, with consistently good results in the recipient.  

Our center exclusively uses the transperitoneal access for kidney retrieval which provides a wider field for operation and easy maneuverability of the instruments especially during retrieval. Only pure laparoscopy (not hand assisted) is used since we believe that incision for removing the kidney from the abdomen is much smaller compared to the incision used for a hand-assisted approach using the hand port. Furthermore, the postoperative pain and morbidity are much less.  

We performed a controlled sequential evaluation of open donor nephrectomy versus classical and modified laparoscopic donor Nephrectomy, recruiting 100 consecutive donor-recipient pairs operated upon from 1997 till 2003 [open Nx (n=30), performed 1997-2000 and lap Nx (n=70), performed 2000-2003] with prospective recording of operative data, anatomic details of graft, hospital stay and donor recovery.  

The donor characteristics and renal function were similar for open Nx and lap Nx. Operative parameters were similar except for longer warm ischemia time in lap Nx vs. open Nx (3.14±2.10 vs. 1.5±0.5 min, p<0.001). Donor complications were equivalent but differed in spectrum (trend towards more intra-operative complications with lap Nx versus more postoperative complications for open Nx). Donor recovery, hospital stay, and return to work were improved in lap Nx vs. open Nx (p<0.001). Renal function in lap Nx vs. open Nx were similar (2-year serum creatinine1.26±0.21 vs.1.31±0.40, respectively), and graft survival were similar. In conclusion, Lap Nx offers major advantages to the donor compared to open Nx, and yields similarly favorable results in graft outcomes, but is more surgically demanding. Consequently, lap Nx should be...
adopted as the procedure of choice of live kidney retrieval. A detailed technical description of right and left donor nephrectomy including the technical modifications introduced at our center will be presented. A short video clip depicting the techniques will be shown.

L 45
RETOPERITONEAL LAPAROSCOPIC DONOR NEPHRECTOMY

Modi P
INDIA

L 46
RIGHT LAPAROSCOPIC DONOR NEPHRECTOMY

Gill I
USA

L 47
TECHNICAL MODIFICATIONS IN LAPAROSCOPIC DONOR NEPHRECTOMY 7 YEARS EXPERIENCE WITH 750 CASES

Simforoosh N
Shahid Beheshti Medical University, IRAN

Evolution of laparoscopic donor nephrectomy has lead to our final approach as followings:
1. Entry: We always use open access. This has eliminated access complications in our department, (with training fellows involved).
2. We leave Gerota’s fascia and perinephric fat on the kidney intact except small area in upper pole. (like radical nephrectomy), making nephrectomy faster, while kidney and ureter is better preserved.
3. We have combined bioclip with a titanium non automatic clip placed by hand force, so we do not use Endo GIA stapler which is costly and less safe. By adding metallic clip we increase the safety of Hom-o-lok that recently has been under question.
4. We use bipolar cautery to control lumbar, adrenal and other veins need to be divided, therefore avoiding clips as much as possible.
5. Gonadal vein is preserved with ureter leading to longer renal vein with no dissection around. ureter
6. Fourth trocar: we always have the assistant hand (camera holder) by a 5mm forth trocar retracting the bowel, holding the kidney when necessary and helping the surgeon dissecting renal pedicle.
7. Less or no manipulations on adrenal gland to prevent arrhythmia. We use hem-o-lok clip to control adrenal arteries during removal phase of the kidney.
8. We always hand extract the kidney from suprapubic incision which makes more cost effective and cosmetic.
9. We use no heparin, preventing bleeding tendency in donors. We observed no adverse effect in this regard.
10. Long term graft survival with above measures has been 93.8%.

L 48
PREVENTION AND MANAGEMENT OF TUBERCULOSIS IN RECIPIENTS

John G
Department of Nephrology, Christian Medical College, Vellore, Tamil Nadu, INDIA

L 49
INVASIVE FUNGAL INFECTION IN SOLID ORGAN TRANSPLANTATION

Hussain S
Assistant Professor in Division of Infectious Diseases, Transplant Infectious Disease UnitUSA

Fungal infections in solid organ transplant recipients continue to be a significant cause of morbidity and mortality. Candida sp. and Aspergillus sp. account for most invasive fungal infections. The incidence of fungal infection varies with type of solid organ transplant. Liver transplant recipients have highest reported incidence of candida infections while lung transplant recipients have highest rate of Aspergillus infections. Recent epidemiological studies suggest the emergence of resistant strains of candida as well as mycelial fungi other than Aspergillus in these patients. The armamentarium of antifungal drugs has increased with several new drugs eg voriconazole, posaconazole, micafungin and anidulafungin became available against Aspergillus species. Despite significant advancement in the diagnosis and antifungal therapy mortality due to mold infection remains high.

L 50
POST TRANSPLANT HYPERTENSION: CAUSES AND IMPACT ON PATIENT AND GRAFT OUTCOME

Fuad M
EGYPT

L 51
MANAGEMENT OF POST TRANSPLANT HYPERTENSION

Sharaf Eldin U
EGYPT
DEATH WITH FUNCTIONING GRAFT IN RENAL TRANSPLANT RECIPIENTS

Ghods AJ
Iran University of Medical Sciences, IRAN

In the past 2 decades by introduction of new immunosuppressive drugs the short-term renal allograft survival has improved substantially due to reduction of acute rejection episodes. The long-term survival has also improved, however, it has been far from satisfactory. The leading causes of late renal allograft loss are: 1- Chronic rejection and 2- Death with functioning graft (DWFG). In studies nearly half of late graft losses have been due to DWFG. In order to improve life expectancy of renal transplant (Tx) recipients, strategies should be adopted either to overcome chronic rejection or to decrease the number of DWFGs. To date, no regimen has been effective in prevention or treatment of chronic rejection; whereas the main causes of DWFG such as infection and cardiovascular disease (CVD), are almost preventable and curable. It has been shown that recipients of living donor kidneys have much lower incidence of DWFG than deceased donor recipients (22% versus 25% per year). Advancing age among both donors and recipients significantly increases the occurrence of DWFG. Recipients older than age 60 have highest incidence of DWFG. The original kidney disease also affects the incidence of DWFG. In short and long-term follow-ups, recipients with type I and type II diabetes have the highest incidence of DWFG. Some other DWFG related risk factors are: CMV seropositivity, peak PRA (50%-80%), delayed graft function and cyclosporine containing immunosuppressive regimen. In developing countries where infection is the leading cause of DWFG, careful attention for diagnosis and treatment will decrease DWFG. In developed countries, because many older and diabetic patients receive renal Tx; screening for coronary artery disease and its risk factor modifications will decrease DWFG. In one study renal Tx recipients who were treated with Statins had a 24% better survival and those who did not receive treatment.

L 53
CARDIOVASCULAR DISEASE IN RENAL TRANSPLANT

Ghamdi G
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Cardiovascular disease is the commonest cause of death in Renal Transplant patients. It is, also, the leading cause of death in Dialysis patients. Selection and screening transplant patient candidates with cardiovascular disease, and treating them before transplantation is of paramount importance. High-risk patients for cardiovascular disease include diabetics, hypertensive, and with previous history of chest pain or ischemic heart disease. But what about diabetics over the age of forty and completely asymptomatics? This is an enigma and controversial. Whether to go for the golden standard, invasive angiogram or just non-invasive tests. This is what I am going to discuss based on the evidence available today.

L 54
LIVE SURGERY LAPAROSCOPIC DONOR NEPHRECTOMY

Gill I
USA

L 55
SURROGATE MARKERS IN TRANSPLANTATION: ARE WE THERE YET?

Sayegh MH
Harvard Medical School, USA

Development of monitoring assays to accurately assess the immune status of transplant recipients is of crucial importance in the field of transplant immunobiology. Such assays may enable transplant physicians to use the highly toxic and expensive immunosuppressive drugs in a more rational way rather than on empiric basis, thus avoiding enormous cost and side effects. Moreover, such assays may give us clinically useful information regarding graft outcome leading to preemptive treatment in high risk individuals, and evaluating the response to such a treatment. As the ultimate goal in transplantation is drug-free allograft acceptance, there is urgent need for development of rapid and reliable assays to establish “surrogate markers” for rejection and tolerance. Ideal assays have high positive and negative predictive value, diagnose rejection (acute and/or chronic) before its occurrence, and should be rapid, non-invasive and inexpensive. This lecture will review the state of the art on surrogate markers of allograft rejection and tolerance, put in a clinical perspective.

L 56
PATHOLOGY IN ACUTE ALLOGRAFT DYSFUNCTION

Randhawa P
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Renal transplantation is the treatment of choice for end stage kidney disease. When allograft dysfunction is noted during follow up of patients, a biopsy is an extremely useful tool to diagnose cell mediated and antibody mediated rejection, and to rule out non-immunologic causes of graft malfunction, such as donor disease, ischemic/preservation injury, drug toxicity, infections, vascular thrombosis, post-transplant lymphoproliferative disease, and technical complications. In addition to its role in establishing the primary diagnosis, a biopsy can grade the severity of pathology present, help determine the most appropriate therapy, and provide information relevant to graft prognosis.
Lectures

L 57
ACUTE CELLULAR REJECTION

Broumand B
Iran University of Medical Sciences, IRAN

Incidence of AR, defined as increase in serum creatinine more than 0.3 mg/dl is 14.7% in 2001-2003 period. Pathologically interstitial is diffusely edematous and infiltrated by CD4 and CD8 lymphocyte. Tubulitis occurs when lymphocyte and monocyte extend into the walls and Lumina of tubules. In cells mediated vascular rejection that can be seen with tubulointerstitial rejection, lymphocyte & monocyte undermine arterial swollen endothelium, without arterial wall necrosis. Presence of leukocyte suggests infection or antibody mediated rejection. Typically C4d staining is negative. Differential diagnosis of acute allograft dysfunction is: Pre renal, interstitial nephritis, viral and bacterial infection, ATN, drug’s toxicity and obstructive uropathy. Assessment includes the history, adherence to drugs, physical examination and blood & urine tests, drugs level and sonography. Volume depletion, drugs and UTI constitute the common causes of allograft dysfunction. Diagnosis of ACR depends on biopsy, CD20 staining for refractory cases, negative C4d staining, presence of markers of activating lymphocyte & proteomic study.

Sub clinical rejection describes a morphologic pattern of acute cell mediated rejection that may occur in 30% of patients without clinical sign and symptoms of rejection diagnosed with advent of protocol biopsy.

Treatment of ACR, include pulse steroid (125-1000 mg for 3-5 days) can reverse 75% of first rejection episode. It can be repeated for recurrent or resistant rejection. Thymoglobulin and OKT3 used as the second line of treatment if graft function was deteriorating. For Banff IIIB or greater, Thymoglobulin or OKT3 can be used from the beginning. With refractory rejection second course can be given in selected patient with 40-50% success of long term graft function. Changing the protocol from cyclosporine to tacrolimus or adding MMF, sirolimus and Anti CD, 20 (Rituximab) may be effective. Prognosis depends on recurrent rejection, episodes using potent drugs, occurs beyond 6 months or lack of response.

L 58
ANTIBODY MEDIATED REJECTION

Watschinger B
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Since the landmark observation of Terasaki in 1969 that the presence of alloantibodies can be demonstrated by a simple test, i.e. the complement-dependent cytotoxicity cross-match before transplantation, hyperacute rejection has rarely been seen in renal transplantation and graft survival rates have greatly improved. Following a long period of intensive research in cellular mechanisms of allograft rejection, humoral immunity has now regained attention in the transplant community. The demonstration by Feucht et al. that the presence of C4d staining - an indirect proof of the activity of humoral immune mechanisms within the graft - is associated with inferior graft outcome marked the renaissance of the interest into the effects of antibodies in renal transplantation. Indeed alloantibodies can be found in the serum of patients with C4d positive biopsies, and both features were shown to precede graft loss in many patients. Meanwhile, acute antibody mediated rejection has been accepted as separate entity in the Banff classification for allograft rejection and a variety of therapies targeting humoral effector mechanisms have been tested for its treatment. Strategies such as immunoadsorption, plasmapheresis, intravenous immunoglobulins (IVIG) or Rituximab (anti-CD20) as well as changes in standard immunosuppressive protocols have proven successful in the treatment of acute antibody mediated rejection. Studies to further define the role of alloantibodies for chronic allograft failure and strategies to treat their potential harmful effects on long term graft function are currently under investigation.

L 59
THE DIAGNOSIS AND TREATMENT OF POST TRANSPLANT LYMPHOPROLIFERATIVE DISEASE

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Post Transplant Lymphoproliferative Disorder (PTLD) occurs as a result of immunosuppression after transplantation but despite the name it should not be considered to be a single entity but a spectrum of poorly classified diseases varying from benign lymphocytic hypertrophy to rapidly growing and fatal lymphoma. Three variables determine PTLD: Epstein Barr Virus (EBV) status at transplantation; amount and type of immunosuppression used; and virus co-infection. There are many controversies in the literature over etiologic factors, histologic classification and staging of the disease. However these pale into insignificance beside the controversies over treatment of the disease.

Presentation of PTLD is very varied with the spectrum of poorly classified diseases ranging from benign lymphocytic hypertrophy to rapidly growing and fatal lymphoma. Three variables determine PTLD: Epstein Barr Virus (EBV) status at transplantation; amount and type of immunosuppression used; and virus co-infection. There are many controversies in the literature over etiologic factors, histologic classification and staging of the disease. However these pale into insignificance beside the controversies over treatment of the disease.

Post Transplant Lymphoproliferative Disorder (PTLD) including focal EBV infection with EBV DNA replication, hyperplastic lymphadenopathy, classical Non-Hodgkins B and T cell as well as Hodgkin’s, lymphomas. The incidence of PTLD varies with the type of organ transplant (highest with Intestine and Lung and lowest with living donor kidney transplants), as well as the cumulative immunosuppression. Therapeutic approaches to PTLD include chemotherapeutic strategies which yield 40% treatment related mortality, and more modern strategies involving biologic agents such as rituximab and adoptive T-cell therapies. Successful treatment involves many disciplines and requires the efforts of oncologists, haematologists, virologists and transplant specialists. Studies of therapies are hampered by the relative rarity of the disease and the resultant absence of randomised controlled trials. Apart from universal application of reduced immunosuppression, a consensus is emerging around the utility of early Rituximab in CD20 positive tumours with subsequent chemotherapy in recurrent or unresponsive disease.
Organ shortage has resulted in death or suffering of thousands of patients all over the world. It has also encouraged organ trade in some parts. Cadaver organ donation is essential to overcome this problem. Although there is no shortage of cadavers but altruism alone has failed to encourage cadaver organ donation and should be supplemented with suitable incentives supplied by governments or non profit making organizations.

Organ shortage has resulted in death or suffering of thousands of patients all over the world. It has also encouraged organ trade in some parts. Cadaver organ donation is essential to overcome this problem. Although there is no shortage of cadavers but altruism alone has failed to encourage cadaver organ donation and should be supplemented with suitable incentives supplied by governments or non profit making organizations.

Death with a functioning graft remains one of the two most important causes of reduced long-term renal transplant survival. Since cardiovascular disease remains the most frequent cause of patient death, strategies to reduce atherosclerosis are becoming an increasingly important part of post-transplant management. It has also been suggested that treatment of hyperlipidemia might improve graft survival by reducing chronic allograft nephropathy. The ALERT study was a randomized controlled double blind trial of statin therapy versus a placebo carried out in over 2,000 patients, followed for seven years. The results show an approximate 30% reduction in major adverse coronary events (p=0.036) associated with a fall in LDL cholesterol of approximately 1 mM. However, no improvement in allograft functional graft survival was seen. Nevertheless, the use of Fluvastatin in this study was remarkably safe. Thus in renal transplant recipients should be treated to lower cholesterol with statins. The optimal target LDL cholesterol level will be discussed. While a large randomized control trial has also been conducted to assess the effect of statin therapy on renal transplant rejection, it unfortunately failed to document any reduction. The various treatment options for reducing both cholesterol as well as triglycerides will be discussed, including potential interactions with calcineurine inhibitors.

Short- and long-term living kidney donor morbidity and mortality will be discussed in this presentation. The analysis will include over 3,000 living donor kidney transplants from 1963 through 2002 at a single institution. The category of living donors includes living related donors (such as fathers, mothers, siblings, offspring, and other genetically related donors) as well as living unrelated donors (such as spouses, friends, or altruistic strangers). Graft and patient survival rates with living related and unrelated living donors will be compared to rates with cadaver donors. Donor risks will be discussed, including short-term surgical risks as well as long-term risks of impaired renal function, possible hypertension, and psychological risks. Finally, early and late donor mortality statistics will be presented. In addition, the benefits to potential donors will be reviewed.
Donors are carefully screened before donation. During this screening process, a significant number of donors have been found to have abnormal renal function—some had undisclosed hypertension and others had unknown cardiovascular disease. In addition, 6 malignancies were found, eventually resulting in curative resection.

A secondary benefit to donors was reported in a study from Norway and Sweden, which showed that donors had improved long-term survival versus the general population. Our own long-term studies involving follow-up of 20 to 30 years after kidney donation have shown no significant difference in their renal function, blood pressure, and incidence of proteinuria, as compared with their nondonor siblings. We also found donors to be perfectly normal in all other categories; several had even undergone normal pregnancies after donation. Most donors reported a high quality of life, with a boost in self-esteem and an increased sense of well-being: 96% felt it was a positive experience.

In conclusion, living kidney donation has a very low mortality rate. Long-term follow-up shows minimal impact after donation. Donor quality of life is reported as excellent.

**L 69**

**IMPACT OF DONOR FOLLOWUP ON AVAILABILITY OF LIVING DONORS**

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**L 70**

**HEMATOPOIETIC TRANSPLANTATION AFTER REDUCED INTENSITY CONDITIONING**

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Reduced intensity conditioning allows performing allogeneic hematopoietic transplantation in patients with contraindication for a high-dose procedure. Since the introduction of this technique, the upper age limit for allogeneic transplantation has increased from 50 years old in 1995 to 70 years old in 2006. Additionally, patients with co-morbidities may be transplanted after mild preparative regimens. The prognosis of second transplants may also improve by administering attenuated conditioning.

The rationale for performing RIC transplant is double. On one hand, it is now clear that very high doses of chemotherapy and/or radiation are not required for donor cells engraftment. On the other hand, it is well known that graft vs tumor effect mediated by immune-competent cells in the graft is the most important mechanism to eradicate cancer with hematopoietic transplantation.

In RIC transplants there is a transient coexistence of donor and recipient lymphohematopoiesis, a circumstance called mixed chimera. Spontaneously, or after donor lymphocyte infusions, this situation evolves to a full chimera from donor cells. Is in this status when graft versus host disease and graft versus tumor effect are more manifest. The anti-tumor activity is clinically relevant if graft versus tumor effect sustains during weeks or months as the consequence to the development of chronic graft versus host disease. Many experiences indicate that chronic GVHD decreases the relapse rate and increases survival after RIC transplantation. For this reason, patients transplanted for acute or uncontrolled disease are less likely to benefit from this procedure, since early tumor progression makes unfeasible the chronic antineoplastic effect of the graft. In consequence, the results of RIC transplantation are best in patients with relatively indolent diseases such as low-grade lymphomas, chronic lymphocytic leukemia or multiple myeloma.

Results of RIC transplants in 187 patients from the Hospital de la Santa Creu i Sant Pau, and data from the Spanish, European and International Transplant Groups will be presented.

**L 71**

**FACTORS AFFECTING ENGRAFTMENT IN AUTOLOGOUS PERIPHERAL STEM CELL TRANSPLANTATION: A RETROSPECTIVE STUDY**

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This study analysed factors affecting engraftment in autologous peripheral blood stem cell transplantation. Fifty-four patients with lymphoproliferative disorders were treated from March 2000 to April 2006. There were 37 males and 17 females, with a median age of 43 years (range 12–60). The cohort included 13 Hodgkin’s lymphoma, 31 non-Hodgkin’s lymphoma, and 10 multiple myeloma cases. The median number of infused CD34+ was 1.7 _ 106 per kg. (0.38–15). The medians for ANC and PLT engraftment were 12 days (10–15) and 11 days (6–33), respectively. The CD34+ cell dose correlated significantly with platelet engraftment (p=0.0001). The CD34+ cell dose and timing of G-CSF administration had no significant influence on ANC engraftment (p=0.3 and p=0.05, respectively). The results imply that the CD34+ cell dose is the most important predictor of haematopoietic engraftment, namely PLT engraftment. The other factors studied had no clear influence on engraftment kinetics in this cohort.

**L 72**

**MESENCHYMAL STEM CELL TRANSPLANTATION**

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A hot new topic in medical treatment is the use of stem cell in therapy. Among this mesenchymal stem cell (MSC) attract a lot attention, due to their ability to differentiate into multiple tissues,
potential to down regulate and inhibit immune response in both recognition and elimination phases. They enhance engraftment of donor hematopoietic cells after co-transplantation. MSC have been used to regenerate the marrow microenvironment after myeloablative therapy. Possible clinical applications proposed for MSC include stem cell transplantation, stem cell strategies for the repair of damaged organs and gene therapy. The low frequency of MSC in bone marrow necessitate their in-vitro expansion prior to clinical use. We evaluated the effect of long culture on the senescence of these cells before their clinical use. After long term culture and different number of passages we believe that MSC enter senescence. Simultaneously these cells are losing their stem cell characteristics. Therefore it is much better to consider them for cell and gene therapy early on. After this experiment we started our first step of clinical trial by using the culture expanded autologous MSC transplant In patients with multiple sclerosis (MS) and heart diseases. The results briefly are:

- Thirteen patients with heart diseases were transplanted (scar size has diminished, LVEF has increased with improvement of cardiac function as compared to control group).
- Ten MS patients with secondary progressive MS has also been transplanted (one patient improved 2.5 score in EDSS, four others showed some degree of improvement and five remaining unchanged). Finally after this preliminary studies we can conclude that transplant of MSC in safe and feasible procedure.

L 73
BONE MARROW TRANSPLANTATION IN KSA

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The field of stem cell transplantation has witnessed major advances in recent years with exponential increase in the indications and number of transplants worldwide. Although several centers are now performing allogeneic hematopoietic stem cell transplantation in the Kingdom of Saudi Arabia (KSA) and the Middle East region the availability of this procedure for eligible patients is still limited. The current activities of the stem cell transplant programs in the KSA specifically at the King Faisal Specialist Hospital and Research Center with the indications and outcome will be presented. Special issues related to transplantation in the Kingdom will be reviewed and discussed including issues related to donor availability and donor and recipient compatibility, and the potential for alternate donor program. The patterns of diseases observed in the KSA and the Middle East region are slightly different and the status of transplant candidates before transplantation is different from what is observed in Western Europe and North America particularly patients transplanted for bone marrow failure syndromes and Aplastic anemia. Specific observation regarding the incidence of graft versus host disease and its relation to the genetically homogeneous community will be presented. The pattern of infections post transplantation is also different including high seropositivity for cytomegalovirus, as well as, both hepatitis B and C viruses. Collective effort is needed regarding bone marrow transplantation in the area through the collaboration of the different centers.

L 74
FOCAL SEGMENTAL GLOMERULOSCLEROSIS

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USA

FSGS is the most common glomerular disorder leading to ESRD in the pediatric population. FSGS accounts for approximately 10% of pediatric kidney transplant recipients. Patients with FSGS have increased morbidity and reduced overall graft survival secondary to disease recurrence. Predictor for FSGS recurrence include rapid progression to ESRD, poor response to therapy, younger age at diagnosis, presence of mesangial proliferation in the native kidney, recurrence in a previous kidney transplant, no NPHS 2 mutation and Caucasian race. The mechanism of recurrence thought to be related to circulating permeability factors that alter the permeability of the glomeruli within the allograft. Based on this hypothesis plasmapheresis (PP) is used as a treatment modality for recurrent FSGS in transplanted kidney. At UCLA we studied 30 patients with FSGS receiving transplant between January 1990 and August 2006. Twelve and 18 patients received living donor (LD) transplant and diseased donor (DD) transplant respectively. 14 patients received high dose cyclosporin while 16 patients received high dose tacrolimus. Pretransplant PP was done from 1-10 sessions for LD. 14 patients (54%) had recurrent nephrotic syndrome, 10 of 16 DD (63%) and 4 of 10 LD (40%). Among 18 DD 12 received high dose cyclosporin and 6 of 12 (50%) had recurrence. In contrast all of the 6 DD who received high dose tacrolimus had recurrence. Among 12 LD one of two patients who received high dose of cyclosporin had recurrence whereas 3 of 10 patients who received tacrolimus had recurrence. Ten of the 12 LD had pretransplant PP. 4 of 7 LD (57%) who received <5 sessions of pretransplant PP had recurrent nephrotic syndrome, whereas none of 5 LD who received >5 session of pretransplant PP had recurrence. We conclude that DD who received high dose of cyclosporin had decreased recurrence compared with patient on high dose tacrolimus. 4 LD patient with >5 pretransplant PP had less recurrence than patients with <5 sessions. In FSGS it is prudent to use high dose cyclosporin in DD. For LD use of more than 5 pretransplant PP may reduce recurrent nephrotic syndrome.

L 75
RECENT CONCEPTS AND ISSUES IN PAEDIATRIC TRANSPLANT IMMUNOSUPPRESSION

Filler G
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Combined Kidney and Pancreas Transplantation is becoming a more common practice on many transplant programs. The outcome is improving in the new era of immunosuppression for it contributes to the significant graft survival after combined transplant. We have reviewed the six transplant combined kidney and pancreas done at King Faisal Specialist Hospital & Research Center, Riyadh from the period of Nov. 2004 to Oct. 2006. We have transplanted six patients ages between 17 years old and 45 years old. Five combined kidney and pancreas transplant and one pancreas after kidney. Three females and three males. One patient was transplanted pre-emptively before dialysis. Other three patients were in peritoneal dialysis and one patient was on hemodialysis and one patient had his kidney transplanted abroad. Average BMI for these patients was 28 before transplant ranging from 25% BMI up to 31% BMI. All six patients were insulin free with normal C-peptide level and five patients with normal glucose tolerance test and one patient has impaired glucose tolerance that was improved after weight loss. Immunosuppression that was used is thymoglobulin with MMF Tacrolimus and steroid maintenance therapy. One patient developed delayed graft function secondary to segmental artery thrombosis after surgery. All six patients are dialysis free.

Chlamydia pneumoniae infection has been postulated to have a role in the development of arteriosclerosis. The earlier studies from this center showed that the incidence of Chlamydia infection in end stage renal failure patients is much higher than in normal population. Recently we examined 86 renal allograft recipients, 5 – 10 years after transplantation. In 39 patients the renal function was impaired (Scr>2 mg/dL), and remaining 47 had sta-
ble renal function (Scr < 2 mg.dL). Kidney biopsies showed presence of vascular changes in 29/86 patients and changes typical for chronic allograft nephropathy (interstitial fibrosis and tubular atrophy) in 28/86 recipients. All patients were examined for the presence of C. pneumoniae DNA in peripheral blood leukocytes (real time PCR) and the presence of IgG and IgA antibodies in the serum.

Twenty four out of 86 patients were C. Pneumoniae PCR positive. A comparison of the patients with histologically diagnosed chronic renal nephropathy and patients without nephropathy revealed statically significant differences as to the presence of C. pneumoniae DNA in peripheral blood leucocytes (38.5% vs 19.1%; p = 0.04). Vascular changes in kidney biopsies were present in 13/24 (54%) C. pneumoniae PCR + patients in comparison to only 25.8% of non-infected patients (p = 0.02). At 24 months additional follow-up graft survival differed significantly between C. pneumoniae infected and non-infected patients (29% vs 8%; p = 0.04) as did the percentage of patients with serum creatinine concentration below 2 mg/L (84.5% vs 62.5%; p = 0.03)

The analysis of factors which could have influenced graft function and survival showed the effect of the method of kidney storage, number of acute rejection episodes, serum triglycerides concentration, and Chlamydia pneumoniae infection. Infection with Chlamydia pneumoniae seem to be an additional risk factor of chronic graft nephropathy.

L 85

NORTH AMERICAN EXPERIENCE

Delmonico F

USA

L 86

ORGAN DONATION AND TRANSPLANTATION IN EUROPE

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Closing the gap between supply and demand of organs for transplantation is a major challenge for health care providers in Europe and beyond.

1. to give an overview of the current European situation with regard to:
   1.1. Organizational aspects (Organ Exchange Organizations)
   1.2. Waiting lists for organ transplantation (yearly entries, cumulative list)
   1.3. Donation from living donors
   1.4. Donation from deceased donors
   1.5. Gap between supply and demand
2. Factors that impact on donation rates, alternative strategies, and their relative weight on donation figures in Europe.

A descriptive, exploratory analysis of data collected by the Donor Action Foundation, the Council of Europe, UNOS and the Eurotransplant International Foundation.

1. Currently, some 15 OEOs are operational in Europe, with a service area between 125 (Eurotransplant) and 7.1 million people (Baltransplant).
2. European countries differ significantly with regard to their number of patients added annually to a waiting list for transplantation, from about 100 p.m.p. in the U.K. to less than 20 p.m.p. in Lithuania.
3. European countries differ significantly with regard to the number of realized transplants per year, from over 80 p.m.p. in Austria, Belgium, Norway and Spain, to less than 20 p.m.p. in Turkey, Lithuania and Romania.
4. Although the total number of patients waiting for a transplant in Europe had accumulated to >52,000 by the end of 2004, UNOS data suggest that this number may double in the coming years.
5. Optimal use of legislative measures (presumed consent) and implementation of non-heart-beating donation protocols may offer alternatives to increase donation from deceased donors.

The study presented has identified the potential for donation, legal environment, health-economic variables, cultural & religious barriers, organizational measures and professional education as key factors that impact on donation rates from deceased donors. Large differences between European OEOs and countries with regard to their annual donation and transplantation rates, and the number of patients added to a waiting list for transplantation show a huge potential for improving countries' transplantation performance.

L 87

ORGAN DONATION IN THE MESOT COUNTRIES: ACHIEVEMENTS AND OBSTACLES

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There are more than 29 countries that have membership of the Middle East Society for Organ Transplantation (MESOT) with more than 600 million populations. These include all Arab countries, Iran, Turkey, Pakistan and countries of Central Asia. There are common features of organ transplantation in the Middle East Countries that include inadequate preventive medicine, uneven health infrastructure, poor awareness of the medical community and public at large of the importance of the organ donation and transplantation, high level of ethnicity and poor government support of organ transplantation. In addition, there is lack of team spirit among transplant physicians, lack of planning for organ procurement and transplant centers and lack of effective health insurance. Patients seek commercial transplantation most of the time. Patients on waiting lists for organ transplantation increase with time and there is a considerably growing gap between supply and demand of organs in the MESOT countries. Living organ donation is the most widely practiced type of donation in the Middle East and includes kidney and partial liver. Cadaver organ donation has a great potential in the Middle East. Nevertheless, this source is still not utilized properly due to the continued
debate in the medical community about the concept of brain death and inadequate awareness of the public of the importance of organ donation and transplantation in many countries in this region. There are three dominant and distinctive models for practice including the Saudi, Iranian and Pakistani models. The Saudi model includes the presence of a national organ procurement center as a governmental agency to supervise organ donation and transplantation. The Iranian model consists of renal grafts donation from the living genetically unrelated persons to the benefit of patients with end-stage renal disease. The Pakistani model is an interesting funding model for management of end-stage organ failure in the developing countries. We conclude that organ donation and transplantation are hampered with obstacles in the MESOT countries. Solutions need continuous work on many fronts. Local experiences can be implemented into new improved models that can help overcoming current obstacles.

L 88
PREVENTION AND MANAGEMENT OF HEPATITIS C IN KIDNEY TRANSPLANT RECIPIENTS

Menon N
MAYO CLINIC, USA

L 89
DIAGNOSIS AND MANAGEMENT OF POLYOMAVIRUS INFECTIONS

Ramos E
Clinical Professor of Medicine, University of Maryland School of Medicine, USA

L 90
PROPHYLAXIS AND POST TRANSPLANT MANAGEMENT OF CMV DISEASE IN RENAL TRANSPLANT RECIPIENTS

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Cytomegalovirus (CMV) infection or disease is one of the most important infectious complication in solid organ transplant recipients. Approximately 8% of kidney transplant recipients develop CMV disease. The risk of development of CMV disease is strongly related to the recipient and donor serostatus. CMV infection may result in indirect squeal which include increase rate of opportunistic infections, worsening of allograft function and vasculopathy. CMV is detected by using PP65 assay or PCR. In order to prevent CMV disease both preemptive as well as universal prophylaxis strategies are employed. However the superiority of one strategy over other is not determined. Longer duration of prophylaxis may predispose to infection with resistant CMV in solid organ transplant recipients. The drug of choice for the treatment of CMV disease is ganciclovir. The role of immunoglobulin in the treatment of CMV disease is undetermined. The oral of preparation of ganciclovir (Valganciclovir) is now commonly used for prophylaxis but data on the treatment of CMV disease are lacking. Resistant CMV infection is treated with foscarnet and cidofovir but is associated with high morbidity and mortality.

L 91
CLINICAL IMPACT, DETECTION AND TREATMENT OF EBV INFECTION IN TRANSPLANTATION

Emery V
UK

L 92
INCREASING TRANSPLANTATION FROM DECEASED DONORS

Noel L
GERMANY

L 93
IMPROVING OUTCOMES IN RENAL TRANSPLANTATION USING EXPANDED CRITERIA DONORS

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Renal transplantation using kidneys from older donors is associated with reduced long-term graft survival as compared to kidneys from younger donors. However, it has been clearly shown that even transplants from these so-called expanded criteria donors improve patient survival as compared to remaining on the waiting list. It has also been clearly shown that patient survival following renal transplantation is inversely proportional to the length of time on dialysis on the waiting list. These facts have led to an attempt to increase utilization of expanded criteria donors where they are likely to have the most benefit. Studies have now shown that older recipients and those with the most severe comorbidities are most disadvantaged by prolonged waiting times for deceased donor kidney transplants. Accordingly, in regions with long waiting times, it seems reasonable to offer expanded criteria donors to older/sicker potential recipients with informed consent. Conceptually then a program might have two waiting lists, one which would include all potential recipients, waiting for ideal donors. The other list would consist of a subset of the first group, generally older/sicker patients, with a view that they might receive an expanded criteria donor kidney sooner thus improving their survival. Clearly all expanded criteria donor kidneys are not created equal. Outcomes might be improved by improved selection criteria,
reducing cold ischemia time and possibly the use of Pulsatile Perfusion. A number of conflicting studies have appeared with respect to the value of glomerular sclerosis or vascular disease in selection. Retrospective data supports using donor calculated creatinine clearance suggesting that in single kidney transplants, once the clearance drops below 80ml/min, are associated with reduced two-year graft survival. Other individuals have suggested scoring systems, however their utility is suboptimal because age has such a major influence on outcome.

L 94
CLINICAL SIGNIFICANCE OF HLA ANTIBODIES
Cecka M
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L 95
T CELL ALLOIMMUNITY AND REGULATION IN TRANSPLANTATION
Sayegh MH
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CD4+ T cell recognition of alloantigen is the central and primary event which leads ultimately to graft rejection. It is now clear that there are two distinct, but not necessarily mutually exclusive, pathways of allorecognition. In the "direct" pathway T cells recognize intact allo-MHC molecules on the surface of donor cells. In the "indirect" pathway T cells recognize processed alloantigen presented as peptides by self APCs. Antigen recognition provides signal 1 to the T cell via the TCR. T cells then receive a second costimulatory signal provided by interactions of cell surface receptors on the T cell with their ligands, typically on antigen-presenting cells (APCs), although these ligands can also be expressed on parenchymal cells. Positive costimulatory signals are pivotal in determining whether recognition of antigen by T cells leads to full T cell activation. In addition, recent findings indicate that regulation of immune responses may be achieved by the expression of inhibitory costimulatory molecules on APCs and peripheral tissues that mediate negative costimulatory signals to the T cell. Therefore, the ultimate fate of T cells and in turn immune responses appear to be mediated, at least in part, by the interplay between positive and negative T cell costimulatory pathways. This lecture addresses novel concepts of transplantation immunobiology with special emphasis on T cell alloimmunity and regulation.

L 96
COSTIMULATORY TRIALS IN TRANSPLANTATION
Watschinger B
Associate Professor of Medicine, Medical University of Vienna, AUSTRIA

L 97
IMPACT OF HYPERSENSITISATION IN RENAL TRANSPLANT PROGRAMS
Cecka M
Director of Clinical Research, University of California, Los Angeles, UCLA Immunogenetics Center, Department of Pathology, USA

L 98
IVIG PROTOCOLS IN DESENSITIZATION REGIMENS
Gaber O
USA

L 99
PLASMAPHERESIS/ IMMUNO ADSORPTION IN DESENSITIZATION
Meshari K
Director, Kidney and Pancreas Transplant program, King Faisal Specialist Hospital & Research Center, Riyadh, KINGDOM OF SAUDI ARABIA

L 100
RITUXIMAB IN HIGHLY SENSITISED RECIPIENTS
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What is rituximab and how does it work? The use of the drug in non-transplant contexts, including lymphoma and rheumatoid arthritis will be described. It has been used in half a million patients; what are the known side effects and difficulties with administration?

What are the results using rituximab in non-sensitised transplant patients? Three ongoing trials and descriptions in blood group incompatible transplantation will be presented.

Highly sensitised patients are difficult to define and often to treat, but interest has increased in recent years. Antibody removal or suppression may involve multimodal therapy, including rituximab, ivIgG, plasma exchange or more radical approaches including liver donation. Few controlled data exist, but studies, particularly from the United States and France have shown good results using a combination of techniques; the results of these studies will be summarised and compared with our own experience.
L101
UROLOGICAL COMPLICATIONS OF RENAL TRANSPLANT IN A LIVE RELATED TRANSPLANT PROGRAMME AT SIUT

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INTRODUCTION
The incidence of urological complications after kidney transplant ranges from 3 to 14%. Some of these are so severe that they end up in graft loss. The main objective of this study is to review retrospectively the urological complications in living related kidney transplants.

PATIENTS AND METHODS
It is a retrospective study of renal transplantation which was done at SIUT between November 1985 and August 2005. All the urological complications encountered were recorded. Ultrasonography, renal scintigraphy, antegrade pyelography, CT scan and MR angiography were the main diagnostic tools.

RESULTS
1448 patients were transplanted during this period. Out of these 97 (6.7%) patients had developed urological complications like urinary fistulae in 21 (1.5%) patients, distal ureteral necrosis in 5 (0.4%) patients, ureteral stenosis in 13 (0.95%) patients, renal calculi in 2 patients while 3 had ureteric calculi, symptomatic vesico-ureteric reflux in 13 (0.9%) patients, lymphocele requiring intervention in 35 (2.5%) patients and bladder outlet obstruction in 5 (0.4%) patients.
All complications were treated either conservatively or surgically. No graft or patient was lost due to urological complications.

CONCLUSION
Many complications may occur after kidney transplant. Prompt diagnosis with high index of suspicion and a combination of endourological and open reconstructive techniques may play a major role in minimizing urological complications.

L102
NON-COMPLIANCE

Malikzade M
USA

Advances in knowledge in transplantation have improved renal allograft survival in all age groups of pediatric patients. However, the results from many studies have shown that the long-term allograft is least successful in adolescent recipients. The major cause of late graft failure can be contributed in large measure to medication non-compliance. We found a 53% admitted non-compliance in adolescent compared to 17% in younger children. The rate of grafts loss among adolescents because of non-compliance is 15%, whereas 26% demonstrated graft dysfunction. Medication non-compliance in teenagers has been shown to be >4 times greater than in adults. Teenager years are a time of transition from childhood to adulthood. Important tasks during this transition include the development of autonomous identity that progresses to full independence. However, the cognitive skills and intellectual maturation of adolescents are still limited. This is particularly true in teenagers with chronic disease. They have difficulty with abstract thinking, particularly the conceptualization of future consequences of present action. There are a number of strategies that are helpful in mitigating non-compliance. Adolescents must be dealt with directly. Previous non-compliant behaviors should be acknowledged. Efforts should be made to choose medications that have the least side effects. Psychological conditions such as post-traumatic stress disorder require early recognition, diagnosis and treatment. It is necessary to build rapport with teenagers and this should start before transplantation. A multi-disciplinary approach with physicians, social workers, nurses and transplant coordinators is an effective mean of enhancing compliance. A thoughtful approach to prescribe immunosuppressive regimens that minimize adverse side effects, an active involvement in medication related problems and understanding of adolescent developmental behavior is rewarded with better transplant outcome.

L103
OPTIMIZATION OF IMMUNOSUPPRESSIVE DRUG BLOOD MONITORING IN CHILDREN

Filler G
CANADA
CR
EGYPT

Soliman M
EGYPT

Renal Transplantation.
• Liver Transplantation

Renal Transplantation:
Number of centers performing renal transplant
20 centers. -10 Governmental
-10 Privat

Number of renal transplant/year: 700-800 cases.
• Type: All are living donor transplant.
• % of related to unrelated donors varies with different centers.
• Pre emptive transplantation: ±20%.

Causes of Renal failure:
• Chronic glomerulonephritis
• Hypertension.
• Diabetes mellitus.
• Unknown cause.
• Chronic pyelonephritis, obstructive uropathy.
• Polycystic kidney, Lupus, amyloid and analgesics.

Regimens used:
Triple therapy: Neoral, MMF, syteroids.
• MMF may be replaced by Immuran for financial reasons.
• Ketoconazole may be used to lower dose of Neoral in some centers
• Prograf may be used from the beginning in some cases, in some centers.
• Rapamune may replace Neoral later on in some centers.

Induction Therapy
• Used in some centers using anti CD25 or ATG in some cases.

HCV: is very common in dialysis patients. patients with normal liver enzymes are commonly transplanted without prior treatment of HCV in many centers.

Problem: Lack of a cadaver donor program that led to a marked increase in unrelated donor transplantation.

Aim: to have a cadaver donor program (many political obstacles in front of it).

Liver Transplantation
• Performed in 5 centers in Egypt.
• All from living donors (related & unrelated).
• Many Egyptian patients are being transplanted in China, England (cadaver) due to lack of donors.

Around 230 cases performed till now in Egypt.

CR
IRAN

Pourmand G
IRAN

In 1967, the first successful renal transplantation was performed at Namazi Hospital, Shiraz. At that time only 1500 renal transplantations had been performed over the world.

Until 1975 the transplanted kidneys came from living related donor. ‘Dialysis and transplantation committee’ at Blood Transfusion Organization was established an agreement with “Eurotransplant” for transferring cadaveric kidneys to Iran and based on that 10 renal transplantation were performed.

After Splendid Islamic revolution and during the imposed war with agreement of “The Board of Trustee” renal transplantation from living related was begun at two hospitals in Tehran. Kidney transplantation from spouse and unrelated donors was performed subsequently. Fortunately, graft survivals of the unrelated kidneys were close to the survival of the related ones.


According to Iranian model- which prevents trading organs- transplantation is performed under governmental supervision. The donor of kidney gets a "rewarding gift" from NGO “Charity Foundation for Special Diseases” as well as health insurance for life.

“Kidney Foundation Charity” performs necessary tests and clinical examination on the donors and save the results. On the other hand, nephrologists introduce patients to the charity. The Charity performs the WBC cross match test and if suitable, introduces the donor & recipient for performing the operations. Iranian model has made Iran the unique country where there is no waiting list for renal transplantation.

According to Imam Khomeini (RH) and Ayatolah Khamenie’s orders (fatwas), now transplantation of cadaver organs is legal in Iran and at present it is performed in most cities. As donor & recipient operations are performed concurrently, successful rate are high.

Until March 2006, 19501 renal transplantations have been reported in Iran.

According to the Ministry of Health, ESRD patients from other countries can undergo renal transplantation in Iran if they have the donor from their own countries.

In addition to patients from Persian Gulf countries; in recent years, a number of Iranian from USA, Sweden, England & Germany have come to Iran and performed renal transplantation.

CR
KUWAIT

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Kuwait is one of the founding members of MESOT. It hosted the second congress of MESOT in 1990, and is hosting the 10th congress to be held in November 2006. Its population was 2.5 millions by December 2005. There are 2 nephrology units, 5 dialysis centers, and a single center for organ transplantation. At present, the organ transplantation activity is limited to kidneys, cornea, and bone marrow, and is offered free of charge to Kuwaiti citizens and non-Kuwaiti residents. Kuwait law on Organ Transplantation was passed in 1987 allowing living and cadaveric organ transplantation.

Kidney transplantation: The incidence of ESRD in Kuwait is 120/m/year in adults, and 18/m/year in children. Kidney transplantation programme was started in 1979, since then more than
1200 kidney transplantation procedures were performed, with annual activity of 80-100 transplants/year in the last few years. The first cadaveric kidney transplantation was performed in 1981. With about 40 transplants per million per year, Kuwait enjoys the highest rate of kidney transplants in the Middle East and Asia and the 5th highest rate in the world. 30% of kidney grafts are obtained from cadaveric donors, and 14% of recipients are children. The obtained results are comparable to those reported by larger European and American centers. Laparoscopic donor nephrectomy was started in 2005 and has become the standard technique for donor nephrectomy.

Bone marrow transplantation: An active autologous bone marrow transplantation programme was started in April 2000, and since then 107 procedures were performed.

Liver transplantation: All the basic preparations are completed to launch a local programme for liver transplantation from cadaveric donors in the next few months.

CR
SYRIA

Saeed B
SYRIA

Kidney and cornea are the only two organs or tissue that could be transplanted in Syria. In the past, heart transplantation has been performed for few patients then it was stopped. Whereas liver, pancreas, lung, bone marrow, and intestine transplantation have never been undertaken in our country. However, bone marrow transplantation program might hopefully start in few months.

Cornea Transplantation: According to the WHO statistics (WHO Report, 2003), the estimated prevalence of corneal blindness in Syria is 2.3 per one thousand population. Eye Surgical Hospital in Damascus is the biggest ophthalmology center in Syria where Eye Bank is located and 8032 patients with corneal blindness had been registered till April 2006 on waiting list; out of these, 2496 patients have unilateral diseased cornea, and 5536 patients have bilateral diseased cornea; therefore 13568 eyes needed cornea transplantation; of these, 1494 cornea transplant surgery were performed at the Eye Surgical Hospital using donated cornea and the remaining 4042 patients are still registered and waiting for one cornea but, unfortunately, for the last 2 years; Eye Surgical Hospital in Damascus did not receive any donated cornea, therefore cornea transplantation is withhold in this center; nevertheless some private centers are still performing cornea transplants in a very occasional manner by using “purchased” corneas, while the vast majority of patients are still waiting for sight to be restored.

Renal Transplantation: The estimated incidence of end stage renal disease (ESRD) in Syria is 100 per one million population (pmp), which means that every year, 2000 new cases with ESRD are registered in our country. The last annual report of renal replacement therapy (RRT) in Syria which was issued in May 2005 by the statistical department of the ministry of health has shown that there were 2750 patients on hemodialysis (HD) program and 111 patients were on continuous ambulatory peritoneal dialysis (CAPD); therefore, the total number of ESRD patients undergoing either HD or peritoneal dialysis was 2861. Since the Syrian population is about 20 million; we estimated the prevalence of ESRD patients who receive RRT in May 2005 to be 143 pmp.

The first kidney transplant that has been undertaken in Syria was in 1979; since then, the practice of kidney transplantation remained very occasional and restricted to only a few cases (10 to 15) every year till the late 1990s where it somehow increased and ranged from 2-3 kidney transplants pmp per year. In the year 2001, the Surgical Kidney Hospital in Damascus has started to perform kidney transplantation and therefore it largely contributed to the further increase in the number of kidney transplants that has been realized that year when it reached 5 pmp. The use of cadaveric and or non-related donors has been suggested as one possible solution to ameliorate the situation; in November 2003, the so called “law number 30” has been enacted and constituted a landmark in the history of organ donation and transplantation in Syria as it recognized for the first time in our country of the concept of brain death and allowed the use of organs from cadaveric donors and also from living donors (either related or non-related) knowledge that since the commencement of organ transplantation in Syria in the 1980s, transplantation activities were exclusively relied on living related donors. This very important law has been preceded by another big stride in this regard which was the acceptance of the higher Islamic religious authorities in the country back in September 2001 on the principle of procurement of organs from cadaver providing consent to be given by one of his or her first or second degree relatives. Such a progress could only be achieved after several meetings which gathered religious authorities, legislators, lawyers, health care professionals, patients, and lay public. In November 2004, the ministry of health has issued guidelines which regulate almost all legal and medical aspects of organ donation and transplantation in Syria including the definition of death and brain death criteria, presumed consent for cadaver organ donation, banding commercialism, defining who is a donor, and how to evaluate a potential donor of kidney, liver, heart, lungs, intestine, and cornea. Undoubtedly, some of the major obstacles to initiate a national cadaver donation program in our country has been overcome by the official recognition of brain death concept and by authorizing cadaver organ donation as stated in the law number 30; and also by the support of most religious commentators, Islamic or Christian. Even though, we are still lacking a cadaver donation program despite all what it has been achieved in this regard since there are still many other obstacles that have to be properly addressed. As a result, the practice of living nonrelated donors has flourished and consequently, an increasing number of kidney transplants from living unrelated donor at the expense of decreasing living related donors in a very clear manner. A review of donors registry at the Surgical Kidney Hospital in Damascus for the years 2001 to 2005 has shown that unrelated kidney donors accounted for 40% of all donors. Though, the practice of living nonrelated donor transplantation has been marked in our country to have a negative impact on the potential of living related donors; furthermore, it also might have a negative impact on the development of local cadaver donation program in the future. Although this source
had fallen into disrepute, it remains an important potential source of organs and nowadays, very few ESRD patients are going abroad to obtain living nonrelated donor kidneys in the neighboring countries; this is unlike what was happening before the enactment of the law number 30 where getting transplanted abroad from a nonrelated donor was the unavoidable solution for those who could afford it and did not find a suitable living related donor in order to get transplanted inside the country. For instance, in the year 2001, 40% of all kidney transplants were undertaken abroad compared to 3% only in 2005. In the year 2005, 264 patients got a kidney transplant in Syria which makes the number of kidney transplant to be little above 13 pmp per year. This figure is quiet better than most developing countries where it ranges from 1 to 5 pmp in the middle east and Afro-Arab region, however, it is still far from being satisfactory because, as we have mentioned above, the estimated incidence of ESRD in our country is 100 pmp; therefore the remaining 87 pmp which are equivalent to 1736 new ESRD patients who did not receive a transplant will be on a yearly basis either added to those who are on dialysis programs with a projected three years survival from 26 to 64%; or remained undialysed with all what it means in terms of mortality rate either due to the lack of access to dialysis or to a non-acceptance of dialysis by the patients themselves. In perspective, if we are targeting to perform kidney transplant to 75% of our new ESRD patients which are equivalent to 75 pmp per year since the remaining 25% might not be good candidates for transplantation due to a different setting of reasons including the medical contraindications; this optimal figure (75 kidney transplants pmp per year) is quiet higher than what is being done in reality which is 13 pmp per year. Therefore, we could figure out that in the year 2005, only 17% of the estimated optimal need for kidney transplantation is met in our country. These results enable us to conclude that there is a marked discrepancy between the number of patients with ESRD and the number of patients who received a kidney transplant in Syria; such a discrepancy might keep growing if no proper actions are going to be taken in the near future in order to reverse the curve and to narrow the gap between the supply and demand of kidneys in our country. A national cadaver donation program is the viable option to address the widening gap between organ request and availability. Establishment of Coordinating center for organ donation and transplantation requires appropriate legislation and financial support by the government; such a center is fundamental for the success of cadaver donation program. Ignorance appears to be the major limiting factor inhibiting the institution and growth of cadaver organ donation program in Syria as in many other developing countries. The attitude of indifferent of health care professionals has also been identified as a major limiting factor to the initiation of cadaver organ donation program. Conclusion: The success of a national cadaver donation program requires several factors to be addressed, on the top of which the government support for organ procurement efforts and the enactment of national laws and policies that facilitates transplantation.

CR

TURKEY

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In 1975, we performed the first living-related renal transplantation in Turkey. This was followed by the first cadaveric kidney transplantation, which was also carried out at our center in 1978, using an organ supplied by Eurotransplant. In 1979 the law on harvesting, storage, grafting and transplantation of organs and tissues was enacted, and later the same year, the first local cadaveric kidney transplantation was realized by our team. In 1988, by another ground breaking event in Turkey, our team successfully achieved the first cadaveric liver transplantation and in 1990 the first pediatric living-related segmental liver transplantation in Turkey and in the region. One month later, an adult-to-adult living-related liver transplantation was successfully performed. Until now, a total of 1604 kidney and since 1988, a total of 207 liver transplantations were performed by our team. During 31 years of solid organ transplantation history in Turkey 7755 kidney transplants in 28 different centers, 1080 liver, 13403 cornea, 2883 bone marrow, 187 heart and 29 pancreas transplants had been performed in nationwide. The transplantation activities are accelerating day by day all around the country, but as for the cadaveric donation, it is still far beyond the desired rates. Improvements in the field of education and coordination will increase the quality and the quantity of transplantation activities.
Oral Presentations

OP 105
RENIN-ANGIOTENSIN SYSTEM POLYMORPHISM AND HEMOGLOBIN LEVEL IN RENAL ALLOGRAFTS: A COMPARATIVE STUDY BETWEEN ENALAPRIL AND LOSARTAN

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In this study Hb concentration secondary to enalapril (E) and/or losartan (L) is evaluated with respect to renin-angiotensin system (RAS) polymorphisms. After determination of RAS polymorphisms consist of ACE (DD, non-DD), Angiotensinogen (TT, non-TT) and angiotensin receptor (CC, non-CC) by PCR, seventy renal transplant recipients were recruited to four groups randomly: first and second groups were treated with E (10mg/d, 15 patients) and L (50mg/d, 20 patients) alone respectively. Third group received E+L (10mg/d + 50 mg/d, 13 patients) and the forth group (22 patients) received no medication. The treatment protocol was followed for 16 weeks. Complete blood counts were checked before treatment and every 2 months. P<0.05 was considered to indicate statistical significance. Treatment for 4 months decreased the Hb level in the E+L (14.15±0.94 to 12.06±0.66 g/dl, P=0.000); E (14.00±0.86 to 13.11±0.82 g/dl, P=0.02) and L (14.12±0.90 to 12.10±2.35 g/dl, P=0.01) groups, but not in the control group (13.55±0.70 to 13.36±0.69 g/dl, P=0.22). None of the above regimens was more Hb reducer than the others (P=0.21). DD genotype of ACE was the only genotype among the RAS polymorphisms, which associated with higher Hb concentration (14.29±0.41 vs. 13.44±0.76, P=0.04). Any other sets of RAS polymorphisms (alone or together) did not impact on Hb levels in pre and post intervention. Our findings suggest that low dosage of ACEI and/or ARB in RTRs can decrease Hb levels regardless to the RAS polymorphisms.

OP 106
COMPARISON OF EARLY OUTCOME AND HISTOLOGIC FINDINGS OF ENTERIC DRAINAGE IN PANCREAS TRANSPLANTATION OF DOGS

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The clinical and pathological findings of entric drainage (ED) v/s. bladder drainage (BD) in pancrease transplantation is still controversial. In this study, early outcome and histologic findings of these two methods were compared. In an experimental animal model, in animal laboratory of Shiraz university of medical sciences, 16 dogs after diabatization were randomly divided into two groups. In the first group, pancrease was transplanted with entric drainage and in second group, pancrease transplantation with bladder drainage was done. Early clinical and pathological outcomes were evaluated. Data was analyzed in SPSS 13 software with Mann-whitney test. Mean survival was 10.6 (range, 5-20) days for group 1 and 14.4 (range, 3-23) days for group 2 (P>0.05). Fasting blood suger values(FBS) before transplant were 279 +/- 26.8 mg/dl v/s. 278 +/- 41.6 mg/dl (P>0.05). Two weeks after transplantation, serum FBS decreased to 84.9 +/- 2.9 v/s 84.2 +/- 0.98 (P>0.05). Serum amylase in BD and ED groups were 378.5 +/- 328 v/s 422.6 +/- 54.7 mg/dl, respectively (P>0.05).Early leakage was not found in dogs with BD. However, 37.5% of dogs with ED developed early leakage (p<0.05).Clinical and pathologic pancreatic necrosis occured in 37.5% of dogs with BD v/s. 62.5% of dogs with ED (p=0.05). Although Early outcome of these methods (ED v/s BD) was statistically similar, early complications of dogs with ED was more than those with BD.

OP 107
LIVER TRANSPLANTATION IN THE MORBIDLY OBESE PATIENTS

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Morbid obesity is associated with major diseases that can lead to fatal complications. The literature is not only conflicting, but also scarce in studies on liver transplantation in morbidly obese patients. To study the demographics and outcome of liver transplantation in morbidly obese patients at the University of Miami. A retrospective review of all liver transplant patients with BMI = or >35 Kg/m² from 1995- 2003. Out of 1255 patients, 99 met the criteria for morbid obesity (43 females and 56 males). 79 patients had BMI of 35-40 kg/m², while 20 patients had BMI >40. Etiology of liver failure: HCV 44%, Cryptogenic 19%, Laennec’s 10%, NASH 6%, Fulminant hepatic Failure 5%, & other 16%. Retransplantation rate was 9% (3 patients for hepatic artery thrombosis, 3 for primary non-function, one for portal vein thrombosis, and one for recurrent HCV). Overall 1, 3, and 5-year patient survival was 86%, 83%, and 81% respectively. Overall 1, 3, and 5-year graft survival was 86%, 83%, and 80%, respectively. Among those who died, 50% of patients with BMI >40 died in the first three months after surgery, while 33% of patients with BMI 35-40 did. Sepsis leading to multi-organ system failure was the major cause of mortality (57%) especially in the early postoperative period (<3 months). One patient died within 3 days post-op due to pulmonary hypertension. Recurrent disease (28%), and MI (9%) were other causes of mortality that occurred late (>6 months). Our data suggest that liver transplantation is an acceptable option for morbidly obese patients requiring such transplantation. Aggressive measures to prevent, or control sepsis in the early postoperative period must be taken as the majority of the mortality occurred during that time. Weight reduction after transplantation should be implemented.
Tuberculosis (TB) is an important infection after transplantation especially in developing countries. We studied the risk factors and impact of TB on the outcome of kidney transplantation. We retrospectively analyzed the cases of TB infection in a series of 1600 renal transplants carried out in our center from March 1978 to March 2004. Demographic parameters and clinical antecedents were considered. Moreover, the clinical onset, diagnosis tools, treatment policy and evaluation were studied. In the course of an 18 years period, there were 71 cases of TB (4.4%). The mean elapsed time from the transplantation was 61.5 months; 7 of them during the first year after transplantation. The clinical onset was urinary in 43 cases (60.5%); 21 (29.6%) had pulmonary infection; 6 cases had disseminated infection. Most of patients were CSA treated. All post transplant TB patients received triple antituberculous therapy (rifampicin, ethambutol and INH) with favorable microbiological response except in two who need another course for 24 months. Throughout the follow-up period, the graft function remained stable in 42 patients (59%). Hepatotoxicity was seen in 14 patients but with no mortality attributable to hepatocellular failure. Twenty one patients died, 19 of them due to causes not related to TB or treatment. TB is a common infection in renal transplant recipients and urinary TB infection is more prevalent in our transplant population. Chronic rejection is a serious complication in these patients which had a negative impact on the graft survival especially in CsA treated recipients.

**OP 109**

**ORAL VALGANCICLOVIR VERSUS INTRAVENOUS GANCICLOVIR PROPHYLAXIS IN KIDNEY TRANSPLANT RECIPIENTS**

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Prophylaxis against cytomegalovirus (CMV) is a regular practice in organ transplantation. Oral valganciclovir appears to be an interesting alternative to the usual intravenous form. We prospectively compared the response of intravenous ganciclovir (GAN) for 2 weeks [n. 41] to two weeks (VAL2w) [n. 23] and three months (VAL3m) [n. 46] oral valganciclovir in kidney transplant recipients receiving induction immunosuppression. CMV antigenemia assay (AA) and polymerase chain reaction (PCR) were used for viral detection. Patients were followed up for a minimum of 6 months post transplantation. The SPSS software was used for statistical analysis using a cutoff point of significance as p<0.05. There was no statistical difference in the demographic features among the study groups. However, human leucocytic antigen (HLA) match was better in VAL3m group and the number of patients who received antithymocyte globulin (ATG) was higher in GAN group (100%). The incidence of acute rejection was not different among the study groups. There was higher incidence of fever and positive CMV test in VAL2w group (p 0.035) while leucopenia with negative CMV test was significantly higher in VAL3m group (p 0.04). The incidence of CMV infection was higher in VAL2w group (26%) compared to GAN group (14.6%) and VAL3m group (2.2%). Renal function was significantly less in VAL2w group (p 0.02). Three months oral valganciclovir prophylaxis for CMV is an effective regimen compared to intravenous ganciclovir for two weeks. Shorter courses are associated with higher incidence of CMV infection and poorer graft function.

**OP 110**

**SEROPREVALENCE OF HUMAN HERPESVIRUS -8 IN RENAL TRANSPLANT RECIPIENTS.A SINGLE CENTER STUDY FROM IRAN**


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The long term risk of malignancies in renal transplant patients is approximately 100 times that in general population. Unlike North America and many European countries, Kaposi’s sarcoma is the most common cancer after renal transplantation in most series reported from countries like Iran and Saudi Arabia. Human herpes virus 8 (HHV-8) has a major role in pathogenesis of Kaposi’s sarcoma. Risk of post transplant Kaposi’s sarcoma is 23-28% in seropositive compared to 0.7% in those who are seronegative. This study was conducted to investigate the seroprevalence of HHV-8 in our transplant recipients. Serum of 100 renal transplant recipients were checked by indirect immunofluorescence against latent nuclear antigen. Results were analyzed by SPSS10. T test, chi-square and Fisher’s exact test were used. Out of 100 patients 60 were male. Mean age was 41.1 (range 17-74 year) and 17 patients were older than 55. Mean of duration on transplantation was 41.6 months (range 1-166 months).

Induction with ALG was done in 24% of patients. 97 patients had received prednisolone (69% of patients ≤10 mg/day). Mycophenolate Mofetil was used by 72% of patients, and Azathioprin by 23% (7/23 less than 75 mg/day). 98% of patients had received Cyclosporin (Neoral), with a dose of less than 3.5mg/kg in 54% of patients. Twenty five percent of patients were seropositive for HHV-8 in our transplant recipients. There was statistically significant seropositivity for HHV-8 in recipients older than 55 years old. (P value= 0.02). 8/17 patients older than 55 year were seropositive (47%) whereas 20 % of patients younger than 55 year were seropositive (17/83). Mean of duration on transplantation was 41.6 months (range 1-166 months).
OP 112
UTILITY OF EARLY POST-OPERATIVE URINE CULTURE FOR PREDICTING FUTURE URINARY TRACT INFECTION IN RENAL TRANSPLANT PATIENTS

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Urinary tract infections (UTIs) are one of the most important causes of mortality and morbidity in patients undergoing renal transplantation. A number of risk factors for the development of UTIs have been studied. Despite this, the significance of asymptomatic bacteriuria remains ambiguous. We therefore conducted a prospective cohort study at the Sind Institute of Urology and Transplantation (SIUT) to evaluate the role of early post-operative bacteriuria in the development of future symptomatic UTIs. All patients undergoing a renal transplantation between the January 1st 2004 and 31st December 2004 were included. Urine cultures were obtained regardless of symptoms, in the first 10 days post-transplantation and designated as “surveillance cultures”. Additionally the Foley catheter tip was also cultured on removal on the fifth post-operative day. For the next 6 months, follow-up urine cultures were obtained periodically. Out of 107 patients included, 14 (13.3%) had a positive surveillance culture. These patients developed a UTI earlier and more frequently than those with a negative surveillance culture (71% vs. 28%, RR=2.5, 95% CI 1.6-4.1, p=0.002; 50% UTIs in 10 days vs. 24 days). Similarly a positive Foley tip culture was an independent risk factor for development of a UTI (RR=2.2, 95% CI 1.3-3.6, p=0.003). On the other hand, sex and, presence or duration of a Double-J stent were not found to be a risk factors. Early post operative bacteriuria is a risk factor for the development of UTIs in the renal transplantation patient. Routine surveillance of these patients may be useful, although further study is required to ascertain the benefit of treating the bacteriuria in preventing UTIs.

OP 111
CYTOMEGALO VIRUS (CMV) DISEASE IN RENAL TRANSPLANT RECIPIENTS (A SINGLE CENTRE EXPERIENCE)

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Cytomegalovirus (CMV) is the most common viral infection after kidney transplantation, with an overall frequency of 50-80%, and 30-60% for CMV disease. We retrospectively analyzed medical records of 689 kidney transplant recipients at Jeddah Kidney Centre (JKC) from January 2000 till December 2005 for CMV infection and disease, and its effect on graft & patients’ survival. Out of 689 kidney transplant recipients, 25 patients (3.6%) had acute CMV disease. We looked at the source of kidneys, CMV serostatus of both donor and recipient, immunosuppressives, CMV prophylaxis, clinical presentation of acute CMV disease, response to treatment and effect of CMV disease on both graft and patient survival. All the 25 patients had CMV IgG positive /IgM negative test before transplantation.

We noticed two distinct groups of patients. The first group included 9 patients diagnosed to have CMV syndrome, 6 of which received CMV prophylaxis in the form of gancyclovir. All patients in this group had CMV low PCR viral load, mild disease, and responded to treatment with complete recovery and no adverse effect on graft or patients. The second group included 16 patients diagnosed to have CMV invasive disease, 3 of which received CMV prophylaxis. All patients in this group were found to have very high CMV PCR viral load. Thirteen patients (81%) in this group responded to treatment with full recovery maintaining normal graft function in 10 patients (62%), while 3 patients (18.8%) survived the CMV invasive disease but lost their graft retained back to dialysis. Three patients (18.8%) died from CMV disease & related complications. We report a low incidence of CMV disease, 3.6%, in our centre. CMV prophylaxis was associated with milder form of the disease. Treatment of CMV invasive disease offered 81% patient survival and 62% graft survival in our centre.
obtained Kidney grafts from 12 LD and 3 CD. Organs involved with PTLD were: small intestine in 6, brain in 6, and cervical and mediastinum lymph nodes in 2 recipients. The remaining 2 lesions affected the breast and maxillary sinus in one recipient. Three (20%) recipients are alive for 12 to 41 months following PTLD diagnosis (2 with functioning graft and one on dialysis therapy). Twelve patients died (80%) at 1 month to 72 months following PTLD diagnosis (10 with functioning graft and 2 while on dialysis. In the present series of kidney recipients PTLD was the most common form of post KTx cancer, but with a lower incidence in comparison to other reports. Incidence was not influenced by recipient gender, age or the donor type. PTLD can appear as early as 3 months or as late as 192 months after KTx, \[4\]. Post transplantation PTLD was associated with poor patient and graft survival rates.

**OP 114**

**COMPLETE REGRESSION OF CUTANEOUS B-CELL LYMPHOMA IN A RENAL TRANSPLANT PATIENT AFTER CONVERSION FROM CICLOSPORIN TO SIROLIMUS**

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Post-Transplant Lymphoproliferative disease remains a serious morbidity. We report a case of complete regression of a biopsy proven B-Cell lymphoma that occurred in the post transplant period. A 48 years old gentleman received a living renal transplant for end stage renal disease due to undetermined etiology. His initial immunosuppression consisted of corticotherapy, mycophenolate and ciclosporin. The patient developed severe pneumonia within the first two months of the transplantation due to Acinobacter, Pneumocystosis and probably CMV infection. He had a complete recovery from this pneumonia and was discharged for follow up at his regional hospital. 4 months after discharge the patient was referred again because of presence of two nodules on his trunk. The biopsy of the nodules revealed B-Cell lymphoma. Ciclosporin was stopped and sirolimus was started. The lesions regressed progressively to be complete within 6 months. The patient remains well without clinical relapses 19 months after conversion. Renal functions remained stable. We postulate that the antineoplastic properties of sirolimus may have played an active part in the positive outcome.

**OP 115**

**POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDERS (PTLD) IN KIDNEY TRANSPLANTED RECIPIENTS (RT) MAY HAVE A FAVOURABLE LONG-TERM PATIENT AND GRAFT SURVIVAL**

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PTLD include a range of lymphoid diseases that carry a very poor prognosis. We analyzed the incidence, response to treatment and patient and graft survival after PTLD diagnosis in 590 consecutive cadaveric RT. PTLD incidence was 2.3% (14/590). 71% were males. Age x: 44.5y.(21-66y). Follow-up x: 6.3y.(3m-18y). PTLDs were classified as: Group I: ‘early lesion’: 1pat. Group II: polymorphic lymphoma: 2 pats. Group III: monomorphic lymphoma: 9 pats [7 non-Hodgkin’s lymphoma (NHL), and 2 Burkitt lymphoma (BL)] and Group IV: ‘other’: 2 Hodgkin lymphoma (HL). Interval from RT to diagnosis x: 8.7y.(4m-21y). Only 14% occurred <1 year post RT. HCV was positive in 4 pats, Epstein-Barr virus (EBV) serology was positive in 8 out of 9 pats tested. CD20 positivity was found in 8 out of 10 pats tested. CMV was present in 2. EBV in tumor cells assessed by PCR or ‘in situ’ hybridization, was found in 10 out of 13 pats tested. (not found in 2 BL and 1 NHL). Treatment: Group I: immunosuppression reduction (ISR). Group II: ISR plus acyclovir in one pat. IS withdrawal plus anti-CD20 in the second one. Group III: withdrawal or ISR plus chemotherapy and/or surgery in all but two pats that were treated with 4 anti-CD20 doses. Group IV: IS withdrawal plus chemotherapy. Complete response was achieved in 10 pats (71%), with recurrence in two cases. Five pats returned to dialysis at an average of 4.1y (11m-9y) post diagnosis. Three pats died: 1 HL and both BL. Complications: pneumocistis carinii pneumonia 1 pat, heart failure due to adriamicyne and salmonella sepsis 1 pat and 1 pat with a cerebral mycotic aneurism. Our PTLD incidence is 2.3%, similar to that reported. Long-term cumulative patient survival is 79%, much higher than reported, and 64% maintain their allograft functioning. An aggressive treatment according to extension, histology and location is mandatory. The systematic use of prophylactic antimicrobial therapy, hematopoietic growth factors immediately after the beginning of immunosuppression, is mandatory. The systematic use of prophylactic antimicrobial therapy, hematopoietic growth factors immediately after the beginning of chemotherapy and the fine dose adjustment of these drugs are the main clues for improving the results and minimize the risks.

**OP 116**

**ABDOMINAL CT FINDINGS OF MALIGN TUMORS IN PATIENTS WITH SOLID ORGAN TRANSPLANTATION**

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The incidence of malignancy in solid organ transplant recipients is higher compared to general population. The aim of this study was to characterize distribution and appearance of abdominal malign tumors detected with spiral computed tomography exam-
Oral Presentations

OP 117

KAPOSI’ SARCOMA IN RENAL RECIPIENTS

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A high incidence of cancer has been reported following organ transplantation. This study explores the incidence, clinical presentation and outcome of post transplantation Kaposi sarcoma (KS) in renal transplant (KTx) recipients. 1290 kidney recipients have been followed up in the centre between May 1972 and December 2005. Of these, 785 were males and 119 were under the age of 18 years. The donor source was a living donor (LD) in 1046 and a cadaver donor (CD) in 244 cases. The medical records of recipients with KS were retrospectively reviewed. Nine instances of KS were diagnosed at 6 months to 192 months following KTx. Two patients transplanted organ itself had malign tumors, one patient had PTLD with Burkitt lymphoma type in transplanted liver and the other patient had renal cell carcinoma in transplanted kidney. In abdominal PTLD and Kaposi sarcoma the imaging findings and site of organ involvement was somewhat different. The most common pathologies in Kaposi sarcoma were liver lesions (n=6) and lymphadenopathy (n=6). But in abdominal PTLD the organ mostly involved was spleen (n=3). Conclusions: The early diagnosis of abdominal malignancies after transplantation is crucial for patient’s prognosis especially under immunosupression. The abdominal spiral CT examination is effective modality in depicting the malignancy in patients with solid organ transplantation.

OP 118

MORPHOLOGIC EVALUATION OF POSTTRANSPLANT MALIGNANCIES IN COMPARISON WITH DE NOVO TUMORS

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Post transplant malignancies constitute a well-known risk for the development of malignant tumors which can adversely affect the transplant patient and may result in death. This study aims to investigate some morphologic and immunohistochemical features of a group of posttransplant malignant tumors in comparison with similar tumors developing in the usual setting.

Methods: The study group contains 40 cases of malignant tumors with suitable pathologic material found among 1350 transplant patients (1229 kidney, 113 liver, 8 heart). Tumors with 3 or more examples were compared with twice the number of randomly selected controls. These include the following: Kaposi sarcoma (n: 14), extranodal lymphoma (n: 9), squamous cell carcinoma (n: 6) and nodal lymphoma (3). The variables that were analysed in these subset of cases were the following: Degree of differentiation, predisposing lesions (when present) and the host response. For lymphomas, histological subtype, B or T lymphocyte origin and the Ki67 proliferation index were also determined.

Results: Ninety percent (36) of the tumors occurred in kidney transplant patients and 10% (4) in patients with a liver transplant. Posttransplant squamous cell carcinomas were better differentiated in comparison to controls and they have been more frequently associated with a precursor lesion. Although Kaposi sarcoma involved internal organs more frequently in posttransplant patients than controls, morphological features were similar. Ki-67 proliferation index was higher in posttransplant nodal lymphomas and lower in extranodal ones in comparison with the controls. Our findings suggest that certain posttransplant malignancies may display different characteristics than their de novo counterparts.

OP 119

HYPERHOMOCYSTEINEMIA IS AN INDEPENDENT RISK FACTOR FOR UNFAVORABLE OUTCOME IN KIDNEY TRANSPLANT RECIPIENTS- A PROSPECTIVE STUDY

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Hyperhomocysteinemia (HHCy) is considered as a risk factor for cardiovascular diseases. The prevalence of HHCy among our renal transplantation KS was associated with reasonable cure rates.
OP 120

IS URIC ACID PREDICTIVE OF GRAFT DYSFUNCTION IN RENAL TRANSPLANT RECIPIENTS?

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Hyperuricemia is common in renal transplant recipients, and uric acid (UA) may play a role in renal dysfunction. This study was aimed to evaluate the effects of UA on chronic allograft nephropathy (CAN) in renal transplant recipients (RTRs). We included 133 RTRs (34 women and 99 men; mean age, 34.7 ± 9.9 years) who underwent renal transplantation between 1998 and 2000. Serum UA levels were measured at the first month after transplantation and yearly during the next 3 years. In the first month after transplantation, 55.3% of the RTRs had hyperuricemia (UA > 7 mg/dL in men, UA > 6 mg/dL in women) compared with 84.6% after 3 years (P < .001). CAN was diagnosed in 33% of patients (mean duration for development of CAN was 31.8 ± 14.3 months), and 52% of these patients had graft failure in 43.3 ± 20.8 months. In patients with CAN, UA levels were recorded before the development of CAN. There was no association between UA levels and CAN according to Cox regression analysis (P > .05; OR, 1.082; CI, 0.9 to 1.3). Although we observed that hyperuricemia prevalence is increased in RTRs, the UA level demonstrated no effect on CAN development during the first 3 years after transplantation.

OP 121

RELATIONSHIP OF PARATHYROID HORMONE AND POST-Renal TRANSPLANT HYPOPHOSPHATEMIA

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Post-transplant hypophosphatemia, a common disorder during the first two weeks after transplantation, has an incidence rate of 50-80%. Transplanted kidney plays a major role in this type of hypophosphatemia. The alterations in proximal tubular brush border membrane trafficking of type Ila sodium/phosphate cotransporters mediated by drugs and phosphotinins account for this reduction of serum phosphate level and the role of parathyroid hormone (PTH) as a mediator of this type of hypophosphatemia has been called into question. In the present study, we investigated the role PTH as a mediator of post-renal transplant hypophosphatemia in our patients. In this prospective study, serum phosphate (P), calcium (Ca), creatinine (Cr), alkaline phosphatase and intact parathyroid hormone (iPTH) levels of 393 patients (male/female ratio = 257/136) were evaluated during two weeks after successful renal transplantation. Hypophosphatemia developed in 76% of patients with mean serum phosphate and intact PTH levels of 2.00±0.26 mg/dL and 108±14 ng/mL respectively. In nonhypophosphatemic group (24% of patients) mean serum P and iPTH concentrations were 3.93±1.17 mg/dL and 150±51 ng/mL. There was no significant difference in intact parathyroid hormone, calcium and alkaline phosphatase values between hypophosphatemic and nonhypophosphatemic group of patients (P = 0.05), but the difference in serum creatinine levels between these two groups was statistically meaningful (P value = 0.001). Parathyroid hormone appears not to be involved in the development of post-renal transplant hypophosphatemia, but the occurrence of this type of hypophosphatemia is related to the function of transplanted kidney.
OP 123
LONG-TERM FOLLOW UP OF ELDERLY LIVING DONORS AFTER NEPHRECTOMY

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It is a concern that elderly donors may have increased risks in the peri- and post transplant periods due to age related changes in various organ systems. Nephrosclerosis, atherosclerosis and low glomerular filtration rate may affect their outcome. We performed a retrospective study to determine the outcome of elderly living donors in our center. A retrospective analysis of our live related transplant program from Mar 1976 to Mar 2005 revealed that 92 donors were older than 55 years (range 55 to 69 y) at the time of transplantation. We attempted to contact all donors to determine long-term outcome regarding their remaining kidney. We obtained information on 65 (70.7%) of the donors. All of these donors were subjected to physical examination and laboratory, radiological and electrocardiography investigations. All their data were compared to the age matched health tables of the Egyptian general populations. Of the 65 who respond 57% were females, and more than 87% gave their kidneys to their siblings. Eighteen donors became hypertensive (27.7%) and nearly 50% received one drug only. ECG findings showed that 3 donors developed left ventricular hypertrophy and 5 developed arrhythmia. Three donors were diabetics and controlled with oral hypoglycemic drugs. The mean serum creatinine and estimated creatinine clearance at the follow up was 1.3±0.73 mg/dl (range, 0.7-5.4 mg/dl) and 95.2±29 (range, 31-145) ml/min). Three had abnormal kidney function and the remaining donors had normal kidney function. Five donors developed proteinuria, none of them with nephrotic range proteinuria. The rate of proteinuria and hypertension was similar to the age matched general population.

We conclude that most kidney donors have normal renal function 1 to 30 years post donation. However, some may develop renal dysfunction. Our data underscore the need to develop prospective trials for long-term follow up of elderly kidney donors.

OP 124
EFFECT OF THE TIME INTERVAL BETWEEN BRAIN DEATH AND ORGAN HARVESTING ON GRAFT FUNCTION AFTER TRANSPLANTATION

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We aimed to evaluate potential brain dead organ donors (BDDOs), the problems encountered during their ICU course, and the outcomes at our institution. Methods. We reviewed the charts of patients who developed brain death at our institution between August 1997 and June 2006. The etiology of brain death (whether the organs were procured or not) and problems encountered in the ICU (ie, cardiac arrest, hypotension, diabetes insipidus, and acute lung injury) were recorded. Results. A total of 33 potential BDDOs were analyzed. The most common etiology of brain death in potential BDDOs was subarachnoid hemorrhage (n=16, 49%) followed by hypoxic encephalopathy (n=9, 27%) and traumatic brain injury (n=6, 18%). No cardiac arrest or loss of potential organ donors secondary to hemodynamic instability occurred in potential BDDOs. The main problems encountered in these patients during their ICU stay were hypotension (n=26, 81%), hypothermia (n=14, 52%), diabetes insipidus (n=42%), and acute lung injury (n=7, 21%). Among these potential BDDOs, only 15 (46%) became actual BDDOs. The main reason for precluding organ donation was familial refusal (n=17, 52%). ICU management of BDDOs is frequently associated with numerous problems. However, optimal ICU care of these patients can help improve their homeostasis and minimize the loss of potential BDDOs. In our potential BDDOs, the main obstacle to organ procurement was familial refusal. Further studies should focus on strategies that might help overcome this issue.
Hemorrhagic cystitis (HC) is an important cause of morbidity and mortality in Bone Marrow Transplant (BMT) recipients. HC presentations are classified to early and late onset and one of the causative agents of HC late onset is viral infections. In this research for measuring the role Adenovirus (ADV) infections in late onset of HC, the prevalence of this viral infection in BMT recipients were determined. Also the role of another risk factors including: hematological and biochemical characteristics, clinical conditions, grade of GVHD in HC presentations were determined. We cohort and retrospectively studied 30 and 24 BMT recipients and donors respectively. The number of 293 EDTA treated blood samples and 293 urine samples were collected from BMT recipients and donors. One sample was collected pre-transplantation from BMT recipients and donors and also one sample per week for 100 days from BMT recipients post-transplantation ADV-PCR in house PCR were proceed for determination of these viral prevalence in HC incidence in BMT patients. Also all the data of this investigation were statistically analyzed with version 12 of SPSS. The median incidence of HC in BMT recipients with measurement the grade of HC and with sonographic records of bladder bleeding were 53.3% and 36.7% respectively. Significant correlations were found between ADV-PCR positive results with HC presentation. Significant correlations were detected between hematological characteristics like: WBC count and platelet count and also biochemical characteristics include: creatinin, direct bilirubin and total bilirubin, with ADV-PCR positive results and HC presentation. For significant correlations of HC clinical presentations with positive results of ADV-PCR and also with results of hematological and biochemical tests, monitoring of this viral and biological indexes have a critical role in management of preventive and therapeutic protocols for HC disorder in BMT recipients.
OP 127
GRAFT AND PATIENT SURVIVAL IN PEDIATRIC VERSUS ADULT KIDNEY TRANSPLANT RECIPIENTS
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The treatment of choice in end-stage renal disease (ESRD) in children and adolescents is kidney transplantation, which can improve the patients’ growth, development, and quality of life. Most of the studies carried out on the subject to date have been descriptive rather than comparative; moreover, there have been few studies on the difference in the outcome between younger age groups and older ones. We sought to investigate patient and graft survival in a comparative study of pediatric and adult kidney recipients. In this cross-sectional study, 2631 Iranian kidney recipients who had undergone kidney transplantation in Baqiyatallah or Labbafinejad Hospitals between 1982 and 2002 were studied. The patients were divided into pediatric group (n=301, age 18 or less) and adult group (n=2330, age over 18). Graft survival was analyzed uncensored for death (death with a functioning graft was considered as an event). The mean age of pediatric and adult groups was 40.05±13.60 and 10±13.92±13.17, respectively. Five years survival of the graft was 68% in pediatric group and 56% in adult group (p=0.015). Patient survival was 88% and 86%, in pediatric and adult groups, retrospectively (p=0.05). Our results demonstrate that while there in no significant difference in terms of patient survival after kidney transplantation between pediatric and adult recipients, long term graft survival in the is poorer in those with the pediatric patients, which is probably due to the difference in the function of the immune system, different underlying causes of ESRD and their duration, and the duration of dialysis before kidney transplantation.

OP 128
DELAY GRAFT FUNCTION AFTER PEDIATRIC RENAL TRANSPLANTATION
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Delayed graft function (DGF) may occur during early post – transplant period. In this paper, we present our findings regarding delayed graft function (DGF) after pediatric renal transplantation and its predictive variables. From 1985 to 2004, a total of 300 pediatric renal transplantations were performed at our institution of test, 10 cases with DGF and 50 controls who were operated by the same surgeons were enrolled in this study. The mean (range) age of the recipients and donors was 11.4 (3-15) years and 28.05 (20 - 50) years, respectively. All kidneys were retrieved from living donors. We compared patients with DGF with other pediatric recipients regarding four independent variables: age difference between donors and recipients, serum hemoglobin difference between donors and recipients, mean blood pressure difference between donors and recipients, weight difference between donors and recipients. One year, two years and three years graft survival rates were 91%, 89%, and 75%, respectively. The differences between donors and recipients regarding weight and mean blood pressure in subjects with DGF were not higher than other patients (42Kg vs. 37.4Kg, p=0.4; -3 mm Hg vs. -4.1mmHg, p=0.8). The differences between donors and recipients regarding weight and mean blood pressure are not predictor variables for DGF.

OP 129
CORRELATION BETWEEN URINE MIF AND CHRONIC REJECTION IN PEDIATRIC RENAL TRANSPLANTATION
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Macrophage migration inhibitory factor (MIF) is a pro-inflammatory cytokine that is a potent activator of macrophages and T cells. Previous studies have shown that local MIF production is increased in acute renal allograft rejection, suggesting that it may play an important role in the rejection process. Thus we assessed the ratio of MIF to creatinine in urine in two pediatric patients with acute rejection episode. Case one was a 10 years old girl with hypodysplasia who underwent transplantation 3 years ago. Urine MIF/cr ratio was 1.5 pg/micromole cr in outpatient visit. She involved by acute rejection episode. In this phase the urine MIF/cr ratio was 43.3. The second case was a 8 years old girl with cystinosis who underwent transplantation 1 mo ago. Her assessment showed that the urine MIF/cr was 96.3 in phase of acute rejection. We measured urine MIF/cr in 4 patients with renal transplantation who were not in acute rejection and mean age, sex and year of transplantation of them was similar to our patients. The mean urine MIF/cr ratio in them was 2.5 pg/micromole cr. We also measured the urine MIF/cr ratio in 4 healthy children as control group and this ratio was 1.9 in these children. This case study demonstrates that the concentration of MIF in urine increases with episodes of acute rejection. This is important for diagnosis of acute rejection and differentiation of it from other states such as cyclosporine nephrotoxicity.

OP 130
EFFECT OF PLASMA BRAIN NATRIURETIC PEPTID ON CARDIAC FUNCTIONS IN PEDIATRIC TRANSPLANT PATIENTS
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Cardiovascular complications are the most important causes of mortality and morbidity in children with end stage renal disease and renal transplant recipients. Brain natriuretic peptide (BNP) is
an important biological marker to assess left ventricular dysfunction. Aim: To investigate BNP changes and the diagnostic value of BNP for cardiac functions in dialysis patients and renal transplant recipients.

Methods: Plasma BNP concentration was measured in 22 dialysis patients and 14 renal transplant recipients (median age: 189.5 (77-264) months). Echocardiographic examinations were performed to determine the relationship between BNP and cardiac functions.

Results: The median plasma BNP levels were significantly higher in dialysis patients than renal transplant recipients (p<0.001). Mean ejection fraction (EF), shortening fraction (SF), were significantly lower in dialysis group. There was significant negative correlation between plasma BNP levels and EF and SF (p<0.01) and a positive correlation with left ventricular systolic diameter (p<0.01). Plasma BNP levels are significantly higher in dialysis patients than those in renal transplant recipients, and high plasma BNP level is significantly correlated with dilated left ventricle and poor cardiac function. Renal transplantation has beneficial effects on cardiac functions and BNP value would be useful as a predictive marker of ventricular dysfunction in early identification of high risk patients.

OP 131
RENOVASCULAR HYPERTENSION IN PEDIATRIC RENAL TRANSPLANTATION

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Hypertension in renal transplant recipients is an important risk factor for graft function and cardiovascular morbidity and mortality. The mechanisms of post-transplant hypertension are multifactorial. Rejection, both acute and chronic, recurrent renal disease, graft renal artery stenosis, native kidney disease and drug therapy with steroids and cyclosporin have all been implicated. Where a single cause can be identified, the therapy can be rational and often very successful. For this reason, the diagnosis of graft renal artery stenosis is important, because percutaneous transluminal angioplasty or surgery can lead to the cure of hypertension and improvement of the graft function. Previously a study was performed in our center about post transplantation hypertension in adult patients. The incidence of hypertension in these patients was 61% and 1.64% of them involved by renal artery stenosis. Thus we decided to determine the incidence of renal artery complications in pediatric renal transplantation. We assessed 34 children with renal transplantation with noninvasive Doppler sonography for renovascular complication in labbafi nejad Hospital. The cases with renal artery stenosis by Doppler sonography were assessed by captopril DTPA scan for confirmation. Mean age of patients was 11 years old. 57% of our patients were male. The etiology of our patients was: neurogenic bladder 11 patients, medullary cystic disease 5, glomerulonephritis 10 patients, reflux nephropathy 2 patients, hypodysplasia 6 patients. Most of them was dialyzed before transplantation. Doppler ultrasonography was performed for all patients. The mean time duration after transplantation was 4 years. 25 patients (73%) had normal blood pressure before transplantation. 14 patients had normal blood pressure after transplantation. Thus 20 patients (58%) had high blood pressure after transplantation which of them 12/20 found hypertension after transplantation. Acceleration time, RI, Velocity was measured for renal artery, interlobar arteries in upper, middle and lower lobes. Of 34 patients 3 patients had the findings of renal artery stenosis in Doppler sonography. Of these only one patient had the findings of renal artery stenosis in captopril DTPA scan. She had normal blood pressure before transplantation. The delayed graft function and hypertension immediate after transplantation was seen in this patient. The last creatinine (1 year after transplantation) was 1.2 mg/dl.

OP 132
HYPERLIPIDEMIA AFTER RENAL TRANSPLANTATION AND ITS RELATION TO GRAFT AND PATIENT SURVIVAL

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Hyperlipidemia is a multifactor event that frequently develops following renal transplantation (RT) and results in worsening of the patient’s prognosis. However the mechanisms are not clear up to now. The aim of this study is to evaluation of hyperlipidemia incidence after RT and its concomitant factors.

Methods: We studied 687 RT recipients in a cross-sectional design to determined frequency of hypercholesterinemia and hypertriglyceridemia before and one month up to one year after renal transplantation and its relation with patient and graft prognosis in two medical centers in Iran from 1988-2004. Cyclosporine was the constant part of immunosuppressive treatment in all study subjects.

Results: One and five year graft survival time was 94.23 and 81.34 percent respectively. The prevalence of hypercholesterinemia after transplantation was 59.9% among patients. Mean serum cholesterol level before and after transplantation were 161.15±3.81 and 213.83±4.53 mg/dl respectively, (p=0.000), and 159.99±13.08 and 196.28±19.6 mg/dl respectively for triglycerides levels. There was no significant correlation between dose of CsA, graft and patient survival time and severity of hyperlipidemia (determined by cholesterol and triglyceride levels) in the study. Lipids metabolism abnormalities found in this study goes with other similar studies but we could not specify a relation if that with patient or graft survival. In addition, there is maybe a different rout for development of Hyperlipidemia along with Immunosuppressive drugs adverse effect in our study samples.
OP 133

EARLY ONSET PROTEINURIA AFTER RENAL TRANSPLANTATION IS A PROGNOSTIC MARKER FOR ALLOGRAFT DYSFUNCTION

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In this study we aimed to determine whether the effects of early onset proteinuria after renal transplantation have an influence on long-term allograft survival. One hundred thirty patients (105 male, 25 female; mean age 29.6 +/- 9.6 years; 105 living-related, 25 cadaveric) were included. Proteinuria was defined as protein in urine was more than 300 mg/day at the third month after transplantation. Donor and recipient age at transplantation, pre-transplant dialysis duration, donor status (living-related or cadaveric), presence of delayed graft function and acute rejection, panel reactive antibodies, number of human leucocyte antigen mismatches, and systolic blood pressure were retrospectively recorded. Cox regression analysis was used to estimate allograft survival. Patients with proteinuria showed significantly lower graft survival rates than did those without proteinuria (54.17% vs. 82.62%, P<.002). Proteinuria at the third month post-transplantation (P<.004; OR=3.26, CI, 1.46-7.29), donor age (>40 years; P<.001; OR=1.06, CI, 1.02-109), and panel reactive antibodies (>13%; P<.04; OR=1.06; CI, 1.00-1.12) were significantly associated with decreased allograft survival. Early onset proteinuria after renal transplantation is indicative of a high risk for allograft dysfunction. A reduction of proteinuria may be associated with improved graft survival.

OP 134

SERUM C-REACTIVE PROTEIN SURGE IN RENAL TRANSPLANT RECIPIENTS: LINK WITH ALLOGRAFT SURVIVAL

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C-reactive protein (CRP) is a reliable marker of inflammation in renal transplant recipients. We analyzed the predictive value of post-transplant CRP surges on renal allograft survival. Totally, 141 ESRD patients (115 men and 26 women; age, 29.3+-/9.4 years, ESRD duration = 18.9±19.9 months; 27 cadaveric and 114 living donor) who underwent renal transplantation included. The demographic, clinical, and laboratory data were recorded. Recipients were assigned to three 3 groups regarding 5-year serum CRP surges: group N = normal serum CRP concentrations group IH: intermittently high serum CRP concentrations group CH: consistently high serum CRP concentrations (n=9). In recipients with normal, intermittently high, and consistently high CRP concentrations, allograft survival rates were 90.0%, 72.6%, and 11.1% respectively (P<.0001). Acute rejection (P=.004; OR:1.701; CI:1.188-2.434), advanced age of the recipient (P=.04; OR: 1.041; CI: 1.002-1.081), and consistently high serum CRP concentrations (P<.0001; OR: 14.973; CI: 4.029-55.646) were associated with a high risk of renal allograft loss. Consistently high serum CRP concentrations have a high predictive value for renal allograft survival. Efforts may be necessary to manage inflammation and therefore prolong renal allograft survival.

OP 135

BODY MASS INDEX (BMI) AS A RISK FACTOR IN KIDNEY TRANSPLANTATION

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Obesity is a recognized risk factor for type-2 diabetes mellitus (DM) and cardiovascular diseases and a risk factor in renal transplantation (Tx). Studies that have evaluated the effect of obesity on renal transplantation outcome have yielded varying results. This study explores the effect of BMI on the outcome of kidney transplantation at our centre. The records of 200 consecutive kidney recipients, transplanted since January 2004, were reviewed for the effect of BMI on: (1) the incidence of pre-Tx DM and ischaemic heart disease (IHD), (2) mean duration of Tx surgery (minutes) (3) mean hospital stay (days), (4) incidence of acute rejection (AR), (5) incidence of post-Tx surgical complications (SC) and systemic infection (SI), and (6) recipient and graft survival. Recipients were distributed in 4 groups according to BMI: [A] 25 under weight recipients (BMI<20), [B] 62 normal weight recipients (BMI 20-25), [C] 58 pre-obese recipients (BMI 25-30), and [D] 55 obese recipients (BMI>30). 56.5% of recipients were either obese (27.5%) or pre-obese (29%). Recipient mean age and donor source were comparable in all groups, and female recipients were more common in group D (73%).

<table>
<thead>
<tr>
<th>Group</th>
<th>No.</th>
<th>Pre-Tx (%)</th>
<th>Duration surgery</th>
<th>Hosp stay</th>
<th>AR (%)</th>
<th>SC (%)</th>
<th>SI (%)</th>
<th>Recipient Survival</th>
<th>Graft Survival</th>
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<td>D</td>
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</table>

The majority of recipients were either pre-obese or obese. Kidney recipients with higher BMI were observed to have: increased rates of pre-Tx DM and IHD, longer duration of Tx surgery, longer hospital stay, and suffered of higher rates of surgical complications. Recipients of normal BMI showed lower rates of acute rejection and systemic infections. Increasing BMI was associated with lower recipient and graft survival rates.
CD25<sup>hi</sup>CD4<sup>+</sup> T cells potential role in maintaining self tolerance has been demonstrated in healthy human subjects. Their role in long term renal graft transplant patients is still unclear. The aim was to evaluate the ability of CD25<sup>hi</sup>CD4<sup>+</sup> T cells to regulate responses to donor allo-antigens in clinically stable renal transplant patients. Peripheral blood samples from a cohort of 30 living related renal transplant recipients were studied. Group A, included 15 rejection free transplant recipients with stable graft function. Group B, included 15 transplant recipients suffering from chronic graft dysfunction. The proliferative responses of CD4<sup>+</sup> and CD8<sup>+</sup> T cells in the presence and absence of CD25<sup>hi</sup>CD4<sup>+</sup> T cells was assessed by targeting the loss of CFSE staining from dividing cells in mixed lymphocyte co-cultures. Flow cytometry Phenotyping revealed a higher absolute number of CD25<sup>hi</sup>CD4<sup>+</sup> cells in Group A as compared with Group B (p=0.019) with difference to those detected in healthy volunteers (P=0.084). In CFSE_MLR assay, depletion of CD25<sup>hi</sup>CD4<sup>+</sup> in rejection free patients (group A) samples, showed active regulation in 11 (74%) of 15 assays to donor stimulatory cells but not third party control. In chronic rejection patients (group B), depletion of CD25<sup>hi</sup>CD4<sup>+</sup> failed to show any regulation response in all of 15 assays. CFSE assay enabled a detailed evaluation of the regulatory function of CD25<sup>hi</sup>CD4<sup>+</sup> T cells in long term renal transplant recipients. CD25<sup>hi</sup>CD4<sup>+</sup> T cells in the peripheral blood of renal transplant recipients’ mediated specific regulation towards donor allo-antigens and not the third party controls.

OP 137
LONG-TERM PROTOCOL BIOPSY IN LIVE DONOR RENAL ALLOGRAFT RECIPIENTS: SINGLE CENTRE EXPERIENCE

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The value of protocol biopsy as an important strategy in renal transplantation for assessing the histological changes regardless of graft function was previously explored through short-term studies. We aimed to assess its importance on a long-term basis. Protocol biopsies were done for 120 live donor renal transplant recipients with well functioning grafts and no-rejection history. The histopathological findings using chronic allograft damage index score (CADI) and barff classification were correlated with different parameters including the recipient’s and donor’s age and sex, donor-recipient relationship, degree of HLA matching, pretransplant hypertension, primary immunosuppression, presence of post transplant complications as hypertension and post transplant diabetes mellitus. Chronic tubulointerstitial fibrosis was the most prevalent finding being present in 75% of cases mostly mild degree. Normal biopsies were found in only 7.5% of cases whereas chronic cyclosporine nephrotoxicity was detected in 5.8% of biopsies. Hypertension was significantly correlated with glomerulosclerosis, periglomerular fibrosis and hyalinosis and diabetes with glomerular basement membrane (GBM) thickening, intimal proliferation and glomerular basement membrane thickening. The main risk factors associated with high CADI score were DR mismatching and posttransplant diabetes mellitus. All histopathological changes increase with advancing of donor age and declining graft function. Protocol biopsy showed that histopathological findings do exist even with normal renal function that may pave the way for predicting the long term graft outcome.
OP 139
DOES DONOR NEPHRON MASS HAS ANY IMPACT ON GRAFT SURVIVAL?
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Functioning nephron mass (number of nephrons in grafted kidney) is one of the nonimmunologic factors that may have some impact on long-term graft survival. The aim of this study was to evaluate the impact of donor nephron mass on recipient graft outcome. During 1989 – 2005, 1000 renal transplants were carried out at our center. 217 of them were studied and followed for an average of 8 years. All patients received grafts from living donors. Weight of grafted kidney (donor nephron mass) and also recipient BMI were measured at the time of operation in all cases. Nephron mass index (NMI) was defined as the ratio of donor’s nephron mass to recipient’s BMI. This ratio was calculated for all 217 cases. Associations between variables was tested by logistic regression and Pearson correlation. The analysis was performed with the SAS system and Splus statistical software. To evaluate the graft function, serum creatinine, acute and chronic rejection episodes were determined. Mean NMI was 8.07 ± 0.2 and mean creatinine level was 1.43 ± 0.4 mg/dL. There were 32 cases (14.7%) of acute rejection, managed successfully with antithymocyte globulin (ATG) in 28 cases. Four patients lost their graft. There were five cases of graft loss due to chronic rejection. Using Pearson correlation, we found no association between NMI and acute rejection, logistic regression showed significant relation between NMI and acute rejection (p < 0.05), with odds ratio of 2.0. There was no significant correlation between NMI and chronic rejection. The less NMI, The higher acute rejection. However, in long term, no significant correlation between graft survival and NMI was found. Also, mean creatinine level was not significantly different in patients regardless of their NMI was found.

OP 140
ESTIMATION OF CHRONIC REJECTION IN KIDNEY TRANSPLANT PATIENTS OF SHAHID LABAFI-NEJAD MEDICAL CENTER FROM 1984-2003 USING AN ETERNAL WEIBULL REGRESSION
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1UNRC, 2Shaheed Beheshti University Of Medical Sciences, 3Tehran University Of Medical Sciences, IRAN

Estimation of Chronic rejection in kidney transplant patients of Shahid Labafi-nejad Medical Center from 1984 to 2003 using an eternal Weibull regression: A historical cohort study. B. Golestan, SM Hosseini Moghaddam, M Nafar, K Rennolls, K Mohammad Urology Nephrology Research Center. Shaheed Beheshti University of Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran We estimated the chronic rejection in kidney transplant patients using an eternal Weibull regression. In this historical cohort study, we enrolled all patients with chronic renal failure admitted in Shahid Labafi-nejad center from 1984 to 2003. The basic assumption regarding survival analysis is that given enough time all cases will experience the event of interest; however, there are situations like renal transplantation where this assumption is not necessarily met and hopefully a considerable percentage of cases will never experience chronic rejection and remain eternal according to this event. As a result, the survival function needs to be modified according to this eternal proportion. We used Weibull distribution and estimated the survival function in the unmodified and modified forms. We also applied the modification in the regression form. Using Mat. Lab. 7.0 to estimate the model parameters, we considered the eternal proportional a logistic-type function of the covariates. The chance of chronic rejection was almost 2-fold among those who received kidney transplant before 1996. (exp (0.67=1.95)). Males had a chance of rejection 20% less than females (exp=0.23). Considering the eternity, Weibull model was again fitted to cases who received renal transplants after 1996. Using mycophenolate mofetile, treatment protocol was changed after 1996 expecting less chronic rejection; thereafter, the eternal proportion was estimated to be 0.81. This seems quite reasonable as a percentage of non failure cases. Providing a non zero eternal proportion, the modified model will be superior to the unmodified model.

OP 141
TACROLIMUS LYMPHOCYTE VS BLOOD TROUGH LEVEL MONITORING IN DENOVO KIDNEY TRANSPLANT PATIENTS: CLINICAL RELEVANCE
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Compare the clinical relevance of two distinct immunosuppression therapy monitoring techniques Tacrolimus (TAC) lymphocyte (LT L) and blood trough levels (BT L) in Denovo kidney transplant patients. TAC LT L and BT L were determined simultaneously in patients with biopsy-proven graft dysfunction (6) and in patients (15) with normal graft function (NORM). Clinical outcome and lymphocyte count were compared according to TAC LT L, BT L, and dosage. Rejecting (REJ) patients (9%) exhibited lower TAC LT L than the NORM (2.3±0.7 pg/Lc vs 4.6±3.1 pg/Lc, P<.003) and had comparable values to those (2.0±2.1 pg/Lc) with nephrotoxicity (TOX) (23%), despite similar TAC BT L (12.0±3.8 µg/mL, 12.8±4.7 µg/mL and 11.5±2.5 µg/mL) respectively. TAC dosage was higher in the REJ group (0.21±0.03 mg/Kg) as compared to either NORM (0.17 ± 0.04 mg/Kg, P<0.02) or TOX (0.18±0.05 mg/Kg, P<0.04) one. NORM patients had lower lymphocyte count (0.000887±675 x 10^9/L) when compared to the REJ (0.00131±390 x 10^9/L, P<.05) and TOX (0.00218±935 x 10^9/L, P<0.001) ones. TAC LT L but not TAC BT L strongly correlated with the lymphocyte count (R²=0.99, P) in an exponential fashion. These results suggest that TAC LT L exhibits a stronger
OP 142
DESENSITIZATION OF HIGHLY DENSITISED POSITIVE DONOR-SPECIFIC CROSSMATCH IN CRF PATIENTS WAITING FOR SECOND KIDNEY TRANSPLANTATION

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Preformed anti-HLA antibodies due to previous kidney transplantation, reported as panel reactive antibodies (PRA), prolong patients waiting time for kidney transplantation. Combined plasma exchange (PE), cyclophosphamide and alemtuzumab can safely and persistently convert the positive donor-specific crossmatch to negative via depletion of T and B lymphocytes as well as amilioration of the immunogenic nature of the newly formed cells. Twenty one CF patients waiting for their second kidney transplantation having 100% positive PRA for class I and 7-54% positive PRA for class II together with repeated positive donor-specific crossmatch for total allogenic lymphocytes at different temperatures. Three every other day sessions of 2 liters of plasmapheresis and one gram of cyclophosphamide after the first session only and 150 mg/kg of intravenous immunoglobulins (IVIG) after every session of PE. A fourth PE session followed by IVIG and 20 mg of alemtuzumab just before the operation and another 20 mg of alemtuzumab on day one postoperatively. Immunologic selection criteria included that the new donor should have the same matched DR allele of the previous donor and to avoid all class I antigens as well as the mismatched DR of both recipient and donor for all cases. Immunosuppressive protocol included cyclophosphamide, MMF and steroids. No appreciable changes in PRA was noticed in all patients but donor-specific anti-HLA antibodies class I and class II converted to negative at different temperatures. Crossmatch at days zero, 7,30 and 100 were all negative in all patients. Serum creatinine at day zero, 7,30 and 100 were 7.4, 1.94, 1.14 and 1.12 mg/dl respectively. Total lymphocytic count at days zero, 7,30 and 100 were 7.3%, 8.4%, 10.3% and 10.6% respectively. No graft losses, no serious infections and their postoperative events were smooth. PRA role in second kidney transplantation is overestimated. Plasma exchange and the combination of IVIG, cyclophosphamide and alemtuzumab can safely and persistently deplete and amiliorate the immunogenic nature of the newly formed lymphocytes.

OP 143
SIROLIMUS EXPERIENCE AT A SYRIAN KIDNEY TRANSPLANT CENTER


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Sirolimus is a new immunosuppressive agent. This study aimed to evaluate the efficiency and safety of sirolimus in patients after renal transplantation. We reviewed the clinical follow-up of patients transplanted at our center using sirolimus protocols. From Feb 2001 to Dec 2003, 40 renal transplant patients were treated with sirolimus in different combinations and settings with mean follow-up of 14 months. 20 patients (group A) were treated with Sirolimus-cyclosporine-steroid regimen and cyclosporine withdrawal at 3 months post-transplant, 10 patients (group B) were treated with Sirolimus - low dose tacrolimus-steroid regimen (with or without induction) and tacrolimus withdrawal at 6 months post-transplant and 10 patients (group C) with progressive chronic allograft nephropathy converted to Sirolimus immunosuppression (mean time after transplantation: 8.2 months). The acute rejections were in 5% of patients (1/20) and 10% of patients (1/10) and renal function at 12 months: mean serum creatinine was 1.3 mg/dl and 1mg/dl for group A and group B, respectively. Sirolimus conversion due to progressive chronic allograft nephropathy (group C) improved serum creatinine from 1.74 +/- 0.32 to 1.42 +/- 0.18 mg/dl. Conclusion: these new strategies in immunosuppression in kidney transplantation are associated with good results in graft and patient survival in year 1, and with better renal function. Therefore, we can hope for better long-term results in transplantation, with a significant increase in the graft and patient survival.

OP 144
ASSOCIATION OF CYCLOSPORINE SERUM LEVELS WITH ACUTE REJECTION AND CYCLOSPORINE NEPHROTOXICITY IN KIDNEY TRANSPLANTATION

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The aim of this study was to determine the association of acute allograft dysfunction during the first 6 postoperative months with serum levels of cyclosporine 12 hours (C0) and 2 hours (C2) after administration. The C0 and C2 levels were recorded in 65 kidney recipients at 1 week and 1, 2, 3, and 6 months postoperatively. These levels were evaluated in association with creatinine rise, acute rejection, and complications. The mean dose of cyclosporine was 451 mg, 350 mg, 275 mg, 235 mg, and 210 mg, at 1 week and 1, 2, 3, and 6 months, respectively. Allograft dysfunction was seen in 30 patients (46.2%) due to acute rejection in 7.7%, cytomegalovirus infection in 4.6%, urologic disorders in 6.2%, and cyclosporine tox-
city in 30.7%. The C0 level was associated with cyclosporine nephrotoxicity (P=.006), but not with acute rejection. The C2 level had no predictive value. Fifty-five (84.6%) patients experienced complications related to cyclosporine and C0 levels was associated with these complications (P=.026). Monitoring of patients who receive cyclosporine by C0 can help us control drug-related nephrotoxicity. The high frequency of cyclosporine side effects while administration of standard doses of drug indicates that we should consider a modification in the basic dose of cyclosporine in our patients.

OP 145
FACTORS INFLUENCING THE BIOAVAILABILITY AND DOSAGES OF IMMUNOSUPPRESSIVE DRUGS

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Drug bioavailability is defined as the rate and extent to which the active ingredient is absorbed from a drug reaching the site of action (receptor or legend) intact. However, due to the inaccessibility of the site of action, the drug level reaching the systemic circulation intact was adopted as a measure of bioavailability. Two agents Mycophenolate Mofetil (MMF), and Sirolimus (RAPA) were introduced as a fixed dose drugs with no need for blood level monitoring. MMF at 3g/day did not offer additional advantage to 2 g/day or 1.5 g/day dose. Moreover the side effects of MMF increased in some patients following cessation of CYA therapy and for an increase in the rate of rejection episodes following the cessation of Tacrolimus (TAC). Monitoring blood levels (BL) in these patients indicated that the concomitant administration of CYA reduces the MMF level while TAC leads to a near doubling of the MMF level. In case of RAPA it was also noticed that its efficacy and side effects were related to blood level. It was also observed that rejection episodes in certain ethnic groups such as African Americans are more frequent than those observed in Caucasians. In order to address the possibility of a universal dosing protocol we have to examine the factors affecting the bioavailability of immunosuppressive agents. We have studied the intra and inter patient variabilities in bioavailability in 693 transplant patients. We have found that the main factors affecting immunosuppressive drugs bioavailability are: 1-Absorption, which is affected by: the vehicle used in the drug, ethnic background, food intake, type of food, forms (solutions vs. capsules), GI infection, bowel movement and tablet coating and drug receptors. 2- Metabolism which is affected by: genetic factors, drug drug interaction, and disease related issues. 3-Elimination: Although elimination is not a major factor in immunosuppressive drug however, it can lead in few instances to deleterious effect especially in liver transplant patients. It is easy to determine these issues in each patient prior to transplantation which leads to a dose tailoring.

OP 146
EARLY LOW DOSE VERSUS HIGH DOSE CYCLOSPORINE A (CSA) INDUCTION PROTOCOLS IN RENAL TRANSPLANTATION

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Current immunosuppressive therapies are very effective in preventing acute rejection (AR) and graft loss following renal transplantation. Never agents now make it possible to develop equally efficacious but better tolerated and less toxic strategies. We compared the efficacy of early low-dose versus high-dose CSA induction therapy in living donor renal transplantation. METHODS: In this clinical trial single-centre study, 90 consecutive recipients of living donor kidney transplants (between November 2002 to October 2003) 51 was female, mean age 48.23 years, were treated either with CSA 5 mg/kg/day plus mycophenolat mofetil (MMF) 30mg/kg/day and prednisolone 1mg/kg/d (group 1, n=42); or CSA 8 mg/kg/day plus MMF 30mg/kg/day and prednisolone 1mg/kg/d/ay (group 2, n=48). Two groups were matched in respect to age, sex, underlying renal diseases, pretransplantation dialysis period, number of transplantation and panel reactive antibody test. CSA dose tapering was initiated in two groups 3 months after transplantation and at the end of first year CSA dose was 3.5±0.65 mg/kg in group 1 and 3.4±0.34 mg/kg in group 2. prednisolone tapered within first two months and reached to 10 mg/day in all patients. MMF dose remained unchanged. Two groups were compared in respect to acute rejection episodes, patients and graft survival and clinical outcomes within two years after transplantation. There were no significant differences between two groups in respect to Clinical outcomes including two years patient survival (97.62% vs 97.92%; P=0.76), two years graft survival (90.48% vs 89.59%; P=0.82), acute rejection episodes (47.61% vs 52.08%; PV=0.09, length of immediate post surgical hospital stay, number of readmissions, total hospitalization days, post transplantation diabetes mellitus and infectious, cardiovascular, gastrointestinal and hematologic complications. There were more hypertension (67.5% vs 50.23% p=0.007), hypertriglyceridemia (45.5% vs 32.64% p=0.005), and elevated liver enzymes (12.5% versus 7.14% p=0.018) in group 2 Compared with 8 mg/kg CSA induction therapy the early low-dose CSA is effective, well tolerated and safe with relatively lower side effects.

OP 147
KETOCONAZOLE-TACROLIMUS CO-ADMINISTRATION IN KIDNEY TRANSPLANT RECIPIENTS: LONG-TERM RESULTS OF A PROSPECTIVE RANDOMIZED STUDY

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Ketoconazole-Tacrolimus-Transplantation Abstract In developing countries, kidney transplantation is greatly hindered by financial
problems, especially due to costly newer immunosuppressive medications. Ketoconazole increases blood levels of tacrolimus and cyclosporine through inhibition of cytochrome P450 microsomal enzymes. We previously reported on the 6-month safety and the outstanding impact on treatment costs of ketoconazole-tacrolimus combination in kidney transplant recipients. Data about this combination are still lacking in the literature. We hereby report on the long-term results of our trial. This prospective, randomized study included 70 live-donor kidney transplant recipients receiving tacrolimus (age 16-45 years, 54 males and 16 females). Patients were randomized into two equal groups: group I, for whom ketoconazole 100 mg/day was added, and group II (control group). After 2 years, group I (ketoconazole) patients were still showing a highly significant reduction of tacrolimus dose (by 53.8%) and cost (by 52.9%) compared with control group (P<0.001) and a significant improvement in graft function in comparison to their own initial graft function (P=0.002). Altogether 2 years, no side effects for ketoconazole were noted. We conclude that long-term ketoconazole–tacrolimus combination in kidney transplant recipients is safe, has an outstanding impact on treatment costs and improves graft outcome.

OP 148
BIOAVAILABILITY OF A NEW GENERIC FORMULATION OF MYCOPHENOLEATE MOFETIL MMF 500 (LES LABORATORIES DES MEDICAMENTS STERILE MEDIS TUNISIA) VS CELLCCEPT (R)
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Several studies have revealed a definite decrease in the incidence of early graft rejections with the use of MMF. The cost of the drug is, however, prohibitively expensive in developing countries with limited resources. We have compared the pharmacokinetic profile of the new MMF generic formulation MMF 500 Batch number: 0673001 (Medis Tunis) with that of CellCept, Batch number: M1427 (Hoffmann La Roche, Switzerland) in healthy volunteers. The study was double blind (investigator and volunteers), balanced randomized, two-treatment, two-period, two-sequence, single dose, crossover, comparative oral bioavailability study in adult human healthy volunteers. The study was designed, carried out and monitored by the CRO TransMedical s.a.l (Beirut Lebanon) in accordance with the Basic Principals defined in the U.S. 21 CFR Part 312.20, and the principals enunciated in the World Medical Association Declaration of Helsinki. Non-smoking healthy, volunteers, between the ages of 22-45 years, were included. The subjects were admitted to “Hospital” Abou Jaoude Hospital, which is accredited by both the Australian and Lebanese governments, one night prior to blood sampling. All volunteers received the same dinner and were fasted overnight and for 2 hours post dosing. At 8 AM each received a single oral dose of 500 milligrams of either formulation. Blood samples were collected to construct the pharmacokinetic profiles as follows: 0, 0.15, 0.30, 0.45 minutes and, 1, 1.15, 1.30, 2, 4, 6, 10, 12, and 24 hours. Water and food intake was the same for all volunteers during the whole study period. Following 8 days wash out period the subjects were crossed over. Plasma Mycophenolic acid (MPA) concentration was determined using an HPLC validated ELIZA based method (TransMedical, Beirut Lebanon). Physical examinations, hematology, urine analysis, serum chemistry tests and liver enzymes were performed at screening and at the end of each period. Subjects were monitored for safety and adverse events throughout the study by two physicians (one from the hospital and one from TransMedical). The Cmax, T max and AUC for MMF 500 were 10.14 ng/ml, 51.82 minutes and 18.33 ng/ml/h vs. 10.94 ng/ml, 49.09 minutes and 17.46 ng/ml/hour for CellCept respectively which makes the 90% confidence interval (LSM) of Cmax, T max and AUC for MMF 500 to be 92.7%, 105.6% and 105% respectively which is within the FDA assigned range for immunosuppressive drugs (90-111%). These results indicate the both products are equivalent and switchable according to the FDA rulings.

OP 149
OMISSION OF INTRAVENOUS CYCLOSPORINE FROM THE LIVER TRANSPLANTATION IMMUNOSUPPRESSIVE REGIMENT: A PROSPECTIVE COMPARATIVE STUDY
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Cornerstone of immunosuppresion in liver transplantation is cyclosporine. However, it has nephrotoxicity particularly with intravenous administration. We undertook this study to omit “intravenous” cyclosporine from immunosuppressive regimen. In a prospective-comparative design, two groups of patients with different immunosuppressive regimens were compared. Group I contained 26 cases (mean age 21 yr) who received methylprednisolone (0.5-1g) IV for 3 days post OP, Cyclosporine A (1-2mg/kg/d) IV was started for 2-3 days and then changed into oral form. Furthermore, Azathioprine (0.5-1mg/kg/d) was added to the regimen. Group II contained 46 (mean age of 33.1) patients receiving methylprednisolone 0.5-1g IV for 3 days, and Cyclosporine A (3-5mg/kg/d) according to urine output with mycofenolate mofetil (1-2g/d) orally or via NG tube. There was no difference between the mean AST, ALT, and Alkaline phosphatase values (P=0.069). However, AST and ALT reached normal levels on day 7 in group I and on day 8 in the other group. Mean cyclosporine A levels (day 1-14) were 181.4 mg/dl in group I versus 102 mg/dl in group II. Target cyclosporine A levels (100-150 mg/dl) were obtained on day 3 in group I and on day 5 in group II. Mean BUN in group I (33.8 mg/dl) was considerably higher than group II (28.4 mg/dl, P=0.037). The same was true for second week post Op creatinine. Two patients in group I underwent hemodialysis, but none in group II did, despite the lower mean age of group I. Graft rejection in group I occurred more frequently (P<0.05). Methyl prednisolone, oral cyclosporine, and mycophenolate mofetil is a safe regimen and omits the risk of severe nephrotoxicity of
intra venous cyclosporine A. Although target level of cyclosporine A is obtained later than IV route, rejection rate is considerably lower, probably due to added mycophenolate mofetil to the regimen.

**OP 150**

**CLINICAL EXPERIENCE OF RAPAMYCIN AS A RESCUE THERAPY IN CHRONIC ALLOGRAFT NEPHROPATHY**

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The established antiproliferative and non-nephrotoxic activity of sirolimus has been exploited in the treatment of patients with chronic allograft nephropathy (CAN); therefore conversion from calcineurin inhibitors (CNIs) to sirolimus has become an option in patients with CAN. The aim of the present retrospective study was to analyze the effects of sirolimus as rescue therapy whilst withdrawing CNIs in renal transplant recipients primarily presenting with CAN.

Methods. We assessed long term efficacy and safety parameters in 21 renal transplant recipients who were switched from a CNI (cyclosporin A, 67%; and tacrolimus, 37%) to sirolimus for either CNIs nephrotoxicity (n=18) or chronic rejection (n=2) or CNI- induced insulin-dependant diabetes mellitus (n=1). A kidney biopsy was done in 10 patients prior to conversion. Conversion was either abrupt or progressive, with CNI withdrawal over 4 weeks. All patients also received steroids with mycophenolate mofetil. Patient data were recorded at baseline (D0), at 1 month (D30), and at 3 months (D90) post conversion and lastly at the time of conducting this study which comes after a mean period of 23 months post-conversion. GFR was calculated using Cockroft-Gault formula. Sirolimus therapy was started 10 months (1.5-38) after transplantation. After a mean post-conversion follow-up of 23 months(2-39), 17 patients (81%) were still on sirolimus. Patients and graft survival was 95% and 81%, respectively. Creatinine clearance increased from a mean baseline of 54(18-91) to 66ml/min/1.73m² at D30, and to 70ml/min/1.73m² at D90, and to 73ml/min/1.73m² after a mean post-conversion period of 23 months. Thus the mean improvement of renal function at the end of follow-up was equal to 19ml/min/1.73m² compared to the baseline GFR. We divided our patients into two groups: responders (n=17), those with an increase in creatinine clearance at 3 months post-conversion compared with D0, and non-responders (n=4), those with a decrease in creatinine clearance at 3 months post-conversion compared with D0. Factors predicting of response included serum creatinine of less than 3mg/dl prior to conversion. The conversion was associated with (i) decreasing serum creatinine in 81% of the entire patients, (ii) the appearance of de novo proteinuria of >0.5g/day in 43% of patients, (iii) decreased hemoglobin level in 57% of patients at 3 months post-conversion. Conversion from CNIs to sirolimus in renal transplant patients with chronic allograft nephropathy was associated with improved renal function; however, 43% of patients developed overt proteinuria, calcineurin inhibitor, sirolimus, chronic allograft nephropathy, anemia, proteinuria.

**OP 151**

**INADEQUATE CYCLOSPORINE EXPOSURE: LINK WITH CHRONIC REJECTION IN MALNOURISHED RENAL TRANSPLANT RECIPIENTS**

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Malnutrition has hazardous effects in renal transplant recipients (RTRs). We evaluated the impact of serum trough cyclosporine A (CsA) levels (C0) on outcomes after renal transplantation in malnourished RTRs.

Methods: In total, 123 RTRs were included. Demographic, clinical, and laboratory data were obtained from hospital records retrospectively. The body mass index (BMI) for each recipient’s first year posttransplantation were calculated; group 1: BMI <18.5 kg/m² (n=19), group 2: BMI ≥18.5 kg/m² (n=104). All patients received a regimen of prednisone, CsA and azathioprine /mycophenolate mofetil. In 1st post-transplant year, C0 was significantly lower in group 1 than in group 2 (p:.03). Five-year chronic rejection (CR) rate was significantly higher (63.2% vs 26.0%, p: .003) in group 1 than in group 2. In univariate regression analysis, low C0 (OR: 0.991, 95% CI: 0.986-0.997, p: .002) and low BMI (OR: 0.205, 95% CI: 0.073-0.573, p: .003) were associated with increased risk of CR. In multivariate analysis, C0 (OR: 0.993, 95% CI: 0.987-0.999, p: .039) and BMI (OR: 0.821, 95% CI: 0.696-0.968, p: .019) were related with CR. Conclusion: inadequate CsA exposure predisposes to CR and strict adjustment of CsA dosing to achieve desired laboratory ranges is essential to decrease CR rate in malnourished RTRs.

**OP 152**

**EARLY VERSUS LATE LONG-TERM FOLLOW UP OF 100 HIGH RISK RENAL TRANSPLANT RECIPIENTS CONVERTED FROM CALCINEURINE INHIBITORS TO SIROLIMUS**


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Conversion of stable renal transplant recipients (RTR) from calcineurin inhibitor (CNI) to sirolimus (Sir) is safe and effective. To study the effect of early and late conversion of high risk RTR maintained on CNI, mycophenolate mofetil (MMF) and steroid (St) to Sir, MMF and St regimen on the graft and patient outcome.

Materials and methods: The first 100 subjects converted to Sir in our center were prospectively observed. The main reasons for conversion were rejection, CNI toxicity CNI elimination and ATN. Mean follow up period was 45.3 months. Forty five subjects started Sir within one month of transplantation (mean 0.5 months) (group A). Fifty five subjects started Sir later (mean 21.9 months) (group B). Proteinuria >2gm/day, leucopenia and hyperlipidemia...
increased significantly after conversion. There was significant improvement in serum creatinine and creatinine clearance (p0.0001). The patient and graft outcome was 95% and 90% respectively. There were higher incidence of oedema and lymphocele in group A (p0.0001). There were no other significant differences between both groups in the demographic features or graft and patient outcome. Early and late conversion from CNI to Sir is safe and effective in high risk RTR during long-term follow up.

OP 153
ATTITUDE OF PHYSICIANS TOWARD THE FOLLOW-UP OF RENAL TRANSPLANT PATIENTS
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The goal of this study was to evaluate the attitude of the physicians towards the follow-up of the renal transplant patients in the Kingdom of Saudi Arabia (KSA). We sent a questionnaire to 168 physicians working in 148 active dialysis centers in the KSA. The study was conducted from June-October 2005. There were 140 physicians (83.3%) who answered the questionnaire; they represented 136 (91.9%) dialysis centers. There were 43 (31.2%) respondents who had a transplant clinic for follow-up of transplant recipients. Of the 96 (69.1%) who did not have a clinic, 29 (30.2%) claimed expertise for follow-up of transplant recipients, six (6.2%) had a laboratory set-up to monitor the immunosuppressive drug levels and 40 (44.4%) felt the need for one. There were 121 (89%) respondents who would consider the chronic renal failure (CRF) patients for transplantation because it is the best form of therapy. Seventy-seven respondents (55%) had a protocol for work-up of the CRF patients for transplantation, 31 (22.3%) had a coordinator for the work-up of the transplant candidates, 34 (24.5%) had regular meetings to decide on the waiting list for transplantation, and 51 (37.8%) had affiliation with, or worked at a transplant center. Nevertheless, 127 (90.7%) respondents believed that the results of renal transplantation were good in the chronic renal failure (CRF) patients for transplantation because it is the best form of therapy. Seventy-seven respondents (55%) had a protocol for work-up of the CRF patients for transplantation, 31 (22.3%) had a coordinator for the work-up of the transplant candidates, 34 (24.5%) had regular meetings to decide on the waiting list for transplantation, and 51 (37.8%) had affiliation with, or worked at a transplant center. 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Nevertheless, 127 (90.7%) respondents believed that the results of renal transplantation were good in the chronic renal failure (CRF) patients for transplantation because it is the best form of therapy.
We review our experience on kidney transplantation from cadaver donors in our center for the past 5 years. Between July 2000 – September 2006 we had 61 cases of brain dead patients, from whom 122 kidneys were harvested and transplanted to 114 recipients in our center. All cadaver donors were brain dead with mean age of 22.3 years (range: 5-56 years). Mean ischemic time was 3.1 hours (range: 1-18 hours). The mean distance between harvesting center and our center was 65 kilometers (0-400 km). In the recipients although 85% of cases produced urine immediately after transplantation and in the remaining it took up to 14 days but longer follow up is not completely available because surveillance for some of these patients has been done in other centers and neighboring provinces but according to our nephrology department data base 62 of these 114 recipients including three who received enblock kidney transplantation (totally 65 kidneys) receive their immunosuppressive therapy at our center without requiring to dialysis. After transplantation Mean follow up time of these patients were 3.5 years (range: 5-60 mo). As all of the 62 patients who had adequate follow up had excellent graft function, the 3 years graft survival is at least 55% assuming that all of the other 52 patients who lost to follow up had no graft function. It can thus be presumed that 3 years graft survival in all of 114 patients is much higher than this 55 % figure. Cadaveric donors in developing countries including Iran can be an excellent sources of organ donation.

OP 158
HEAT INACTIVATION OF Ig M ANTIBODIES IN RENAL CROSS MATCH

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For successful renal transplantation, the recipient should not have donor specific Ig G antibodies (DSA). Ig M is inconsequential. Therefore the technique for renal cross match (XM) should be able to differentiate between Ig G and Ig M antibodies. Ordinarily three methods are available viz (a) flowcymetry cross match (FCXM) (b) Dithiothreitol (DTT.XM) and heat inactivation (H.I.XM).

METHODS: This study is based on 300 cases for whom renal XM was performed during the year 2004 with all three techniques. Efficiency of H.I.XM to differentiate between DS Ig G and Ig M
was evaluated against the other two techniques and the outcome of renal transplantation. H.I.XM was done using two patient sera. One normal (N.XM) and the other is heat inactivated (H.I.XM). H.I is done by incubating patient serum at 63 °C for 10 minutes. Cases with positive N.XM, negative H.I.XM were reported as negative XM. In the last year we had 50 cases of positive C2 XM. Thirty nine became negative after heat inactivation while 11 remained positive. While only 34 cases became negative after DTT. XM and 16 remained positive. H.I.XM was exactly comparable with FCMC. No hyperacute, accelerated or acute rejection (within 3 months) happened after transplantation of these 39 cases. Our study shows that H.I.XM is highly effective in excluding DS Ig M antibodies. Not only that the results of H.I are fully comparable with FCMC that detects only Ig G DSA, but also all the patients testing negative with this technique had successful renal transplantation. H.I that is simple, cheap, speedy, and easy to perform and does not involve any extra-equipments or cost is highly recommendable.

**OP 159**

SERUM T-LYMPHOCYTE CYTOKINES CAN NOT PREDICT EARLY ACUTE REJECTION IN RENAL TRANSPLANTATION

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Despite numerous studies, the precise role of Th1 / Th2 cytokines in acute renal allograft rejection (AR) remains unclear. Methods: Serum Th-1 [interleukin- (IL) 2 and interferon-gamma] and Th-2 (IL-4, IL-10) cytokines concentration in 60 consecutive living donor kidney transplant recipients (40 male, mean age 38.82), with (group1) and without (group 2) episodes of AR (in first month after transplantation) were measured on the day before, 7th and 14th day post transplantation using ELISA. Twelve AR was diagnosed among patients (20%). The mean concentration levels for the groups with (G1) and without (G2) AR were: IL-2 pretransplant 12.64±4.11 vs 15.86±4.57 pg/ml, respectively (p=0.382); IL-2 on 7th day posttransplant, 11.23±3.2 4 vs 14.66±4.23pg/ml, respectively (p=0.651); IL-2 on 14th day post-transplant 9.56±2.32 vs 10.73±3.14pg/ml, respectively (p=0.443); IL4 pretransplant 20.23±6.63 vs 19.35±5.44 pg/ml (p=0.431); IL4 on 7th day post transplant 24.54±7.24 vs 27.74±10.43 pg/ml (P=0.462); IL4 on 14th day post transplant 18.45±5.13 vs 17.32±4.32 (P=0.564); IL10 pretransplant 9.82±3.32 vs 14.±4.46 pg/ml, respectively (p=0.664); IL10 on 7th day posttransplant, 7.55±3.51 vs 9.6±3.22 pg/ml, respectively (p=0.654); IL10 on 14th post transplant 10.23±4.12 vs 12.21±3.65 respectively (p=0.436); IFNγ pretransplant 1.66± 0.87 vs 2.14±0.94 (pg/ml) respectively (p=0.722); IFNγ on 7th day post transplant 1.44±0.53 vs 1.45±0.24 (pg/ml) respectively (p=0.413); IFNγ on 14th day post transplant 1.27±0.36 vs 1.63±0.43 (p=0.322). These data shows that there is no correlation between Th1/ Th2 serum cytokines profile and early AR episodes in living donor kidney transplantation.

**OP 160**

CHARACTERISTICS OF KIDNEY TRANSPLANT RECIPIENTS WITH STEROID RESISTENT ACUTE CELLULAR REJECTION

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Steroid-resistant rejection (SRAR) is defined as a lack of improvement of the creatinine concentration within 5-7 days after treatment. The aim of this work is to study the factors that lead to SRAR in first donor renal allograft. Out of 1691 renal transplant patients, 207 patients who experienced AR were selected for this retrospective study. Exclusion criteria included patients with antibody mediated rejection. Enrolled patients were compared with those experienced steroid responsive AR for demographic data, history of blood transfusion, degree of HLA matching, donor source; ischemia time; 1 year immunosuppressant, acute tubular necrosis. Basal, peak and post treatment serum creatinine were evaluated for the studies patients in relation to the SRAR episodes. In our study the incidence of SRACR was 15.3%. We did not find that recipient and donor age and sex, donor source, degree of HLA matching, use of induction therapy has no effect on developing SRACR. We observed that >70% of cases developed SRAR within the first month of transplantation and this was correlated with pre-transplant blood transfusion and low CSA trough level. With the use of monoclonal antibodies, plasmapheresis and/or use of rescue therapy there was no difference in the graft outcome when compared to steroid responsive acute rejection episodes. Steroid resistant acute cellular rejection is relatively common after kidney transplantation. Frequent blood transfusion, use of low sub therapeutic doses of CSA could be risk factors for it. Good evaluation and management may help the outcome in these patients.

**OP 161**

SUCCESSFUL ALL PREGNANCIES POST RENAL TRANSPLANTATION

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Objectives: The dream to be pregnant in chronic renal failure women of child bearing age after renal transplantation has become reality. Our aim was to evaluate the graft, maternal and fetal outcomes in renal transplant recipient who became pregnant from 1989 to 2005 in our center. Methods: We retrospectively analyzed 20 pregnancies in 12 renal transplant recipients from data of the hospital records and outpatient questionnaire. Results: Twelve patients (19 %) of our renal transplant females of child bearing age became pregnant. Mean age at pregnancy was 30.5±4.5 years and mean interval from transplantation to pregnancy was 21±5.7 months. Mean serum creatinine (SCr) before...
Oral Presentations

Oral Presentations

OP 162
THE IMPACT OF BILATERAL NEPHRECTOMY IN BLOOD PRESSURE PATTERN AND CONTROL IN RENAL TRANSPLANT PATIENTS.

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Severe hypertension prior to renal transplantation has traditionally been an indication for bilateral nephrectomy (BN). Nevertheless the impact of BN on the prevalence of hypertension after successful renal transplantation has not been well documented. Purpose: to clarify the effect of bilateral nephrectomy on blood pressure pattern and control in renal transplant patients. Materials & Methods: We retrospectively reviewed 24 patients who underwent native nephrectomy between November 97 and January 06, 22 of them were under treatment with antihypertensive medications according to the international guidelines. Out of the 24 cases 15 operated for resistant hypertension, named group 1 (G1), 9 patients with indications other than hypertension collected in group 2 (G2). Nephrectomy was done either simultaneous, before or after transplantation. All patients received triple immunosuppression according to the local protocol, calcineurin (CNI), mycophenolate mofetil (MMF) or azathioprine, and prednisolone. Antihypertensive therapy was evaluated before and after BN. Acute rejections (ACR) as well as CNI nephrotoxicity episodes were recorded.

Results: In G1 mean age was 30.2 years (range 10 to 62), 5 patients had acute rejection episodes (33.3%) and 3 episodes of CNI nephrotoxicity (20%); in G2 mean age was 33.67 years (range 11 to 61), 2 patients had ACR episodes (22%), and two had CNI nephrotoxicity (22%). Patients in G1 used (3.6+1.05) (mean+/SD) antihypertensive drug/day before BN, which is significantly higher than in the G2, (2.0+1.29) drugs/day in G2. After BN in G1 the difference is sustained at one year with further reduction of the antihypertensives at three years (1.46+1.33) drugs/day. Statistical significance difference between figures before and after BN in G1 was found only at three years (p=0.008). No Statistical significance between G1 and G2 after BN. In G2 Number of drugs shows an insignificant difference of (2.2+1.49) at one year, and (1.62+1.30) drugs/day at three years. Conclusion: We concluded that BN in renal transplant patients could result in better control of resistant hypertension, and its complications are within acceptable ranges.

OP 163
PRETRANSPLANT SYSTOLIC BLOOD PRESSURE IS PREDICTIVE OF RISK OF DELAYED GRAFT FUNCTION IN YOUNG LIVING-RELATED RENAL ALLOGRAFT RECIPIENTS

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Delayed graft function (DGF) has been associated with decreased long-term renal allograft survival and mechanisms behind DGF has yet to be fully elucidated. We aimed to determine possible risk factors for DGF in young living-related renal allograft recipients. We retrospectively analyzed the outcomes of 142 renal transplant recipients (115 male, 27 female; mean age, 29.7 ± 9.43 years; 116 living-related, 26 cadaveric). Data were recorded included sex; age at transplantation; lipid profile; females donating to male recipients and vice versa; pretransplant dialysis duration; body mass indexes; number of human leucocyte antigen mismatches; panel reactive antibodies; donor creatinine clearance; donor and recipient body weights; systolic and diastolic blood pressures; and biochemical parameters. Cadaveric donor (P<0.000, OR=17.556, CI, 5.961-51.743) and recipient systolic blood pressure (<120 mm Hg, P<.021, OR=3.600, CI: 1.214-10.672) are possible risk factors for DGF. When only living-related recipients were considered, lower systolic blood pressure was significantly associated with DGF. Pretransplant systolic blood pressure levels below 120 mm Hg is a risk factor for DGF. Preoperative blood pressure control and intervention may help to decrease the risk of DGF.

OP 164
A CASE OF PLASMA CELL-RICH ACUTE REJECTION, DIFFICULT CHALLENGE AND SUCCESSFUL STORY

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Graft rejection is usually mediated by T cells. Cellular rejection with predominant plasma cell infiltrates is rare but associated with poor prognosis. 35 year old male underwent live unrelated kidney transplantation 3 years ago in Egypt with basal Serum Creatinine (S.Cr)
Patient was discharged with S.Cr. of 186 µmol/l. He has remained on Tacrolimus (FK506) to achieve target level between 7-10 ug/dl. Immunosuppression was switched from Cyclosporine (CyA) to Methylprednisolone 250mg IV bolus was given for three days. His diagnosis of Plasma Cell-rich Acute Rejection (PCAR) Banff type 1A was made, Polyoma virus (BKV/JCV) were not detected in the biopsy. Diagnosis was negative for cytomegalovirus (CMV) and Epstein-Barr virus (EBV). Post-transplant lymphoproliferative disorder (PTLD) and staining was negative for viral inclusions. The Immunohistochemistry studies excluded possibility of inflammatory infiltration without evidence of vascular rejection or viral infection.

OP 165
UROLOGIC COMPLICATION RATES IN KIDNEY TRANSPLANTATION AFTER A NOVEL URETERAL REIMPLANTATION TECHNIQUE

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A total of 1594 renal transplantations have been performed by our transplantation team since 1975. Initially, modified Politano-Leadbetter technique was preferred for the first 300 cases, till 1983. Then the technique was changed to extravesical Lich-Gregoir in combination with temporary ureteral stenting in consecutive 1141 patients. After September 2003, we began to use a novel ureteral reimplantation technique which we called “corner-saving technique”. The aim of this study is to evaluate the urologic complication rates of kidney transplant recipients during this period. This technique have been used for ureteroneocystostomies in the last 153 (111 living related, 42 cadaver) renal transplantations. The mean recipient age was 31.6 years (range, 7 to 67), and the mean donor age was 39.8 years (range, 6 to 67). The technique that we have described previously, has certain advantages of safe anastomosis opportunity by using a single 6-0 monofilament polydioxanone suture material without a need of using any kind of stents. It also simplifies the ureteral reconstruction even for small-caliber ureters removing the risk of taking stitch bites from the posterior wall. Only four (2.6%) ureteral complications (two ureteral stenosis and two anastomotic leaks) were observed during a follow-up period of 16.9 months. In patients with ureteral stenosis, temporary nephroureterecystostomy catheters were placed after performing a balloon dilatation. In the other patients, the ureteral leakages were also treated by percutaneous nephrostomy. In conclusion, we propose this modified technique with above mentioned advantages and very low complication rates.

OP 166
LAPAROSCOPIC DONOR NEPHRECTOMY: SINGLE CENTER EXPERIENCE WITH 400 CASES

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Laparoscopic donor nephrectomy is becoming the standard of care in many transplant centers. In this study we present our experience and evaluate the outcome of donors and recipients done in our center. Between March 2003 and August 2006, 400 cases of laparoscopic donor nephrectomy were performed in our institution. Donors were evaluated as regards renal vasculature using CT renal angiography. We used the left kidney in 329 patients and the right kidney in 71 cases. All cases were performed trough transperitoneal route. We used three trocars on the left side and 4 trocars on the right side to perform the surgery. Kidney was extracted manually through a 7 cm Pfennestiel incision. All cases were completed laparoscopically with no open conversion. The mean operative time was 117±34 min. The mean blood loss was 56±28 cc, and none of the donor required blood transfusion. The mean warm ischemia time was 2.6±0.4 min. The mean renal artery length was 3.1±0.4 cm. The mean renal vein length was 2.4±1.2 cm. The mean ureter length was 14.3±2.1 cm. Donors were discharged on second post-operative day. None of the donors required readmission. Kidneys were transplanted successfully and mean creatinine of the recipient on discharge was 1.2±0.6 mg/dl. One patient had renal artery thrombosis on post-operative day 2. One other patient with double renal arteries had thrombosis of the smaller artery just after the anastomosis. Seventeen patients had ATN and four of them required dialysis. Kidney function recovered thereafter in all of them. Laparoscopic surgery is a minimally invasive approach for live donor nephrectomy with good functional outcome. Donor benefits from lesser morbidity without compromising the anatomical or physiological outcome of the nephrectomized kidney.

OP 167
RIGHT LAPAROSCOPIC DONOR NEPHRECTOMY AND UPSIDE DOWN KIDNEY TRANSPLANTATION CAN MAKE ANASTOMOSIS OF SHORT RENAL VEIN EASIER AND SAFER: A NOVEL TECHNIQ

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We report our novel approach to overcome the problems associated with short right renal vein harvested by clipping the vein during right laparoscopic donor nephrectomy (RLDN). Instead of rather expensive and less safe stapling method (reported previously), 31 donors and their recipients were prospectively studied. All donors underwent RLDN transperitoneally. Right renal artery and vein both clipped by 2 metallic and Hem-o-clips. This resulted in really short renal vein (<1.5cm). It was technically almost impossible to anastomose short renal vein to the recipient. When plac-
ing kidney upside down, renal vein lies posterior, therefore venous anastomosis became possible and was done safely in all recipients, without mobilizing iliac vein. To our knowledge this is the first report of using simple clipping of renal vein and first intentional upside down kidney transplantation to overcome the problem of short and very short renal vein. Mean follow up was 14 months (5-22) mean operative time for RLDN 196 minutes and mean warm ischemia time was 9.5 minutes. No conversion or transfusion was required in donors. There was no arterial or venous thrombosis and no graft loss during follow up period. There was 1 ureteral fistula managed by ureteroureterostomy and 1 ureteral stricture resolved by reanastomosing to the bladder. Mean creatinine level in 3 month was 1.3 mg/dl. The length of right renal vein obtained by LDN is quite short, but by upside-down placing of the kidney in right iliac fossa transplantation will be possible without increased incidence of vascular thrombosis.

OP 168
DUCT-TO-DUCT BILIARY RECONSTRUCTION IN PEDIATRIC LIVER TRANSPLANTATION: ONE CENTER’S RESULTS

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In pediatric liver transplantation, both for cadaveric and living related cases, Roux-en-Y hepaticojejunostomy is often preferred for biliary reconstruction. Duct-to-duct biliary reconstruction in pediatric patients is presented in very limited numbers in some studies. We retrospectively reviewed our experiences with duct-to-duct biliary reconstruction in pediatric liver transplantation patients. Since September 2003, 46 liver transplantations were performed for 44 patients (29 boys and 15 girls; mean age, 8.4±5.5 years old). For anastomoses, a corner-saving suture technique was used with 6-0 or 7-0 polypropylene monofilament nonabsorbable suture. In 3 patients, a T-tube, and in 11 patients, a straight feeding tube, was inserted from the recipient common bile duct to the anastomotic site, and transhepatic biliary catheter insertion technique was used in 28 patients for external bile drainage. The remaining 4 patients had no tubes or stents. Four patients developed bile leakage in the early postoperative period. Three of these 4 patients were treated with percutaneous drainage with excellent outcome. The 1 remaining patient required reoperation for bile leakage, and a Roux-en-Y hepatico-jejunostomy was performed. Four biliary stenoses occurred in the late postoperative period. All biliary stenoses were successfully treated with balloon dilatation. There was no morbidity and no graft loss owing to biliary complications. Eight patients died during follow-up (2 to 34 months); 36 (82%) are doing well with optimal liver function. In conclusion, our results show that duct-to-duct biliary reconstruction is a safe and easy technique for biliary reconstruction even in pediatric cases.

OP 169
KUWAIT EXPERIENCE IN THE FIRST 50 LAPAROSCOPIC DONOR NEPHRECTOMY

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Laparoscopic donor nephrectomy (LDN) has been adopted rapidly as it offers less postoperative pain, early recovery, and better cosmetic results compared to the open approach. This prospective study investigates the results of the first 50 LDN performed between May 2005 and May 2006, with regards to:
(1) donor morbidity
(2) effect on graft function.
LDN was attempted in 50 donors by the same surgical team. Donors were 43 males, 7 females, aged 22 to 51 years old, with body mass index of 17.9 to 42.4. Left nephrectomy was planned in 46 donors and right nephrectomy in 4 donors according to the CT angiography findings. LDN was successfully performed in 44 cases (88%), converted to open technique in 6 donors (12%), secondary to technical difficulties in 3, and operative bleeding in 3 donors. The mean operating time for the fully LDN cases was 186.94 min (range 95 to 260 min), and mean warm ischemia time (WIT) of 5.7 (range 2-16 min). Mean hospital stay was 5.7 days (range 3-14 days). Two donors (4.5%) were re-explored for postoperative bleeding. At 3 months follow up, renal function of all donors was satisfactory. There was immediate diuresis in 41 recipients and delayed in 3 recipients. Acute cellular rejection was defined in one recipient. No association was found between WIT, graft function, development of ATN or rejection. There was clear association between the plasma creatinine normalization and the donor age. In this small series LDN was found to be a safe procedure with low post operative morbidity and short recovery time for the donor. These findings address some of the concerns surrounding LDN and support its potential to increase the living donor pool.

OP 170
THE NEW METHOD OF ANALYSIS THE REPERFUSION OF TRANSPLANTED KIDNEY

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We analyzed the thermograms of 80 adult cadaveric kidneys transplanted in the Clinic. The images acquired over the operation area were recorded intraoperatively using a thermovision camera ThermacamTM SC500 which detects infra-red radiation and records digital images with surface temperature distribution of tested objects. During the reperfusion of every graft we made
OP 171
UROLOGICAL COMPLICATIONS OF KIDNEY TRANSPLANTATION IN 1000 RECEPIENTS

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Management of kidney transplantation’s complications is often more difficult than kidney transplantation. We managed urological complications of kidney transplantation in 1000 recipient. Between may 1994 and may 2006, 1000 cases of kidney transplantation from cadaver and living kidney donor were performed in two academic hospitals. Urological complication was evaluated with ultrasonography, radionuclide scan and sometime retrograde ureterography in routine follow up or symptomatic patients. Complications included: Vesicoureteral reflux (VUR), vascular anastomosis stricture, urinary stone, urinoma and lymphocele. 28 patients (2.8%) had urological complications. 18 patients (64.28%) of them cured with endourological and laparoscopic approach. (ESWL, PCNL, ureteroscopy and percutaneous nephrostomy). 10 patients (35.72%) selected for open surgery approach. Ureteral necrosis occurred in 5 patients that treated with ureteroureterostomy and native nephrectomy in 3 patients and Boari flap anastomosis was performed for 2 patients. 2 patients with urinary lithiasis and resistant to ESWL and ureteroscopic managements were diagnosed. PCNL was performed for one. And another patients had multiple renal stone and multifocal bone fracture in her limbs and severe osteoporosis. Because of ESRD and resistant urinary lithiasis, transplanted kidney nephrectomy was the best choice for her. 3 patients (0.3%) had vesicoureteral reflux (VUR) that one of them had neuropathic bladder and augmentation cystoplasty was performed for him. Teflon injection and anti reflux surgery were the others approach for next patients. High experience transplantation group and use of imaging study such as ultra sonography, radio nuidod scan and retrograde ureterography can improve results of urological complication of kidney transplantation managements but watch full waiting and close observation had good results in this patients.

OP 172
PEDIATRIC LIVER TRANSPLANTATION IN IRAN: EVALUATION OF THE FIRST 50 CASES

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Liver Transplantation (LT) is nowadays accepted as the definitive therapy for end-stage liver disease. We report our experiences with LT using grafts from living related and cadaveric donors. From April 1998 to March 2006, fifty infants and children underwent LT. We studied pretransplantation status, medical and surgical complications and survival rate in these. There were 33(66%) boys and 17(34%) girls, the mean age of patients was 9.9±4.8 years (range, 0.9-17.7 years) with a mean weight of 33.4±18.4 Kg (range, 7.5-80 Kg). The mean indications were cryptogenic cirrhosis (30%) and autoimmune cirrhosis (24%), followed by biliary atresia (22%), Wilson disease (14%), progressive familial intrahepatic cholestasis (4%), fulminant hepatitis (4%) and tyrosinemia (2%). We used living related donor in 14 (28%) and split liver in 5 (10%) cases. The mean follow up of patients was 24.7±22.6 months (range, 1-72 months). The main postoperative complications were acute cellular rejection (44%) and infections (30%), where as chronic rejection seen in 26% of cases. The mortality rate was 24%. Overall 6-month and one year patient survival rate were 91.4 and 63%, respectively. Our results demonstrate that pediatric LT is a feasible undertaking in Iran. Organ shortage in our area led to liberal use of living related and split liver techniques. The overall results of the pediatric LT in Iran are comparable to those of other centers.

OP 173
LIVER TRANSPLANTATION FOR SMALL BABIES

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Orthotopic liver transplantation remains a major medical and surgical challenge in small pediatric patients. From April 2003 to June 2006, 21 small babies (each of whom weighed less than 10 kg or was under the age of 1 month) underwent orthotopic liver transplantation at the Baskent University Hospital in Ankara, Turkey. Five were girls and 17 were boys with a mean age of 15.7±9.3 months (range, 2-24 months); mean weight at the time of transplantation was 9.8±3.6 kg (range, 6-16 kg). All transplants were obtained from a living-related donor. Twenty left lateral segments and 1 left lobe
were transplanted. The median graft-to-recipient weight ratio was 3.5%±1.2% (range, 1.5% - 6.1%). During the early postoperative period, hepatic arterial thrombosis was identified in 4 patients, and a biliary leak was detected in 2 patients. In 1 patient, portal vein stenosis, which was identified during the late postoperative period. At the time of this writing, 17 patients (81%) are alive and have exhibited good graft function during a median follow-up of 14.8±10.9 months (range, 1-39 months). Four patients died during the follow-up period. Histologic examination revealed hepatocellular carcinoma in 2 patients, and Burkitt’s lymphoma was diagnosed in 1 patient during follow-up. In conclusion, our data confirm that the use of living-related donors, especially in this age group, provides a reliable source to the organ pool, and satisfactory results can be achieved despite the anatomic handicaps of this age group.

OP 174

PEDIATRIC RENAL TRANSPLANTATION

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Renal transplantation (RTx) is the preferred method for the treatment of children in end stage renal failure (ESRD). This is a retrospective analysis of the results of RTx in children at our centre. Since November 1993, 86 children (50 males and 36 females) had received RTx from 50 living (LDTx) and 36 cadaveric donors (CDTx). Twenty children were <10 years. Some patients had –beside ESRD– one or more other high risk factors, e.g. abnormal lower urinary tract in 36 recipients (42%). The procedure was a pre-emptive transplantation in 28, and a re-transplantation in 9 recipients. Induction immunosuppression was with either antithymocyte globulin (43 cases) or anti-interleukin-2 receptor antibodies (20 cases). Patients were followed up for 3 to146 Months. 24 instances of surgical complications were diagnosed in 19 (28%) recipients. These were in the form of 6 vascular, 4 urological, 1 wound dehiscence and 13 complications related to kidney bed. Twenty-four episodes of acute rejection (33%) and 17 episodes of systemic bacterial and viral infection were detected. Two recipients died at 1 and 21 months, and a total number of 14 grafts were lost at one day to 87 months after RTx. The 1- and 10-year actuarial survival rates were 99% and 98% respectively for recipient, and 88% and 84% respectively for grafts. The 10-year actuarial graft survival rates were 98% in LDTx, and 64% in CDTx, 86% in recipients >10 years old, and 75% in recipients <10 years old. Abnormal urinary tract, pre-transplant dialysis and transplant number showed no effect on graft survival. All pediatric recipients with functioning grafts are fully rehabilitated. In conclusion, RTx is the preferable modality of treatment for children with end stage renal failure. Higher graft survival rates were achieved in older children and following LDTx.

OP 175

HYPERTENSION IN CHILDREN WITH NORMAL ALLOGRAFT FUNCTION

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Hypertension is commonly encountered following kidney transplantation. Some of the responsible factors are transplant medications, allograft dysfunction and the primary renal diseases. In a cross-sectional design, during a 3-month period, all children and young adults that had been transplanted from the beginning of transplant program in Shiraz organ transplant center and had normal post transplant renal function (serum creatinine ≤1.5) were evaluated. Hypertension was defined by using new guidelines (JNC7) and children were considered hypertensive if they were on antihypertensive medication and had blood pressure >90th percentile for age, height, and sex. Seventy-one children and young adults, aged 3-19 years at transplantation, were enrolled in this study. Different parameters were picked up from their medical records. There were 45 males and 26 females. Their primary renal diseases were as follow: Glomerulopathies (n=11,15.5%), hereditary nephropathies (n=20,28.2%), congenital urological malformations and hypoplasia/dysplasias (n=29, 40.8%), others and unknown (n=11,15.5%). Sources of donor were living-related (n=24, 33.8%), living-unrelated (n=13, 18.3%) and cadaveric (n=34, 47.9%). Mean age at transplantation was 12.6+/-.3.2 years (range, 3-19) with a mean follow up of 4+/-.2.4 (range, 1-13) years. Sixty-nine (97.1%) of them were on triple immunosuppressive therapy (cyclosporine+ prednisolone+ cellcept or azathioprine), one was on double therapy, and one didn’t use any medication. Forty nine patients (63.3%) were hypertensive, 31 (43.6%) received one antihypertensive drug and 18 cases (25.3%) received two. Dose of prednisolone was 0.17+/-0.07 mg/kg (range, 0.1-0.45) every day. Hypertension was more common in children with glomerular (72%) than non-glomerular diseases (53%). Hypertension is a common problem in recipients of renal transplants, which should be detected and treated appropriately in post transplant follow up visits.

OP 176

KIDNEY TRANSPLANTATION IN THE CHILDREN WITH CYSTOPLASTY

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Treatment in children with end-stage renal disease, especially those with significant bladder dysfunction, is difficult. A high-pressure and low-capacity bladder is a major risk factor for a trans-
planted kidney. Cystoplasty can protect the kidney allograft by the reduction in the intra-bladder pressure and producing an appropriate capacity. The aim of this study was to evaluate the outcome of kidney transplantation in the children with cystoplasty in comparison with the control group. A total of 43 children with bladder dysfunction in urgent need of cystoplasty were enrolled in the study and were compared with the control group regarding the acute and chronic rejection rates, survival of the transplanted kidney, surgical complications, and febrile UTI. The frequency of febrile UTI and chronic rejection was significantly higher in the group of the patients with cystoplasty. Also, graft loss was much more frequent in these patients (30% vs 20%) but this difference was not statistically significant. In the patients with cystoplasty, the survival rate of the transplanted kidney was 92%, 73%, 58%, and 45% at the 1st, 3rd, 5th, and 7th postoperative year, respectively. In the control group there rates were 94%, 87%, 81%, and 75%, respectively (P<0.05). According to our findings, the survival rate of the kidney is significantly lower in the children with cystoplasty, and this could be due to the higher prevalence of chronic rejection and febrile UTI in this group.

OP 177

300 CONSECUTIVE LIVING DONOR LIVER TRANSPLANTATION

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The shortage of cadaveric organs has accelerated the application of living donor liver transplantation (LDLT) initially for children and then for adult patients as well. Right lobe LDLT offers sufficient liver volume for a successful outcome after liver transplantation for adult patients. In this study we sought to determine the applicability and the results of live donor liver transplantation for children and adults. The analysis of patients who underwent LDLT between June 1999 and October 2006 at Ege University Organ Transplantation Center was done retrospectively. Right lobe liver transplantation was preferred in 236 adult cases while left lateral segment or left lobe transplantation was preferred in 64 pediatric cases. The leading cause of liver failure was hepatitis B in adults and biliary atresia in children. Hepatic vein anastomoses were done directly to the vena cava and portal vein anastomoses were performed between the portal trunk of the recipient and the donor right or left portal vein. Hepatic artery reconstructions were performed always under the microscope. Duct to duct biliary anastomosis of the biliary tract was performed mainly in right lobes and roux-y hepaticojejunostomy was performed in all pediatric cases. The overall survival rate is 85% for these series. One year patient and graft survival is 92%. The major cause of death was sepsis and related complications. The rate of hepatic artery, hepatic vein and portal vein thrombosis was 3%, 2% and 2% respectively. Biliary complication rate was 25%. Donor mortality was not seen, but minor complication rate was 9%. Live donor liver transplantation is safe and feasible for both adult and pediatric patients with end stage liver disease in countries having the scarcity of cadaveric organs. The results are acceptable in terms of both donor morbidity and recipient survival in comparison to cadaveric organ transplantation.

OP 178

EXPERIENCE WITH LIVER TRANSPLANTATION AT KING FAISAL SPECIALIST HOSPITAL AND RESEARCH CENTER (KFSH&RC)

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Herein we present our experience with both deceased donor Liver Transplantation (DDLT) and living-donor Liver Transplantation (LDLT). Between April 2001 and August 2006, 106 LT procedures were performed (63 DDLTs and 43 LDLTs) in 102 patients (4 re-transplants). The overall male/female ratio was 56/46, adult/pediatric ratio was 92/10, and median age 43 years (range, 5-63 years). In the DDLT group; and after a median follow-up period of 724 days (range, 10-1899), the overall patient and graft survival rates was 89%. Deaths were due to primary non-function in 2 patients, central pontine myelinolysis in one patient, chronic rejection in one patient, and recurrent HCV infection in 3 patients. In the LDLT group; and after a median follow-up period of 529 days (range, 8-1354, the overall patient and graft survival rates were 88% and 79% respectively. Graft failure and deaths were due to hepatic artery thrombosis in 2 cases, biliary complication in one patient, uncontrollable bleeding in one patient, portal vein thrombosis in 2 cases, and small-for-size-syndrome in 3 patients. Four patients were successfully re-transplanted using cadaveric organs. Graft survival was significantly inferior in the LDLT group compared with the DDLT group, 79% vs. 89% respectively (p-value <0.05), however, there was no significant difference in patient survival between the two groups. Biliary complications were significantly higher in the LDLT group compared with the DDLT group, 23% vs. 4% respectively (p-value <0.05). Both DDLT and LDLT are being successfully performed at KFSH&RC with good outcomes. Our early experience indicates poorer graft survival and higher rate of biliary complications in the LDLT group.

OP 179

LIVING-DONOR LIVER TRANSPLANTATION: EARLY RESULTS FROM A SINGLE CENTER

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Owing to cadaver organ shortage, living donor liver transplantation (LDLT) has become a critical option for patients with end-stage liver disease. Aim of this study was to evaluate outcome of LDLT in a single center in Turkey. Since September 2001, we performed 101LDLTs in 99 patients (73 men and 26 women; mean...
Oral Presentations

age, 21.7±19.4 years; range, 0.2-64 years) with end-stage liver disease. Forty-nine right, 16left liver, 36hepatic segments II and III were transplanted. Most donors (46%) were parents of the recipients. Eighteen patients had accompanying hepatocellular carcinoma and cirrhosis. Retransplantation was performed in 2 cases. The mean operative time was 10±2.2 hours, the number of blood transfusions required was 3±3.9 units. The mean time spent in intensive care unit was 3.5±6.9 days. Median graft-to-recipient weight ratio was 1.8±1.1 (range, 0.8-6.1). Ten hepatic arterial thromboses and 12 biliary leaks occurred in the early postoperative period. Three hepatic vein stenoses, 3 portal vein stenoses, 6 biliary stenoses developed during the late postoperative period. Mean follow-up was 14.2±10.9 months (range, 1-59 months). During follow-up, we didn’t observe any instance of tumor recurrence in any of the HCC cases. At the time of writing, 77patients (77%) were alive with good graft function. In conclusion, complication rates are slightly higher after LDLT compared with cadaveric liver transplantation. However, most complications can be treated with interventional techniques, and LDLT continues to be the life-saving option in countries without satisfactory cadaver donation rates.

OP 180
DONOR OUTCOME AFTER LIVE LIVER DONATION: A SINGLE CENTER EXPERIENCE

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Living-donor Liver Transplantation (LDLT) has been successfully performed at King Faisal Specialist Hospital and Research Center (KFSH&RC). Herein we evaluate the donor outcome and morbidity after donor hepatectomy for LDLT at KFSH&RC. At KFSH&RC, and between April 2001 and August 2006, a total of 43 LDLT procedures were performed (35 adult-to-adult donation and 8 adult-to-child donation). The right lobe (segments 5-6) was used in 35 donors, the left lateral segment (segment 2&3) was used in 7 donors, and the whole left lobe without the caudate lobe (segments 2-4) was used in one donor. The middle hepatic vein was included with the right liver graft in 3 donors. All donors were related to their recipients, median graft-recipient weight ratio (GRWR) was 1.3% (range, 0.8%-2.7%); remaining liver volume was ≥30% in all donors; and macro-vesicular steatosis was ≤20% as estimated by routine preoperative liver biopsy. Liver biopsy in all donors. All donors were carefully assessed and approved by a social worker, psychologist and at least one senior member of the surgical team. 43 donors were studied; male/female ratio was 33/10; median age was 25 years (range, 18-42); median hospital stay was 6 days (range, 4-14); and only two donors required perioperative blood transfusion. No donor mortality encountered after a median follow-up period of 529 days (range, 8-1354). Donor morbidities were identified in 9 donors (21%) and they included: sever liver dysfunction due to small remaining liver volume in 2 donors treated with supportive treatment; bile leak in one donor treated with ERCP and stenting; biloma in one donor treated with percutaneous drainage, incisional hernia in one donor treated with laparoscopic mesh repair; skin dehiscence in one patient treated with secondary closure; pressure induced alopecia areata in 3 donors that was self-limiting and required no treatment, and neurapraxia of the right arm in one patient treated with physiotherapy. Psychological disturbances were seen in 2 donors that necessitated psychological counseling. As for the LDLT recipient outcome; after a median follow-up period of 529 days (range, 8-1354), the overall patient and graft survival rates were 88% and 79% respectively (4-retransplants using cadaveric organs). In our experience donor heptatectomy is a relatively safe procedure; however, extreme care should be always given by the transplant teams to live donors in order to avoid any distressing morbidity or even, the less likely but more catastrophic, donor mortality.

OP 181
DOES DONOR’S FATTY LIVER CHANGE EARLY MORTALITY AND OUTCOME OF LIVER TRANSPLANTATION?

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The effect of donor fatty liver on graft survival is still uncertain. The aim of this study was to determine the influence of steatosis on outcome of orthotopic liver transplantation among our recipients. In a retrospective design, we evaluated the effect of donor liver steatosis on postoperative liver function and prognosis. Data obtained from liver transplant data registry of Shiraz organ transplant center, Namazei Hospital. Liver biopsies were taken before transplantation, and reviewed by two pathologists. Pathology reports were divided in to 4 groups: Normal pathology, mild fatty change (10-30%), moderate (30-60%), and severe steatosis (>60%). Factors determining transplantation outcome such as early mortality, duration of ICU and hospital stay, clinical rejection episodes, and graft surgical complications were compared between subjects with donor liver steatosis and others. Data analyzed by SPSS 13 package and survival rates were calculated by Kaplan-Meier test. Three-month survival rates in recipients without donor’s liver fatty change, subjects with mild fatty change (10-30%), and those with moderate (30-60%) steatosis were 68%, 72%, and 76%, respectively, which were not significantly different (p>0.05). No pathology of severe fatty change was reported by pathologists. Furthermore, short term (hospital) mortality (20% vs 14.3% vs 21.2%), hospital stay (30.89 vs 29.93 vs 23.62 days), and length of ICU admission (5.06 vs 5.89 vs 4.39 days) were not significantly different. In addition, Child score of recipient, pre-op and post-op liver function enzyme changes were similar. Up to 60% donor liver fatty change was not found to be associated with worse prognosis in orthotopic liver transplantation. Hence, pre-op liver biopsy does not seem not be required as a routine pre-op procedure.
OP 182
PREDICTORS OF IMMEDIATE TRACHEAL EXUTUBATION IN THE OPERATING ROOM FOLLOWING LIVER TRANSPLANTATION

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It has been reported that immediate postoperative extubation may reduce the incidence of postoperative respiratory complications after orthotopic liver transplantation (OLT). The aim of this study was to evaluate the predictors of immediate postoperative extubation in the operating room (OR) in our patients. Data from all patients undergoing OLT at Baskent University Hospital between January 2004 and June 2006 were retrospectively reviewed. Patients were divided into 2 groups based on whether they were extubated in the OR (Group 1) or in the intensive care unit (ICU) (Group 2). Fifty-two patients in Group 1 and 48 patients in Group 2 were included. Compared with Group 2, patients in Group 1 had a lower mean preoperative serum creatinine level (0.9±1 vs 0.6±0.3 mg/dL, P=.04) and intraoperative transfusion requirements (packed red blood cell 35.5±29.8 vs 25.6±19.0 mL/kg, P=.05 and fresh frozen plasma 33.1±15.6 vs 25.7±14.3 mL/kg, P=.01). The incidence of intraoperative hypotension and emergent OLT was significantly higher in Group 2 than it was in Group 1 (33.3% vs 13.5%, P=.01 and 45.8% vs 21.2%, P=.009, respectively). On multivariate analysis, only emergent OLT (P=.009, OR=3.5) and intraoperative hypotension (P=.018, OR=3.7) were significantly associated with a lower probability of immediate postoperative extubation in the OR. Our results suggest that hemodynamic stability and elective OLT are predictors of successful immediate tracheal extubation in the OR.

OP 183
BIOCHEMICAL AND VIROLOGICAL RESPONSE TO ADEFOVIR IN PATIENTS WITH LAMIVUDINE-RESISTANT HEPATITIS B VIRUS YMDD MUTANT BEFORE AND AFTER LIVER TRANSPLANT

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Lamivudine (LMV) treatment in patients with hepatitis B virus (HBV) infection may improve clinical state and suppress viral replication. Emergence of LMV-resistant YMDD mutant is a common and challenging complication. This study assesses the safety, biochemical and virological responses to Adefovir (ADV; 10 mg daily) therapy in these patients. Forty-two consecutive patients were treated with ADV due to emergence of LMV-resistant YMDD mutant strain in 38, poor response in 3, and development of severe acute pancreatitis in 1. Thirty-seven (88.1%) were males, 12 (28.6%) were post-liver transplantation, and 19 (45.2%) were HBsAg negative. The mean±SD age and body weight were 43.4±16.4 years and 69.5±19.8 kilograms respectively. Concomitant HCV or HDV infections existed in 4 (9.5%) cases and 11 (26.2%) were diabetic. The median (range; mean±SD) duration of LMV therapy and the follow up period on ADV therapy were 34 (46.6; 32±15.9) and 16.9 (10.3–33.0; 16.8±7.8) months respectively. Full biochemical response (transaminases normalization), partial virological (one Log reduction), and full virological (complete viral clearance) responses were observed in 27 (64.3%), 6 (14.3%), and 16 (38.1%) patients respectively. The response to ADV therapy was significantly higher in HBsAg negative patients than in HBsAg positive ones (15 out of 19; 78.0% and 7 out of 23; 30.4% respectively; p=0.002). Also, the response to ADV tends to be more in post-liver transplantation patients (9 out of 12; 75.0%) than pre-transplant cases (13 out of 30; 43.3%) although it did not reach statistical significance (p=0.09). No adverse effects were encountered any patient during the whole follow up period. ADV is a safe and effective therapy in patients with pre- and post-transplantation YMDD actively replicating HBV mutant. The response to ADV is more in HBs Ag negative cases, and appears to be better in post-liver transplant cases.

OP 184
ANALYSIS OF LIVER TRANSPLANTED PATIENTS FOR HEPATOCELLULAR CARCINOMA

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In this study, we evaluated our early results of liver transplantation for hepatocellular carcinoma. Between January 2003 and June 2006, 26 patients (4 females, 22 males; aged 1.1 to 65 years) with preoperatively diagnosed or incidental HCC underwent liver transplantation at Baskent University Hospital in Ankara, Turkey. Eight of the grafts were from cadaveric donors, and 18 were from living-related donors. Inclusion criteria (independent of tumor size and number of tumor nodules) were no invasion of major vascular structure and no evidence of extrahepatic disease. In 13 of the patients, tumors were beyond the Milan criteria. Two patients had neoadjuvant chemoembolization, 4 had percutaneous ethanol injections, 3 had combined chemoembolization and percutaneous ethanol injections, and 4 had systemic chemotherapy before transplantation. Two patients received postoperative adjuvant chemotherapy. Eleven patients with HBV infection underwent antiviral prophylaxis with anti-HBs antibody and lamivudine. According to the TNM staging system, 9 patients had stage-I carcinoma, 15 had stage II, and 2 had stage III A. Two complications occurred in 26 patients. Hepatic arterial thrombosis
occurred in 1, and biliary leakage occurred in 1 patient. Acute rejection episodes occurred in 5 patients. At this writing, with a mean follow-up of 16.5 months (range, 1-31 months), all patients are doing well with excellent graft function. The longest survival is 2.5 years, and our patient survival rate is 100%. There has been no evidence of tumor recurrence during follow-up. In conclusion, liver transplantation provides long patient and disease-free survival, even in patients with HCC that exceeds the Milan criteria.

**OP 185**

**HIGHER GRAFT-TO-HOST RATIOS MAY DECREASE POST TRANSPLANT MORTALITY IN PATIENTS WITH HIGH MELD SCORES**

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Our aim in this study is whether MELD scores may have any impact on pre operative strategic planning of the donor operation. We have analyzed retrospectively the outcomes of 63 adult liver transplantation patients whose operations were performed at our center between January 2001 and July 2006. All patients have MELD scores between 8 and 35 with an average value of 20. We compared post operative mortality among patients who have MELD scores above 20 based on their graft to host ratios. We grouped patients whose graft to body weight ratios (GBWR) were equal to or lower than 1 and whose GBWR were higher than 1 separately. GBWR was statistically significantly associated with mortality after living donor liver transplantation (p=0.05). MELD scores were also found to be associated with mortality (p=0.006). Mortality rates in patients with high MELD scores and with low GBWR found to be the highest among the other combinations. In conclusion, GBWR lower than 1 and MELD scores higher than 20 are significant risk factors for mortality after living donor liver transplantation. Patients with low MELD scores may be transplanted when GBWR is lower than 1 but patients with high MELD scores should receive grafts with GBWR higher than 1.

<table>
<thead>
<tr>
<th>MELD&lt;20</th>
<th>GBWR ≥1</th>
<th>Patient</th>
<th>Mortality</th>
<th>%</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>37 patients</td>
<td>GBWR ≤1</td>
<td>5</td>
<td>(8%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MELD≥20</td>
<td>GBWR &gt;1</td>
<td>17</td>
<td>(26.5%)</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>25 patients</td>
<td>GBWR ≤1</td>
<td>9</td>
<td>(14.5%)</td>
<td>4</td>
<td>44</td>
</tr>
</tbody>
</table>
transplantation and the patients list is growing daily. About a forth of them die every year patients while they are waiting for a suitable organ. There are at least 134 patient in lung transplant list whom one could not find a related donor, the need for establishing a BMT registry in Kuwait is highly recommendable to help in search for unrelated volunteers as safe potential donors. This has advanced the cause of development of BMT registry and enhanced the probability of finding fully HLA matched unrelated donors. This study presents retrospective analysis of tissue typing data of 607 prospective BMT patients and their relatives performed between 1993-2005 at our immunology department. Matched related donors were found for 45.3% of patients. The reported international ratio is 30%. Thus no matched related donors could be found for 54.7% of patients. Availability of higher than the international proportion of matched related donors in our study is possibly related to the widely practiced custom of consanguineous marriage among Kuwaitis and larger average number of children in extended families. However, since for a quite significant number of patients a matched related donor could not be found, the need for establishing a BMT registry in Kuwait is highly recommendable to help in search for matching unrelated donors for the prospective recipients for whom a matched related donor is not available.

P 187 LUNG TRANSPLANTATION IN IRAN

National Research Institue Of Tuberculosis And Lung Disease, IRAN

The first lung transplantation in Iran was performed 6 years ago on a 30 year old patient who was suffering from emphysema. Since then 12 lung transplantations have been performed. Surgery was successful in 8 patients. 4 patients died exactly after surgery because of severe pulmonary hypertension or severe pulmonary congestion. One patient died 2 weeks after operation with pulmonary edema due to fat and bone emboli in donor lung vessels. Two of the patients died 9 and 11 months after surgery. The death reason was incompliance in follow up and taking medications respectively. One patient died with severe resistant bacterial membranous bronchitis 5 months after transplant. At this moment, four of the patients are alive after lung transplantation; it has passed 75, 71, 11 and 3 months after their operation. There are at least 134 patient in lung transplant list whom one forth of them die every year patients while they are waiting for transplantation and the patients list is growing daily.

Unfortunately in spite of having the technology and science of lung transplantation in Iran because of the donor shortage only 1-5 lung transplant can be done every year. There are some organizations that are focusing on educating and improving the culture of people toward organ donation. The number of organ procurement units is increasing so we are hoping to have more lung transplant and be able to give services to other countries.

P 188 ACHALASIA AS A CAUSE OF LUNG TRANSPLANT REJECTION

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In lung transplant recipients, Gastro esophageal reflux is associated with increased incidence of acute rejection and earlier onset of chronic rejection. We report a case of single lung transplant that had severe vascular rejection due to the reflux of esophageal contents. Patient is a 41 year old gentleman who had left sided single lung transplantation for end stage pulmonary fibrosis with unknown origin. After 6 months of transplant FEV1 started coming down. TBLB showed rejection grade 2-3. Before giving him the methylprednisolone because of dilated esophagus in CTscan and dark secretion in bronchoscopy, barium swallow was performed which showed dilated esophagus that terminated in a bead-like narrowing. Manometry confirmed the achalasia. Antireflux advises was given to the patient. No change was taken to the medications. 3 weeks later FEV1 got back to the previous level (from 40 to 53%). Then esophagus was dilated by balloon and after 11 months of transplant there are no more declines in spirometric values. Even reflux of esophageal contents can induce acute rejection after lung transplantation.

P 189 XENOGRRAFT TRANSPLANTATION IN CONGENITAL CARDIAC SURGERY AT BASKENT UNIVERSITY: MID-TERM RESULTS

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Xenograft valved conduits were being used in several cardiac pathologies in the second half of last century. In this study we present mid term results of our patients in pediatric age who were operated with xenograft conduits. Between January 1999 and January 2005, 134 patients underwent open heart surgery with xenograft conduits. These conduits were used to establish the continuity of right ventricle to pulmonary artery, left ventricle to pulmonary artery and right ventricle to aorta or aorta itself due to various types of complex cardiac anomalies. Patients were evaluated by transthoracic echocardiography (ECHO) in the follow ups in every 6 months.
Cardiac catheterization was performed when ECHO demonstrated significant conduit failure.

Results: The mean CPB time and cross clamp times were 132.6±55 min, and 85.9±32 min respectively. Hospital mortality was seen in 28 patients (20.1%) and 13 patients died in the follow up period (9.7%). Mean follow up time was 24.6±14 months (13-85). Twenty patients were reoperated due to conduit failure among 93 survivors (21.5%). Main reasons for conduit failure were stenosis (n=13), valvular regurgitation (n=2) and both in 5 cases. Mean pulmonary gradient before conduit re-replacement was 47.7±30.1 mmHg. There was no mortality in patients who were reoperated. Xenograft conduits should be closely followed for calcification and stenosis. Conduit stenosis is the major risk factor for reoperation. Reoperation for conduit replacement can be performed safely before deterioration of the cardiac performance in these high-risk patients.

P 190
THE IMPACT OF ACUTE RENAL FAILURE ON SURVIVAL FOLLOWING CARDIAC TRANSPLANTATION

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Acuterenal failure(ARF)after cardiac transplantation is a common and serious complication. In this study we aimed to investigate the incidence and effect of ARF on survival in patients who underwent cardiac transplantation. Patients: Eight patients underwent cardiac and one patient underwent combined cardiac and renal transplantation. The mean age of the patients was 33±11.6 years (17-51). In the preoperative echocardiographic evaluation mean ejection fraction was calculated as 19±3.11% (16-24). One patient was with compensated renal failure and one patient with dialysis dependent renal failure. Hemofiltration was routinely used in the operations. Corticosteroid, cyclosporine (CsA) and mycophenolate mofetil were used for immunosuppresion. Early renal support was used in patients with ARF.

Results: The incidence of ARF was 55.5% (5 patients). In the early postoperative and follow up period, ejection fraction was 55±9.9% and 57±4.5% respectively. The mean follow up period was 18±9.46 (2-31) months. In the early initiation period the mean peak value of CsA was 479±201.8 ng/ml, in the first and third months were 250±95.3 and 195±43.7 ng/ml respectively. The mean creatinine level in the last follow up was 1.27±0.4.

P 191
HEART DONATION AND TRANSPLANTATION IN SAUDI ARABIA: A SIX-YEAR STUDY

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To evaluate the practice of heart retrieval, transplantation and the survival rate. We conducted a retrospective study for all the donors and recipients over the period of six years (2000-2005). The data includes donors age, gender, cause of brain death (BD) and ICU stay which we correlated with the outcome of heart transplantation. There were 1,123 declared BD in which families were approached for organ donation during the study period. Consent for donation were obtained in 267 (23.7%) cases, and out of these, only 25 (9.4%) were transplanted as whole heart and 155 (58%) cases were used as source for valves. The remaining 87 (32.6%) cases were not retrieved due to medical, technical reasons and donor/recipient incompatibility. The data for 25 whole heart transplantation shows that the donor's mean age is 31.6 years, while the recipient mean age is 27.8 years. The outcome of the transplantation reveals that 76% (19 out of 25) of them are still active, 5 died and only 1 lost follow up. Evaluation of the 19 active cases indicates that 18 of them are in 'excellent' condition and only 1 reported a 'good' condition. The mean follow up period for the cases was 19 months. The actual patient survival at two and five year was 80.4% and 67% respectively. The heart transplantation outcome in Saudi Arabia was indeed satisfactory which is comparable to international data; however, more efforts are needed to increase the acceptance rate of heart retrieval and transplantation.

P 192
COMBINED HEART AND KIDNEY TRANSPLANTATION FROM THE SAME DONOR

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Combined heart and kidney transplantation is one of the treatment options in patients with end-stage heart and renal failure. In this brief communication we present the first combined heart and kidney transplantation in Turkey, from the same donor. Our patient was a 33 years old male with dilated cardiomyopathy and dialysis dependent renal failure. Biatrat orthotopic cardiac transplantation was performed with a 103 minutes of ischemic period. Just after the termination of cardiac transplantation renal transplantation was performed. The ischemic period for kidney was 6 hours. In the postoperative period, immunosuppressive treatment was initiated like our other patients with isolated cardiac transplantation. Patient was discharged from the hospital in the 15th postoperative day in good condition with optimal cardiac performance and renal functions. In the follow up period there was
no problem in both organs after 2 months. Combined heart and kidney transplantation was first described in 1978. There are a few patients reported in the literature. The similarity of survival between isolated heart transplantation and combined heart and kidney transplantation, and low incidence of rejection when compared with isolated heart and isolated renal transplantation is encouraging for this challenging type of operation.

**P 193**

**FACTORS AFFECTING EXERCISE CAPACITY IN HEART TRANSPLANTATION RECIPIENTS**

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Fatigue and exercise intolerance are the most common complaints of patients with congestive heart failure. Heart transplantation improves the survival rate and quality of life in patients with severe symptoms of CHF and an ejection fraction of 20% or less. The main goal is to return to functional lifestyle with good quality of life in these patients in postoperative period. This study was designed to reveal factors affecting exercise performance in heart transplantation patients.: Fourteen heart transplantation recipients (M/F, age: 42±10years), and 14 healthy subjects (8M/6F, age: 45.5±13 years) included to our study. Pulmonary function tests and cardiopulmonary exercise test on cycle ergometry were performed to all patients. Mean values of exercise duration (10.7±4.3 minutes), peak VO2 (1252±641 ml/min/kg), and peak oxygen pulse (5.5±3.3ml/beat) of the patients were significantly lower when we compared to healthy subjects (p<0.05). General fatigue was the most common reason for terminating the exercise testing. There were no cardiac or pulmonary limiting factors during exercise testing in our patients. In this study, we concluded that sedentary life style was the most common factor that limited exercise performance in heart transplantation recipients. Exercise rehabilitation should be performed to achieve a good quality of life in these patients.

**P 194**

**IMPORTANCE OF B-TYPE NATRIURETIC PEPTIDE LEVELS AT REST OR AFTER EXERCISE FOLLOWING CARDIAC TRANSPLANTATION**

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B-type natriuretic peptide (BNP) has emerged as an important marker of ventricular wall stress and is predictive of hemodynamic abnormalities in heart transplantation. In this study, we aimed to show the clinical value of BNP for stratification and treatment of congestive heart failure in heart transplant recipients and also to determine the correlation of BNP levels at rest and after effort. Between 2003 and 2006 we have performed 9 heart transplantations in our clinic. Seven patients were enrolled in this study. Blood samples were taken from the patients during the rest and after the effort. In the follow up time transthoracic echocardiography was performed to assess the systolic (ejection fraction) and diastolic function. There were one female and 6 male patients. The mean age was 34.2 ± 10.7 years (7-44). The mean follow up time was 11 ± 9.97 (2-27) months. The mean and median BNP levels at rest were 169.5 pg/dl and 66.3 pg/dl respectively. The mean and median BNP levels at effort were 405.6 pg/dl and 101 pg/dl respectively. One patient were treated due to congestive heart failure. In that patient BNP levels at rest and after exercise were 742 pg/dl and 2040 pg/dl respectively. Echocardiography or right heart catheterization are accepted as definitive diagnostic methods for detecting allograft dysfunction. However, these methods may not reflect early structural changes and neurohormonal aberrations involved in allograft dysfunction. We believe that B-type natriuretic peptide may be used to predict congestive heart failure after heart transplantations.

**P 195**

**TRANSPLANTATION AND INFECTION, ‘GLOBAL SIMILARITIES AND REGIONAL DIFFERENCES**

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Infectious complications still remain one of the major causes of morbidity although great success has been achieved in transplantation. About 75% of transplant recipients show evidence of microbial invasion just in the first year after transplantation. The risk of infection is largely determined by interaction of the following three factors
- The presence of technical and anatomic abnormalities
- Environmental exposures
- Net state of immunosupression

The major factor responsible for post transplant infections in all transplantation practices is the use of immunosupression which impairs host defence mechanisms. Etiologic agents of post transplant infections became more predictable in the last two decades since immunosupressive protocols have been standardized. In other words, a time line that demonstrates the relationship between the occurrence of the infection and the duration after transplantation has been developed. Experiences have shown that post transplant period can be categorized into three general time frames in accordance with the occurrence of infections:
- The first month after transplantation; most infections occured in this period are similar to infections in the general surgical patients
- The period from 1 to 6 months after tx; opportunistic infections are common in this period since the net state of immunosupression has settled.
- The period more than 6 months after tx; the main causes of infections are community acquired infections.

Exceptions to this global time line are expected or unexpected
environmental exposures. The environmental exposure may occur in hospital or in community. So the the regional differences seen after transplantation are determined by the endemic or epidemic etiological agents of the region. This region can be a hospital, a city, a country or a continent.

When we evaluate our region; the rates and types of infections seen in the first 6 months are similar with the other parts of the world. On the other hand, beyond the first 6 months, when patients commonly experience community acquired infections, the rates of some infections such as gastrointestinal parasitic infections, pulmonary and extrapulmonary tuberculosis and the urinary tract infections caused by multidrug resistant bacteria are determined to be higher.

The time line of posttransplant infections may only be used as a guideline for patient care. But clinicians should take the epidemiological varieties of the region into consideration.

P 196
CALCITRIOL, STARTED ON DONOR SIDE EXPANDS THE POPULATION OF CD4+CD25+ TCELLS IN RENAL TRANSPLANT RECIPIENTS

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Allo reactive T cells recognize alloantigens via direct and indirect pathways. In either, the competency of co-stimulatory molecules on antigen presenting cells (APC) is important. Active form of Vitamin D (1,25 (OH)2D3, calcitriol) inhibits APC cells maturation and expression of co stimulatory molecules, here we studied the immunosuppressive effect of calcitriol, that was started on donor side and continued in recipients. In this prospective study candidates of living donor renal transplantation randomly assigned in two groups, in treatment group calcitriol was started in Donor, 250 microgram twice a day, in the last six days before donation, this was continued after transplantation in recipient side for six months. Control group only received conventional Immunosuppressive regimen that in both groups were; cyclosporine/mycophenolate mofetil and prednisolon. In each groups recipient's blood sample was taken before and six months after transplantation. Diagnostic study of the T cell markers: CD3, CD4, CD8 CD25 were performed with Flow cytometry technique. Mean value of CD3+CD4+CD25+T cells in treatment group (F4/M5 40.8+/−8.5 years) and control group (F4/M 6 37.2+/−10) were: 14.2+/−4.2 and 15.4+/−4.5 percent of total peripheral lymphocytes. This percentage six months after transplantation increased to 29+/−6.3 in treatment group and decreased to 12.1+/−4.5 percent in control (P<0.0001). No clinical rejection was detected in each groups during the study period. calcitriol started on donors side and continued in recipient side lead to expansion of toleronenic CD4+CD25+ regulatory T cells in recipients. We speculated that co-stimulatory deficient APC of both direct and indirect pathways may play a role.

P 197
ZENAPAX VERSUS ALG PROPHYLAXIS IN IMMUNOLOGICALLY HIGH-RISK GROUP OF RENAL ALLOGRAFT RECIPIENTS

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Zenapax (Daclizumab) is a novel immunosuppressive agent, which has been shown to promote allograft outcome in low-risk renal allograft recipients. However, its efficacy on high-risk recipients has not yet been established. We conducted a prospective randomized clinical trial to evaluate the effect of Zenapax induction therapy compared with anti lymphocyte globulin (ALG) in high-risk recipients, from 2002 to 2004. Twenty five re-transplanted patients as high-risk recipients were randomized into two groups. Group 1 (n=11) received Zenapax prophylaxis (1 mg/kg pre-operatively and at days 14, 28, 42, 56 after operation). Group 2 (n=14) received ALG prophylaxis (10 mg/kg pre-operatively continued for 10 to 14 days after operation). Baseline immunosuppression consisted of Cyclosporine, Prednisolone and Mycophenolate mofetil. Recipients’ sex, age, etiology of ESRD, PRA serostatus, as well as donors’ sex and age were comparable between two groups. All patients received re-transplantation from unrelated living donors. Acute rejection was observed in 8 and 2 patients of ALG and Zenapax groups, respectively (P=0.04). There was no difference regarding to rate of ATN between two groups. No graft loss was seen in Zenapax group, whereas there were 4 graft failures in ALG group. One-year graft survival was 100% in Zenapax group vs 68.7% in ALG group (P=0.05). Occurrence of complications due to bone marrow suppression was significantly lower in Zenapax group. Anemia occurred in one patient in Zenapax group vs five patients in ALG group (P=0.04). Five cases of leukopenia and four thrombocytopenia were observed in ALG group whereas none patients in Zenapax group experienced these two complications (P=0.007 and P=0.02, respectively). Rate of CMV infection was similar in two groups. This study suggested that Zenapax prophylaxis yielded lower complications as well as was more easily used compared with ALG. In addition, it seems Zenapax can improve graft outcome and reduces incidence of the acute rejection episodes in high-risk kidney recipients.

P 198
DOES PRE-TRANSPLANTATION PROPHYLAXIS WITH LOW-DOSE ANTI-THYMOCYTE GLOBULIN PREVENTS THE ACUTE KIDNEY ALLOGRAFT REJECTION?

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After the kidney transplantation, the first contact between the recipient’s immune system and the donor organ takes place immediately after establishing the arterial anastomosis. From an
immunological point of view, the prevention of an immune response is preferred to interrupting or treating it once started. The aim of this prospective study was to evaluate the efficacy of the pre-transplantation prophylactic administration of a single-dose anti-thymocyte globulin (ATG) in the reduction of acute rejection rate in the kidney allograft recipients. In a prospective, randomized controlled clinical trial, we studied the rate of acute allograft rejection within the first month of kidney transplantation in patients who received their transplant in our center between years 2004 and 2006. Inclusion criteria selection included age more than 14 years; recipients of living donor kidney; and panel reactive antibody less than 30%. Exclusion criteria were simultaneous treatment with interleukin-2 receptor antagonist; and significant intra-operative or post-operative complications of transplantation. The patients were divided into two groups: Group 1 (n=32) received cyclosporine, mycophenolate mofetil, or azathioprine and prednisolone (standard immunosuppressant regimen). Group 2 (n=23) received the above-mentioned agents plus ATG intravenous bolus, 300 mg, at the night before the transplantation. Blood urea and serum creatinine were measured, at least, every other day. Acute renal allograft rejection was justified clinically and/or pathologically (biopsy-proven). Statistical analysis was performed by SPSS 13.0 using chi-square test and multinominal logistic regression analysis. The P value was set at 0.05. Of 55 kidney allograft recipients, 25 patients were male and 30 female. Mean age of the patients was 36.1 +/- 12.1 kg. Mean blood urea and serum creatinine were 53.83 +/- 14.96 and 1.21 +/- 0.38 mg/dl, respectively. There was no significant difference regarding the age, gender, renal function tests, hemoglobin, and leukocyte and platelet counts between two groups. The acute rejection was found in 31.3% patients on standard immunosuppression. Although, this figure reduced to 17.4% in patients received a single-dose, prophylactic ATG, the trend did not reach statistical significance (P=0.24, X² test; P=0.35 and 8=0.66, regression analysis). Logistic regression analysis also revealed that age, gender and prophylaxis with ATG were not related to the rate of acute rejection (P=0.05). It seems that prophylactic administration of a single-dose ATG before the transplantation dose not reduce the risk of acute allograft rejection in the renal transplant recipients. However, further studies with a higher number of patients should be conducted to confirm our results.

P 199
LONG-TERM EVALUATION OF SINGLE BOLUS HIGH DOSE ATG INDUCTION THERAPY FOR PROPHYLAXIS OF REJECTION IN LIVE DONOR KIDNEY TRANSPLANTATION

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The long-term evaluation of single bolus high dose antithymocyte globulin (ATG) induction therapy hasn’t been adequately studied. We aimed to evaluate its long-term effects in the living related donor kidney transplantation. Eighty adult recipients with their first kidney allograft were randomized into two equal treatment groups, one group received intraoperative single bolus rabbit ATG in a dose of 9mg/kg and the second group served as a control. All patients maintained on triple immunosuppressive therapy (steroids, calcineurin inhibitor and antiproliferative agent). We followed them thoroughly for minimum of 5 years. ATG significantly reduced the proportion of patients who experienced an acute rejection in the first year (9/40) when compared to the control group (26/40) and in 5 years (11/40) when compared to (30/40) in controls. The cumulative steroid dose used throughout the study was significantly lower in the ATG group. The overall incidence of post-transplant complications was comparable among the two treatment groups. There was no significant difference in patient and graft survival; 5 year patient and graft survival were 100%, 85% for ATG and 95%, 92.5% for control group respectively. Although, routine single bolus ATG induction significantly reduces the incidence of acute rejection; its long-term beneficial effects on graft function and patient and graft survival are not yet evident.

P 200
THERAPEUTIC EQUIVALENCE AND MG: MG SWITCHABILITY OF GENERIC CYCLOSPORINE A MICROEMULSION (SIGMASPORIN MICR)® IN STABLE RENAL TRANSPLANT PATIENTS

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To test a hypothesized pharmacokinetic difference between the Test (Ne®) and Reference (Sigmasperin®) products to prove therapeutic equivalence in an open, multiple-fixed dose, one-way crossover, multicenter and multinational study over a period of 29 days. 42 stable renal transplant recipients maintained on Ne® were enrolled. Whole blood was collected at day 14 of the study at 0, 0.5, 1.0, 1.5, 2, 3, 4, 5, 6, 8, 10 and 12 hours after reference dosing and the same schedule was repeated at day 29 after switching on mg:mg basis to the test product at day 15 of the study. Analysis of variance was performed for the primary end-points of pharmacokinetic parameters AUC0-12 and Cmax of CyA using log-transformed values. Also tolerability was assessed as conveyed by vital signs, adverse events and laboratory investigations. The 90% Confidence Interval (CI) test for the Ln-transformed, pharmacokinetic parameters was all within the FDA acceptable range of 80-125%, as ln AUCss fell within the range of 92.56 – 103.55 and Ln Cmax within the range of 85.73 – 103.58, the same also applied for AUC0.20 that is considered the area of greatest inter and intra patient variability. Furthermore and in line with the newly adopted recommendation of the Expert Advisory Committee on Bioavailability and Bioequivalence of Health Canada, the 90% CI for AUCss was within the narrow range of 90-112%. No significant difference in tolerability was recorded between the two products. Sigmasperin Micr® (Julphar) was found to be bioequivalent and clinically interchangeable on mg: mg basis with Sandimmun Ne® (Novartis).
**P 201**

**CYCLOSPORINE A WHOLE BLOOD VS LYMPHOCYTE MAXIMUM CONCENTRATION: CORRELATION WITH IMMUNE RESPONSE.**

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Assess the relationship between Cyclosporine (CsA) whole blood maximum concentration (Cmax), lymphocyte maximum level (LTmL) and the degree of its bioactivity reflected by the total lymphocyte count (LC) in stable kidney transplant patients. A total of 182 blood samples were obtained from 27 patients at different CsA dosages during the first 6 months post-transplantation. Cmax, LTmL and total LC were determined simultaneously. Cmax and LTmL were compared among each other and according to CsA dosage and the relationships between these three parameters (Cmax, LTmL and dose) and the total LC were analysed. Cmax failed to correlate with LTmL (R2=0.001). This was related to a significant inter-patients variability in these parameters (up to 15-20 fold) within each CsA dosage and the consequent poor relationship of both Cmax and LTmL with CsA dose (R2=0.054 and R2=0.09), respectively. Similarly, the total LC exhibited a striking difference among patients when compared in relation to the CsA dosage (R2=0.0003) and failed to correlate with Cmax (R2=0.05). In contrast, LTmL strongly correlated (R2=0.48) with the total LC in an exponential manner. Our results clearly demonstrate a poor relationship between CsA Cmax and both CsA lymphocyte content (LTmL) and immune responsiveness. Given its strong correlation with the LC, LTmL may offer a new alternative for CsA monitoring at its site of action in renal transplantation.

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**TACROLIMUS WHOLE BLOOD VS LYMPHOCYTE TROUGH LEVEL: CORRELATION WITH IMMUNE RESPONSE**

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Assess the relationship between Tacrolimus (TAC) whole blood trough level (BT0L), lymphocyte trough level (LT0L) and the degree of immune responsiveness reflected by the total lymphocyte count (LC) in stable kidney transplant patients. A total of 208 blood samples were obtained from 27 patients at different TAC dosages during the first 6 months post-transplantation. BT0L, LT0L and total LC were determined simultaneously. BT0L and LT0L were compared among each other and according to TAC dosage and the relationships between these three parameters (BT0L, LT0L and dose) and the total LC were analysed. Results: Significant inter-patients variations were observed for both BT0L and LT0L within each TAC dosage responsible for the poor relationship between BT0L (R2=0.083), LT0L (R2=0.15) and TAC dosage, respectively. This has resulted in the lack of correlation between BT0L and LT0L (R2=0.029). Similarly, a substantial difference in the total LC was observed among patients when compared in relation to their TAC dosage (R2=0.04) and it failed to correlate with BT0L (R2=0.016). In contrast, LT0L strongly correlated (R2=0.76) with the total LC in an exponential manner. Our results clearly demonstrate a poor relationship between TAC BT0L and both TAC lymphocyte content (LT0L) and immune responsiveness. Given its strong correlation with the LC, LT0L may offer a new alternative for TAC therapy monitoring in renal transplantation.

**P 203**

**CYCLOSPORINE THROUGH (C0) AND 2-HOURS POST-DOSE (C2) LEVELS: WHICH ONE IS A PREDICTOR OF GRAFT LOSS?**


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Serum level of Cyclosporine (CsA), as the main immunosuppressant in kidney transplantation, is being measured by Cyclosporine through (C0) and 2-hours post-dose (C2) concentrations. C2, compared to C0, has a better correlation with are area under curve (AUC) of the CsA and acute graft rejection. However, it is not clear that which of these measures is correlated with the long term graft outcome. We evaluated the relationship of C0 and C2 with graft survival in an Iranian group of kidney transplanted patients.

Method: In a case-control design, we selected 215 adult kidney recipients. Inclusion criteria was at least 2 years of follow up after kidney transplantation, and Cr<1.5 at the first 6 months post transplantation. From these, 198 have functioning graft (Group I) and 17 had graft failure (Group II). The serum C0 and C2 levels for the first 6 months post transplantation were extracted. We compared the mean of these measures in Groups I and II. The mean (SD) C0 and C2 in Group I, were 248.5±104.5 and 886.3±266.9 (ng/ml), respectively. The same measures were 257.9±126.5 and 712.8±273.2 (ng/ml), in Group II, respectively. Patients in Group I had significantly higher C2 levels than that of Group II(p=0.01), but no significant difference was detected in C0 levels between the two groups (p>0.05). We found that the C2, but not C0, in the early 6 months post-transplantation can be considered as a predictor of long-term graft survival. The findings here support the results of other studies that suggest cyclosporine concentration monitoring by C2 measurement.
P 204
SATISFACTORY OUTCOME WITH LOW CYCLOSPORINE 2-HOUR POST-DOSE LEVEL IN IRANIAN KIDNEY RECIPIENTS

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Cyclosporine (CsA) has a narrow therapeutic serum level in kidney transplantation. There are strict recommended serum levels for CsA after kidney transplantation. Whether or not these levels are necessary to achieve in different ethnic groups and if changes in these levels will greatly affect the patient and graft survival are not fully addressed yet. We investigated this issue by measuring the serum concentration of CsA and long term graft and patient survival in Iranian transplanted patients.

Method: From 2000 to 2006, 397 randomly selected kidney recipients were evaluated for the serum levels of CsA. All patients were under treatment with Prednisolone, MMF and CsA (ne) C2, defined as the serum CsA concentration after 2 hours of administration, was measured at different time intervals: the first 2 months, 2-6 months and after 6 months post transplantation. The mean of C2 levels at specified intervals were evaluated and compared with the recommended optimal ranges. Five year patient and graft survival rate were also calculated. In the studied patients; a lower than recommended C2 levels was observed in 96%, 83% and 65% in the first 2 months, 2-6 months and after 6 months, respectively. The overall 5 year patient and graft survival rates were 95% and 85%, respectively. Despite the great differences between the recommended and observed concentrations of C2, we found a good patient and graft survival. Our data suggests that ethnicity may be an important factor to define target serum cyclosporine concentration levels in kidney transplant patients.

P 205
AN ASSAY FOR THE DETERMINATION OF SIROLIMUS LEVELS IN THE LYMPHOCYTE OF TRANSPLANT PATIENTS

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Both Tacrolimus and Sirolimus bind to the same immunophilin FKBP12, however, their mechanism of action is distinct. Sirolimus inhibits TOR which is an enzyme critical to the immune function. TOR inhibition blocks the signal that mediates T-cell proliferation by preventing cell-cycle progression from G1 to S phase. In order to determine the bioactivity of Sirolimus we have developed an assay to determine the level of Sirolimus the lymphocyte of transplant patients. The levels obtained were correlated with lymphocyte count. Whole blood samples from patients on Sirolimus were collected in EDTA tubes. Immediately the lymphocytes from 2 ml of blood were separated using 1.5 ml of Ficoll gradient, by centrifugation for 30 minutes at 2500 RPM. The lymphocytes were washed 3 times with PBS and the pellet was suspended in 150 UL of MIRI drug extraction solution (Beirut, Lebanon) which was then added to 300 UL of IMx. The lymphocytes cytoplasmic Sirolimus concentrations were measured using the kits supplied from (Abbott). A corresponding whole blood sample from each patient was used to measure blood levels. To determine the level per lymphocytes the value obtained was divided by the number of lymphocytes and is expressed as Pg/Cel. A pharmacokinetic profile for both blood and lymphocytes was constructed for each patient using data corresponding to T0, T1 and T2. The lymphocytes enumeration for T0, T1 and T2, was performed using the Flow Cytometer FACS Calibur from (Becton Dickinson). The average dose was 2.44±0.68 mg/day with a T0 of 8.01±4.5 WBC of 6791±1254 and a lymphocyte count of 1657±268. There was no correlation between the dose, T0 level and the lymphocyte count, or between the T0 and the dose (r2=0.0095 and 0.1697 respectively). Similarly there was no correlation between T1, T2 and lymphocyte count (r2=0.27 and 0.21) respectively. However there was a strong correlation between the B/Cell and the lymphocyte count (r2=0.819). The higher the concentration of the drug the lower the lymphocyte counts. The assay is sensitive to within 0.45 pg/cell, reproducible with a cv of 6.4 for within assay and 7.5 for intra assay. In order to correlate the lymphocyte levels with the observed clinical and pathological conditions a clinical trial is being performed in two countries.

P 206
IS THE OPTIMAL C2 LEVEL THE SAME AS RECOMMENDED LEVEL IN IRANIAN KIDNEY RECIPIENTS?

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Cyclosporine (CsA) has a narrow therapeutic window. Studies suggest that the serum level of CsA be kept strictly at specified level. But it’s not well understood whether failing to maintain these serum levels will affect the overall outcome of the patients in different ethnicities. In this study we aimed to compare the outcome of the Iranian kidney recipients with or without recommended serum CsA levels.

Methods: We included 265 consecutive kidney transplant recipients, transplanted in Baqiyatallah hospital, Tehran, Iran. We followed each recipient for at least 3 years. The serum level of CsA, 2 hours after administration (C2) the most recommended indicator of CsA - were assessed. Patients were then divided into two groups, according to mean C2 levels in the first 6 month after transplantation: Group I, (n=213) consisted of patients with C2 levels within the recommended range and Group II (n=52) included patients with lower than recommended ranges. Two groups had no significant difference in age and baseline Cr. Three-year Graft survival rate was compared in two groups. Three year graft survival was 69% in group I and 89% in group II, which showed no statistically significant difference (p>0.05).
Conclusions: The result of this study - against the general belief - suggests that in our patient population, having C2 levels in the recommended range does not essentially accompany with a better graft survival. This finding suggests that in different ethnic groups, the optimal level of C2 should be determined specifically.

P 207
COMPARISON OF POLY AND MONOCLONAL ANTIBODIES IN TERMS OF REJECTIONS, GRAFT FUNCTION AND INFECTION

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Aim was the comparison of 3 different quadruple induction immunosuppressive Patients and Methods. In 4 groups compromising 8 patients each, treatment was either with ATG (F), anti CD25 Ab (Basiliximab,Gr.:II), anti CD25 Ab (Basiliximab,Gr.:II), anti-LFA-1 (Gr.:III) on day 0 and 4 or a conventional triple drug (Gr.:IV) with CsA, MMF and MP. All groups were comparable concerning age, HLA-compatibility and cold ischemic time. There were only a few side effects like fever, malaise and no tumor regimens in terms of graft-function, rejection and infectious episodes as well as side effects impairing safety and efficacy induction in the mean follow up time of 37 months (12-50). Creatinine after 3 and 12 months showed for I:127/131 mmol/l; II:146/150mmol/l; III:172/156mmol/l; IV:146-150mmol/l. Rate of rejection was 0 in I, 3 in II, 1 in III und 5 in IV, only in I the rate of PRA was mean 22% against 0% in the other groups. Hospital stay was in I only 16 instead of 29, 28 und 31. CMV-Reactivation including treatment was 0,37%, 42% and 12%. The rate of urinary tract infections was 37%, 50%, 87% and 75% (first 3 months post Tx). Under quadruple therapy there was a decrease in values for function, rejection episodes and hospital stay. Infection episodes were only slightly elevated. The beneficial effects for polyclonal Ab´s might be seen in long-term effects as well as in vascular rejection episodes whereas monoclonal Ab´s plus is demonstrated through the near zero rate of side effects.

P 208
LYMPEDEMA: AN UNUSUAL COMPLICATION OF SIROLIMUS THERAPY

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Lymphoedema is an increasingly observed complication of sirolimus (SIR) therapy. In this report we describe four renal recipients with SIR induced lymphoedema of varying severity.

Patient 1: 38 year old male developed lymphoedema of the left upper limb after having being exposed to SIR for 30 months (mean daily rapamune dose was 3mg, trough level ranging from 10-18). Venography and duplex ultrasound were normal. Lymphangiography was done which showed a delayed lymphatic drainage. SIR was replaced with prograf and there was a significant improvement in the lymphoedema over the next six months. 34 year old male developed lymphoedema of the left lower limb after 30 months after starting SIR (mean daily dose 3mg, trough level ranging from 10–15). Lymphangiography showed a delayed drainage of the lymphatic of the left lower limb. Patient was shifted to prograf from SIR and there was some improvement in the lymphoedema over the next 4 months. 28 year old male developed lymphoedema of the left upper limb 24 months after the start of SIR (mean daily dose 2mg, trough level 6-15). Lymphangiography showed evidence of lymphatic obstruction. SIR was changed to Cyclosporine and there was only mild improvement in lymphoedema over the next 6 months. 46 year old male developed lymphoedema of the right upper limb seven months after starting SIR (mean daily dose 6 mg and trough level ranging from 10–16). Lymphangiography showed complete blockage of the lymphatic channels. SIR was changed to cyclosporine and there was mild improvement in lymphoedema over the next 8 to 10 months. The exact mechanism of SIR induced lymphoedema is still not known. Absence of other demonstrable etiologies and its spontaneous improvement after discontinuation of SIR proves that this drug is the responsible factor in these four patients. It occurred 7-30 months after transplantation. This is probably the fourth such report in the literature to the best of our knowledge.

P 209
DERMATOLOGICAL COMPLICATIONS AFTER LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE

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Both deceased donor Liver Transplantation (DDLT) and living-donor Liver Transplantation (LDLT) are being successfully performed at King Faisal Specialist Hospital and Research Center (KFSH&RC). Herein we present our experience with Dermatological Complication following Liver Transplantation (LT).

Patients and Method: At KFSH&RC, and between April 2001 and August 2006, a total of 106 LT procedures were performed (63 DDLTs and 43 LDLTs) in 102 patients (4 re-transplants). Most recipients received FK506 and steroid based immunosuppression regimen, while few received Cyclosporine. Steroid were gradual withdrawn in most patients except those transplanted for autoimmune hepatitis.

Results: Out of 102 LT recipients, 13 patients (12.7%) had dermatological complications, they included; epidermolysis bullosa acquisita in one patient with hepatitis C who showed significant skin fragility and blistering occurring both spontaneously and at the site of trauma, he was treated conservatively and required no further intervention; Kaposis sarcoma in one patient treated with surgical excision and conversion to Sirolimus-based immunosuppression regimen; drug-induced cutaneous vasculitis with deep ulcer formation on the inner thigh treated by drug discontinuation and surgical excision of the ulcer and reconstruction of the skin defect; herpes zoster in one patients treated with intra-
venous antiviral therapy; herpes simplex in 2 patients treated with local antiviral cream; Cyclosporine-induced gingival hyperplasia treated with conversion to FK506; Cyclosporine-induced hypertrichosis treated with conversion to FK506; steroid-induced skin hyperpigmentation in one patient treated with steroids withdrawal; hypomagnesemia-induced hair loss treated with daily magnesium supplement; pressure-induced alopecia areata in 2 patients that was self-limiting and required no treatment; finally, one patient suffered from heel pressure ulcer that was treated by frequent dressing and required no further intervention. In 8 out of 13 patients (62%) who suffered from dermatological problem, the complication was primarily related to immunosuppressive medications. In our experience, dermatological complications following LT are not uncommon and they are usually related to immunosuppressive drugs. Most of those complications could be prevented by optimization of immunosuppression, and moreover, the majority of those complications could be easily treated by simple adjustment of immunosuppression.

**P 210**
**EVALUATION OF LIVER TRANSPLANT RECIPIENTS UNDERGOING SECOND OPERATION IN SHIRAZ**


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To determine the most common indications for second operation in liver transplanted patients, we studied all cases that underwent second operation (reoperation) in our center during past 13 years.

Methods: In a retrospective-descriptive design, all data regarding demographics (age and sex of donors and recipients), source of organ donation, duration of hospitalization, rejections, Child-Pugh score classification, serologic studies, causes of end stage liver disease of recipients, and the cause of second operation was collected by using patients records and PNOT soft ware (Persian Network for Organ Transplantation). Among the total 253 cases of liver transplantation, 58 patients (22.9%) underwent the second operation: 41 (70.7%) were male and 17 (29.3%) were female with a mean age of 30.04±14.23 years. The most common blood groups were A and O. 88.2% of cases received their graft from cadaver. Common causes of liver failure were cryptogenic cirrhosis, viral and autoimmune hepatitis. Vascular and biliary complications were the most common indications for scheduling a second operation. Survival was lower in recipients requiring second operation than other patients. Second operation is required in 22.9% of cases after liver transplantation due to early complications. Most common indications for second operation are early vascular and biliary complications. The need for a second operation is associated with a worsening of survival in liver transplant recipients.

**P 211**
**ENDOVASCULAR STENT-GRAFT REPAIR OF AN INFRA-RENAL ILIAC ARTERY JUMP GRAFT ANEURYSM IN A LIVER TRANSPLANT PATIENT**

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Hepatic artery aneurysm is a rare vascular complication after liver transplantation occurring usually in the first two post-operative months and carries a high mortality rate. Almost all of these aneurysms are pseudo-aneurysms and the majority of them are infected.

Objective: To report the delayed occurrence and successful endovascular stent-graft repair of an aneurysm in a donor iliac artery that was used as an infra-renal jump graft. Case Report: A 55-year-old female underwent cadaveric liver transplantation in 1997 for liver cirrhosis secondary to HCV infection. She had an undetectable HCV PCR level post-operatively on antiviral therapy. The patient presented 8 years later with a vague left upper quadrant abdominal pain that radiated to the back. A CT angio of the abdomen and pelvis revealed an aneurysm in the mid-portion of the infra-renal jump graft with a thrombus causing significant narrowing of the lumen. The patient denied having fevers or chills. Her liver function test was normal with a normal duplex U/S of the liver vessels. The ESR was elevated and blood cultures were negative. The patient underwent an endovascular repair with a stent-graft because of the significant stenosis in the iliac graft. Interestingly, the patient pain resolved after the procedure. She is now 14 months since the procedure, symptom free with a normal liver function. This case might represent the occurrence of an inflammatory aneurysm because of the elevated ESR and the resolution of symptoms after the repair. Endovascular approach was useful in this case. Figures will be included.

**P 212**
**INCIDENTAL PATHOLOGIC FINDINGS IN LIVER TRANSPLANTATION**


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Diagnosis of incidental findings such as hepatocellular carcinoma (HCC), cholangiocarcinoma, focal or massive necrosis, etc. is important as the type, number and correlation of these lesions with other etiologies of cirrhosis strongly influence patient management.

Method: In a prospective manner, we reviewed pre-transplantation and post transplantation pathologic reports of all patients whose livers were transplanted from May 1994 to June 2006 in
Results: Among all 223 patients studied, only 14 incidental pathologic findings were detected. (Necrosis: 4, HCC: 3, Portal vein thrombosis: 2, cholangiocarcinoma: 1, Multiple liver cell adenoma: 1, Hemangioma: 1, large cell dysplasia: 1). Only two cases out of 14 had the same pathologic reports before transplantation. Hepatitis B was diagnosed for 2 patients who had HCC. Autoimmune hepatitis was diagnosed for one of the necrotic livers in pre-operation evaluation, while cryptogenic cirrhosis was reported for other 3 necrotic livers. In 2 cases who were infected with type B hepatitis, portal vein thrombosis was presented in post-transplantation reports, incidentally. Incidental pathologic findings are not common reports in our center. Between these rare presentations, necrotic liver was the most common incidental finding and HCC was the second.

**P 213**

**PREOPERATIVE AND POST OPERATIVE ASCITES ARE MAJOR PREDICTIVE FACTORS OF SURVIVAL AFTER LIVER TRANSPLANTATION**


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Over years, many clinical and biochemical parameters have suggested predicting liver transplantation survival. Our experience showed that pre- and post-op ascites are two major predictors of liver transplantation outcome.

Methods: Information obtained from liver transplant data registry of Shiraz organ transplant center, Namazee hospital. Pre-op ascites was confirmed with two sonography reports. Post-op ascites was also detected with serial sonographies during hospital stay. Early mortality and late survival rates were compared between subjects with pre-op or post-op ascites with others. Data analyzed by SPSS 13 package and survival rates were calculated by Kaplan-Meier test. Logistic regression test was used to predict mortality rates.

Results: 246 patients were enrolled in our study. Early (3 months) and late (75 months) survival rates in patients without and with pre-op ascites were 95.3% v/s 70% (p<0.05). No significant difference was seen in graft function, IV fluid administration, CVP, and hemodynamic status of patients with or without pre-op ascites, in their post-op period. Variables such sex, age, Child score, donor liver steatosis, early and long-term rejection episodes, and viral markers did not have any effect on survival. In stepwise logistic regression model, pre-op and post-op ascites predicted mortality of patients with Odd's Ratio=16.9 and 8.6 respectively. Ascites is one of the major predictive factors of hospital mortality and early and late survival of liver transplantation.

**P 214**

**TRANSPLANTATION ON MORTALITY AND SURVIVAL THE EFFECT OF HIGH VOLUME LIVER RATE**


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The paper reports this Iranian single center experience, highlighting main changes that have occurred over time.

Methods: Between April 1993 and June 2006, 250 liver transplantations were performed on 247 cirrhotic patients, at Shiraz organ transplantation, the single center for liver transplantation in Iran. Surgical technique was based on preservation of retrohepatic vena cava (Piggy-Back) of recipient. We excluded the 1st fifty cases to dismiss the effect of ‘learning curve’. During the period of high volume procedures (March 2002–June 2006), two-hundred consecutive liver transplantations were studied, respectively by comparing the 1st one-hundred (group 1) with the second (group 2). The mean follow-up was 21.9+/−14 months (CI95%: 19-24) for group 1 and 7.0 +/- 5.3 (CI95%: 5.9-8.1) for group 2. Survival rates were calculated by Kaplan-Meier test. The characteristics of donors and recipients including age, sex, indication for liver transplantation, Child-Pugh score, and blood group were not statistically different. Early mortality was 18% in the first group v/s 9% in the second (p=0.107). ICU stay was 4.7+/− 3.7 v/s 4.5+/− 3.1 days (P=0.76). Reoperations were the same (14) in both groups. Clinical rejection occurred in 52% v/s 47% (P=0.76). Renal failure was found in 4% v/s 1% (P=0.36). Biliary leak occurred in 12% v/s 5 % (P=0.12). Significant improvements were found in hospital stay (27.4+/− 17.2 v/s 22.6 +/- 14.3 days, P=0.03), 3-month patient survival (72% vs 85%, P=0.04), and one-year survival (72% vs 83.8% in 37 patients of second group who had 1-year follow-up, P=0.021). Increasing experience in liver transplantation, refinement of surgical technique, improved organ procurement, and post-op care allowed standardization of the procedure and expansion of the activity, with parallel improvement of the results. Despite we achieved excellent results, we hope to reach better survival rates (over 90%) in near future.
THE EFFECT OF CLAMPING OF INFERIOR VENA CAVA AND PORTAL VEIN ON URINE OUTPUT DURING LIVER TRANSPLANTATION


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Preservation of renal function during liver transplantation is a gold standard. Intraoperative problems like hypotension, massive transfusion, liver disease, co-existing renal dysfunction, and decreased GFR during clamping of inferior vena cava (IVC) and portal vein (PV) are some major hazards for kidney function during liver transplantation. To determine the change in urine output during the clamping time, we undertook this study. 24 patients without preexisting renal disease, undergoing liver transplantation with piggyback method, were enrolled in this study. Patients with creatinine more than 1.2 mg/dl were excluded. Urine output was monitored 30 minutes before clamping of IVC and portal vein, during clamping, and 30 minutes after declamping. None of the patients had clamping time longer than 70 minutes. Our goal was to maintain mean arterial blood pressure and heart rate just by fluid administration and diuretics were avoided Participants had mean Age of 39.12 +/- 13.52 years (15-67) with male to female ratio of 1.4. Urine output 30 minutes before clamping was 1.53 ml/kg/hour, decreased to 0.37 ml/kg/hour during clamping and increased to 1.52 ml/kg/hour, 30 min after declamping. Conclusion: Urine output reduced significantly in all patients, after clamping of IVC and portal vein (P<0.05). It can be explained by increased venous pressure and therefore decreased renal perfusion pressure. If clamping time is less than 70 minutes, the reduced perfusion pressure can be tolerated well by the kidneys, renal function will return to normal immediately after declamping, and no renal damage will occur. It has been stated that one of the advantages of veno-veno bypass (VVB) is increase of renal perfusion pressure. If clamping time is less than 70 minutes, the reduced perfusion pressure can be tolerated well by the kidneys, renal function will return to normal immediately after declamping, and no renal damage will occur. It has been stated that one of the advantages of veno-veno bypass (VVB) is increase of renal perfusion pressure. However, if the clamping time in piggyback method becomes shorter than 70 minutes and patients have normal preoperative renal function, the decreased renal perfusion pressure will not cause any kidney dysfunction post operatively.

TRANSPLANTATION OF A CADAVERIC LIVER ALLOGRAFT WITH LARGE RIGHT LOBE CAVERNOUS HEMANGIOMA, WITHOUT BACK-TABLE RESECTION: A CASE-REPORT

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The use of extended criterion for donation of liver has become a necessity in an era of organ scarcity for transplantation. We present a case report of orthotopic liver transplantation, using a liver with a giant right lobe hemangioma without back-table resection, for transplantation. There was no data regarding the liver mass before organ procurement. The donor’s liver function tests and electrolyte’s profile were normal. During exploration of donor, a hemangioma was identified, in segments V-VI, occupying approximately 20% of total liver volume. It was prepared for transplantation on a sterile back-table without performing back-table hemangioma resection. A standard orthotopic liver transplant procedure was performed uneventfully, without veno-veno bypass. There was no bleeding from hemangioma. Ischemic time was 9 hr and 20 min. Post op course was uneventful and the patient was discharged, 19 days after the operation. The hemangiomas showed evolution with some decrease in size in later follow ups. No clinically important complication was observed. Our case and other previous reports show that even large hemangiomas should not be considered as a contraindication to organ procurement. These benign lesions either could be left in situ and observed, or resected.

LIVER TRANSPLANTATION: SHIRAZ EXPERIENCE WITH 253 CASES

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The Shiraz organ transplant center in Southern Iran has been performing liver transplantation in Iran and neighboring countries for 13 years.

Method: Between April 1993 and July 2006, 256 liver organs were transplanted to 253 cirrhotic patients more in Child–C group, in Shiraz organ transplantation, the single center for liver transplantation in Iran. All data regarding age and sex of donors and recipients, complications, survival, and outcome were analyzed.

Results: 163 (64.4%) of recipients were men and 90 (35.6%) were women. Mean recipients’ age was 31.06± 14 years. Among 256 liver donors, 198 (77.3%) were male and 58 (22.6%) were female with average age of 27.04±12.2 years. The smallest donor
and recipient were a 6 month and an 11 month old boy, respectively. The oldest recipient had 62 years. Ten cadaveric split liver transplants, 19 living related liver transplantations (17 left lobes, 2 right lobes), and 224 whole organs were transplanted. Three patients underwent retransplantation because of acute graft failure. Common causes of liver cirrhosis were cryptogenic (n=63, 25%), viral (HBV, HCV) (n=56, 22.1%), autoimmune (n=46, 18.1%), PSC (n=35, 13.8%), and Wilson (n=23, 9.1%). Majority of deceased donors (n=119, 49.1%) were from our own province (Fars). An acute rejection episode requiring pulse therapy was occurred in 97 cases (38.3%) and twenty patient (7.9%) had two rejection episodes. Most frequent short term complications were respiratory, neurologic and biliary problems. The 1-, 2-, and 3-year patient survival rates were 76.1%, 73.2%/+-0.03, and 73.2%/+-0.03, respectively. An experience with liver transplantation since 1993 indicates success comparable to other centers. In comparison to last report of 140 patients from our center, the etiology of cirrhosis is shifting from cryptogenic towards the viral hepatitis, slowly. More experience is resulting in better patient’s selection, operation and more survival rate.

**P 218**
LIVER TRANSPLANTATION FOR AUTOIMMUNE HEPATITIS: A SINGLE CENTER EXPERIENCE

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Both deceased donor Liver Transplantation (DDLT) and living-donor Liver Transplantation (LDLT) are being successfully performed at King Faisal Specialist Hospital and Research Center (KFSH&RC). Herein we present our experience with Liver Transplantation (LT) for Autoimmune Hepatitis (AIH). Patients & Method: At KFSH&RC, and between April 2001 and August 2006, a total of 106 LT procedures were performed (63 DDLTs and 43 LDLTs) in 102 patients (4 re-transplants). Out of the 102 recipients, 14 patients (12%) were transplanted for AIH (13 DDLTs and 1 LDLT). All recipients received FK506 and steroids based immunosuppressive regimens. 14 patients were transplanted for AIH, female/male ratio was 12/2, median age was 22 years (range, 15-35), and median MELD score was 27 (range, 20-37). After a median follow-up period of 446 days (range, 177-1914), the overall patient and graft survival was 93%. Out of 14 patients, only one patient died from primary graft nonfunction, she underwent LDLT with a MELD score of 32, she suffered from sever coagulopathy and bleeding possibly due to small-for-size graft. Of out 14 recipients, 4 patients (28%) had markedly elevated serum CA19-9 levels (range, 217-2800), pre-transplant work up ruled out malignancy, serum CA19.9 normalized in all patients within the first three months post-transplant, histopathologic examination of the explanted livers excluded malignancy, and showed extensive bile ductular proliferation, immunohistochemical stains for CA19-9 showed intense membranous uptake in all bile ductules, proliferative indices using Ki-67 antibody showed surprisingly low levels of proliferation (<1%). Steroids withdrawal failed in all recipients and was always accompanied with almost immediate elevation of liver enzymes, due to either rejection or disease recurrence. In our experience with LT for AIH, patients are usually young females who present with acute deterioration and high MELD scores. Some patients have markedly high CA19-9 in absence of malignancy. Most patients do well after LT and they usually require long-term steroids to prevent rejection and avoid disease recurrence.

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PERIOPERATIVE ANESTHETIC MANAGEMENT OF ORTHOTOPIC LIVER TRANSPLANT RECIPIENTS IN NONTRANSPLANT SURGERY

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The purpose of this study was to evaluate the perioperative anesthetic management of orthotopic liver transplant (OLT) recipients who had undergone nontransplant surgery at Baskent University Hospital. Methods: Charts of 22 OLT recipients who had undergone nontransplant surgery between December 1988 and February 2006 were retrospectively reviewed. Twenty-two patients underwent 32 nontransplant elective surgeries. The mean age at the time of transplantation was 20±18 years. The mean interval from liver transplantation to first surgery was 739.1±502.2 days. The most frequent type of surgery was abdominal (28.1%) followed by orthopedic (18.8%), gynecologic (18.8%), ear/nose/throat (9.4%), pediatric (9.4%), and neurologic (9.4%). Types of anesthetic techniques used were general (75%), regional (9.4%), local (9.4%), and sedoanalgesia (6.3%). General anesthesia was induced using thiopental, propofol or ketamine, and maintained with isoflurane and N2O. Fentanyl was used in 91.7% of the patients. Endotracheal intubation was performed in 43.8% of the patients with vecuronium (76.9%) or atracurium (23.1%). Spinal anesthesia and peripheral neural blockage was performed in 3 and 2 patients, respectively. Serum alanine transaminase, aspartate transaminase, prothrombin time, activated partial thromboplastin time and bilirubin levels were similar between preoperative and the first postoperative day after surgery (P>0.05). There were no intraoperative complications or hospital mortalities. In this study, neither regional nor general anesthetic techniques were associated with deterioration of liver functions. According to these results, we suggest that OLT recipients may undergo nontransplant surgeries without postoperative graft dysfunction provided hepatic perfusion is maintained with appropriate anesthetic management.
Hepatic artery thrombosis (HAT) is a devastating complication that occurs in 3-9% of all liver transplantations and acute graft failure is a possible sequel. It may present with acute graft failure, sepsis or liver abscess, or a bile duct complication such as biliary leak or stricture. Methods: All 11 episodes of HAT were identified among 242 orthotopic liver transplantations (whole, LDCT, Split) that were performed on 238 patients, between April 1993 and July 2006, in a single liver transplant center in Iran. HAT was suspected clinically and confirmed by DUS, MRA, Angiography, or reexploration. One patient was excluded from the study due to poor follow up. Treatment options included exploration with HA thrombectomy plus thrombolysis, retransplantation, or conservative treatment of hepatic and biliary complications. One patient was excluded due to poor follow up. Among 11 patients with mean age of 26.6 years (10 months -56 years), 2 had split right lobe liver transplantation and 9 received whole organ. None of LDLT was identified to have HAT.

The causes of liver cirrhosis were autoimmune hepatitis (n=3), Cryptogenic (n=3), Wilson (n=1), PBC (n=1), biliary atresia (n=1), and HBs (n=1). HAT was diagnosed 7.8 (2-16) days after operation. Most patients developed RUQ pain at presentation. Two patients developed acidosis, fever, or SIRS and underwent retransplantation. Four underwent exploration of HA and 1 treated conservatively. Three cases expired due to HAT complications. Conclusion: We found RUQ pain as the presenting sign of early HAT in majority of cases. RUQ pain is reported to occur in late HAT. Whenever HAT is confirmed, LT patients should be revascularized or even retransplanted. Intra arterial thrombolysis and thrombolytic therapy for HAT should be done cautiously due to the potential risk of hemorrhage.

Nonfunctioning graft (NFG) is a serious complication of liver transplantation and its treatment is only retransplantation. With shortage of available deceased donors, the patients are most often condemned to death. Methods: From May 1993 to July 2006, 251 OLTs were performed on 249 recipients. In a prospective design, all data regarding age and sex of donors and recipients, ischemic time, causes of death in donors, shipping of harvested graft and its function were collected. Living donor liver transplantation was excluded from this study. Results: 231 cases (55% male, 45% female) with mean age of 36 years old (3-61years) had graft form deceased donors. Main donor sources (82% male and 18% female) were from Shiraz (125), Tehran (63), Mashad (17) and Isfahan (16) with mean ischemic time of 6.3, 11, 11.30 and 10 hours, respectively. Mean age of donor was 28 years. 61% of donors had less than 30 years. 96% had vehicle accident. Nine were older than 50 years old (3.8%). Six donors had short ischemic time and 3 had long ischemic time. In our recipients, five cases had NFG (2.1%). In 3 of them, donor was older than 50 years old. All NFGs had ischemic time more than 10 hours. Post operative AST and ALT values were more than 1600 IU in NFGs. Two of 5 NFGs had donors younger than 50 years old; however, they were harvested by a trained but uncertified surgeon. Transplantation team was the same in all NFGs. All patients died on day 3 or 4. Conclusion: The most important cause of death in donors is vehicle accident. Donors are not old and NFG is uncommon. Old donors (>50 yr) with prolonged ischemic time (>10 h) and probably harvesting by inexperienced surgeon are risk factors for NFG.
agament. There are some issues about which operation should be done first. Also the aetiology of AVR and the type of prosthetic valve should be considered. As described in this case report, prioritizing AVR as the first procedure was successful in this particular patient. However, each patient must be evaluated individually by considering known or estimated risk factors.

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**TACROLIMUS-RELATED SEIZURE IN THE EARLY POSTOPERATIVE PERIOD AFTER LIVER TRANSPLANTATION**

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The aim of this study was to analyze our liver transplant patients who had tacrolimus (TAC) related seizure in the early postoperative period. Liver transplantation (LT) was performed in 133 patients between September 2001 and June 2006. All received a TAC based immunosuppressive protocol after LT. Twelve (9%) of those 133 patients had seizure in the first month (female/male=1/11, mean age 20±12 years, range, 12 to 49 years). Three of these patients received grafts from cadaveric donors and 9 from living donors. All patients presented with generalized tonic-clonic seizures. Most had minor forerunner symptoms just hours before the attack. Blood tacrolimus levels were within the therapeutic levels, and there were no other reasons that could initiate a seizure at that time. Post-seizure magnetic resonance imaging revealed any abnormality. TAC was converted to cyclosporine in 11 patients and to ramiprincine in 1, besides antiepileptic therapy. All patients recovered and seizures disappeared. There was no nephrotoxicity or vascular complications related to drug conversion. Death unrelated to seizure occurred in one patient 2 months after LT. Eleven patients are alive with good graft function during a mean follow-up of 20 +/- 19.7 months (range, 1-52 months). In the early post-transplant period each neurologic disturbance even the minor ones should alert the clinician as they might be a warning message for a coming seizure. These patients should be followed closely and the clinician should not hesitate for a drug conversion in suspicious cases.

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**OUTCOME OF LIVER TRANSPLANTATION IN SAUDI ARABIA**

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The aim of the study is to evaluate and analyze the result of the liver donation and transplantation.

Methods: A retrospective study was done during the year 2004 and 2005 from the 128 living related (LR) and deceased donors (DD). Data includes donors characteristics and acceptance rate for DD offered livers, recipients status post transplant follow up period and patient survival.

Results: A total of 122 cases from DD were consented for liver donation and 69 (56.55%) cases were retrieved with 55 (78%) from them were able to transplant with donor mean age of 30 years. As to LR donors, mostly were son, mother and father related with a mean age of 28.5 years with male/female ratio of 3/1 for a total of 73 transplants. The mean follow up period was 268 days and the mean stay in hospital post transplant was 28 days with 5 (4.2%) having a primary non-functioning graft. At the end of the follow up period, there were 113 (88%) active patients, 15 (11.7%) died while 111 (98.2%) doing well at home and 2 (1.8%) at the hospital. The patient survival at two years was 87%. The outcome of the liver transplantation in the kingdom is up to standard which is comparable to international level, though the need to increase the acceptance rate and the use of harvested liver requires more effort in the management of deceased donors. Both LR and DD transplant should be enhance to meet the ever-increasing demand of organ transplantation.

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**ARTERIAL STEAL SYNDROME IN LIVER TRANSPLANTATION: ONE CENTER’S EXPERIENCE**

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Arterial steal syndrome (ASS) after orthotopic liver transplantation is characterized by arterial hypoperfusion of graft caused by a shifting of blood flow into splenic, left gastric, or gastroduodenal artery. In this report, we present some aspects of ASS that have led to ischemia in patients with transplanted livers at our center. ASS is suspected by elevated liver enzyme levels demonstrated on Doppler ultrasound or computed tomographic angiography, and is confirmed by celiac angiogram. Patients with confirmed hepatic arterial thrombosis before angiography were excluded. Patients with ASS were treated with embolization with a coil or placement of an endoluminal stent. Of 11 liver transplant patients at our institution, 8 men and 3 women (mean age, 25 years age; range, 6-40 years) developed biochemical evidence of liver ischemia and failure 1 to 170 days after orthotopic liver transplantation. Ten of those patients had splenic ASS, and 1 had both splenic and left gastric ASS. None of those patients had gastroduodenal artery steal syndrome. The 9 patients with splenic steal syndrome and the 1 with both splenic and left gastric steal syndrome were treated by transcatheter occlusion with a coil. The remaining patient with splenic steal syndrome was treated with an endoluminal narrowing stent placement. All patients improved clinically within 24 hours. Follow-up ranged from 1 to 22 months (mean, 7.7 months). One patient died. In conclusion, ASS is a significant problem following orthotopic liver transplantation. Embolization or stenting are minimally invasive, successful treatments for ASS that generally result in early clinical improvement.
Biliary complications are some of the most critical problems in liver transplantation. In this study, we retrospectively analyzed the early results of intraoperative transhepatic biliary catheter insertion technique for biliary reconstruction at our hospital. Since November 2004, we used this technique in 66 patients (32 children, 34 adults). In the new technique, a 5-F Kumpe catheter is inserted into the biliary system in 2 steps. One step is completed at the back table, and the second step is completed during the recipient operation. Fifteen patients received whole-liver grafts, 23 received a right lobe and 30 received a left-lateral lobe or left lobe. The mean graft-weight-to-body-weight ratio in the living-donor liver transplantations was 1.6%±1.0% (range, 0.8% to 4.1%). Intraoperative transhepatic biliary catheter insertion was performed with a duct-to-duct anastomosis in 60 patients and with a Roux-en-Y hepatojejunostomy in 6. Five biliary complications occurred in 4 patients, two of which had bile leakages from the anastomotic site during the early postoperative period. Biliary stenoses developed from the anastomotic site in 2 patients and from the nonanastomotic site in 1 patient in the late postoperative period. In conclusion, this new technique of biliary reconstruction—with intraoperative biliary catheter insertion—has significantly reduced our biliary complication rate. Transhepatic biliary stenting prevents biliary complications and makes it simple to maintain percutaneous access in the event that such problems arise. Intraoperative transhepatic biliary catheter insertion at the back table helps providing good biliary drainage after liver transplantation.

Biliary tract complications, which occur in 5.8% to 24.5% of adult liver transplant recipients, remain one of the most common problems following transplantation. The aim of this study was to determine the incidence of biliary complications and analyze methods of treatment. From 1993 to 2004, 14 cases (10%) among 140 patients who had undergone liver transplantation developed biliary complications, third to respiratory and neurologic complications. In addition to biliary leakage in six cases, obstruction/stenosis occurred in three cases. One case of biliary fistula and one vanishing bile duct syndrome were observed. There was no death or need for retransplantation; all cases were treated surgically without recurrence. Biliary complications remain an important problem in liver transplantation. Endoscopic and radiologic management are effective in the majority of cases. Surgical intervention is obligatory and safe in selected cases.
DIABETES MELLITUS AFTER LIVER TRANSPLANTATION IN IRANIAN RECIPIENTS

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Post liver transplant Diabetes Mellitus (PTDM) is a common complication after liver transplantation and is believed to be multifactorial. In this study we investigated the prevalence and risk factors of developing diabetes mellitus in patients who underwent liver transplantation between 1994 and 2006 in Shiraz organ transplant center. This retrospective study was performed to investigate the prevalence and risk factors of PTDM in 170 liver recipients. Patients were considered to meet the criteria for DM if they had fasting glucose ≥126mg/dL or if they were taking insulin or hypoglycemic agents at the time of this study. The influence of age, gender, HBV, HCV infection and immunosuppressive medications was also studied.

Data were collected by review of patients medical records and analyzed with SPSS software. Results: The mean level of fasting plasma glucose before transplantation was (103.9±50.7) while it was (125.9±78.7) after transplantation. 44 of 170 patients (25.88%) developed DM after transplantation. Among them 33 patients were male and 11 patient were female (P<0.05). HBV infection was significantly correlated with developing PTDM (P<0.05) while HCV infection and immunosuppressive medication was not predictors of PTDM (P>0.05). Diabetes Mellitus is common metabolic complication after liver transplantation. This study showed that development of PTDM is associated with male gender and HBV infection in Iranian liver recipients.

A SURVEY OF INTRAOPERATIVE BLOOD LOSS AND BLOOD PRODUCTS TRANSFUSION IN 120 ADULT ORTHOTOPIC LIVER TRANSPLANTATION: AN EXPERIENCE IN SHIRAZ CENTRE


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Liver transplantation is a procedure which is known for its massive intra operative bleeding. Depending on nature of liver disease and experience of transplant team, this problem varies from patient to patient. In our survey we analyzed data of intraoperative bleeding and blood products transfusion in 120 adult orthotopic liver transplantation. Data such as intraoperative blood loss, infused pack cell, infused fresh frozen plasma, infused platelet, the frequency of rapid infusion system and cell saver usage gathered from anesthesia record of 120 performed orthotopic liver transplantation and were analyzed retrospectively over a period of five years. Correlation test between date and blood loss per kilogram revealed a decrease in blood loss with the passage of time (P<0.05). Overall mean intra operative blood loss was 60cc/kg. Maximum blood loss was 23000 cc (358cc/kg) and minimum blood loss was 400cc (7.4 cc/kg). In 3 patients (2.5%) there was no need for blood transfusion (desired hematocrite=30-33%). In 41 patients (34.2%) there was no need for transfusion of fresh frozen plasma (monitored with thromboelastography). In 70 patients (58.3%) there was no need to tranfuse platelet (monitored with thromboelastography). The rate of rapid infusion system or cell saver usage have been decreased with the improvement of the team experience.
Conclusion: Although massive intra operative blood loss is an expected phenomena in liver transplantation, improvement in the experience of the team has a dramatic role in decreasing blood loss and blood products transfusion respectively.

**P 232**
**EXPERIENCE AFTER THE EVALUATION OF 700 POTENTIAL DONORS FOR LIVING DONOR LIVER TRANSPLANTATION**

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Adequate selection of donors is a major prerequisite for living donor liver transplantation (LDLT). Few centers report on the entire number of potential donors considered or rejected for living donation. From April 1998 to July 2003, a total of 111 living donor liver transplantations were performed at our institution, with 622 potential donors for 297 adult recipients and 78 potential donors for 52 pediatric recipients evaluated. In the adult group, only 89 (14%) potential donors were considered suitable, with a total of 533 (86%) potential donors rejected. Of these, 67% were excluded either at initial screening or during the first and second steps of the evaluation procedure. In 31% of all cases, the evaluation of donors was canceled because of recipient issues. In the pediatric group, 22 (28%) donors were selected, with the other 56 (72%) rejected. Costs of the complete evaluation process accounted for 4,589 Euro (Euro) per donor. The evaluation of a potential living donor is a complex and expensive process. We present the results on the evaluation of the largest group of potential donors for adults reported in the literature. Only 14% of potential donors in our series were considered suitable, with a total of 533 (86%) potential donors rejected. Of these, 67% were excluded either at initial screening or during the first and second steps of the evaluation procedure. In 31% of all cases, the evaluation of donors was canceled because of recipient issues. In the pediatric group, 22 (28%) donors were selected, with the other 56 (72%) rejected. Costs of the complete evaluation process accounted for 4,589 Euro (Euro) per donor. The evaluation of a potential living donor is a complex and expensive process. We present the results on the evaluation of the largest group of potential donors for adults reported in the literature. Only 14% of potential donors in our series were considered suitable candidates. It has not yet been established who should cover the expenses of the evaluation of all rejected donors. In conclusion, all efforts should be made in order to develop an effective screening protocol for the evaluation of donors with the aim of saving time and resources for a liver transplantation program.

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**LONG-TERM BEHAVIOUR OF CARDIOVASCULAR COMPLICATIONS IN PANCREAS AND KIDNEY TRANSPLANTATION UNDER EARLY STEROID WITHDRAWAL**

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From 9/1992 to 9/2003, 55 patients received a simultaneous pancreas-kidney transplantation (13 female, 42 male, mean age at transplantation 40.5 years (range 22-58 y.) in two different techniques: n=18 (bladder drainage) and n=38 (enteric drainage, incl. 1 retransplantation). Question was, if the introduction of a early steroid withdrawal (weaning after 3 months) will have impact on survival, rejections and cardiovascular complications. Patients and Methods: Survival rates for patients (1/10 years) were 93/91%; for the pancreas 86/ 82% and for the kidney 9388%. 5 patients died during the mean follow-up time of 111,5 months (37-161 months). Patients received an ATG induction therapy on day 0 and 4, ciclosporine, azathioprin (16p./ 39p. since’96 MMF) and methylprednisolone 250 mg intraoperatively tapered down by half till 4 mg in week 4; from month 3 followed by a weaning for 4-6 weeks in patients without rejection episodes.

Results: Three of 50 patients were still on steroids (2,6 mg), on average patients were steroid-free 23 weeks after transplantation. Last follow-up mean blood glucose level was 79 mg%, creatinine 169 µmol/l,cholesterol 4,6 mmol/l and triglycerids 1,2 mmol/l (0,8-1,5). 26 patients were on medication (1-3) for hypertension. Significant differences were found only between the SPK and a control group (diabetics at dialysis) concerning LDL, triglycerides, plasma viscosity and fibrinogen (clear benefit for SPK). 7/55 patients had 11 rejection episodes during the observation period (20%) Early steroid-free immunosuppression is safe in SPK. Under C2 monitoring, treatment regimes with cyclosporine are showing less rejection episodes. Cardiovascular risk is lower under SPK.

**P 234**
**THE FIRST IRANIAN EXPERIENCE: SIMULTANEOUS KIDNEY-PANCREAS TRANSPLANTATION IN SHIRAZ ORGAN TRANSPLANT CENTER**

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Simultaneous kidney-pancreas (SKP) or pancreas after kidney (PAK) transplantation is treatment of choice for selected patients with type 1 diabetes mellitus and end-stage renal failure. However, it is difficult to start a program for the fear of serious intraabdominal complications in an immuno suppressed patient. We reviewed the first five patients who underwent SKP in Shiraz organ transplant center.

Methods: For the first time in Iran, between April 2006 and August 2006, we began performing SKP transplantation on 5 recipients. The operation included portal venous drainage and exocrine enteric drainage. Immunosuppressive therapy included prednisolone, tacrolimus, and mycophenolate mofetil and gancy clovir was administered as prophylaxis for cytomegalovirus. One case developed acute isolated pancreatic rejection and was excluded from study.

Results: The mean follow up was 92.6+/- 17.29 days (range, 63-107). Mean age of donors and recipients were 24+/-3.08 and 32.2 +/- 7.26 years, respectively. Male/female ratio was 1.5 for recipients. Duration of hospital admission was 15.8+/- 7.26 days (range, 8-27). Mean cold ischemic time was 5.55 +/- 3.21 hours. Mean pre-transplant NPH insulin consumption was 29.75 +/- 7.32 (range, 8-27). Mean age of donors and recipients were 24+/-3.08 and 32.2 +/- 7.26 years, respectively. Male/female ratio was 1.5 for recipients. Duration of hospital admission was 15.8+/- 7.26 days (range, 8-27). Mean cold ischemic time was 5.55 +/- 3.21 hours. Mean pre-transplant NPH insulin consumption was 29.75 +/- 7.32 (range, 8-27).
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have been females. We studied retrospectively the female to male ratio for kidney donors and recipient from 1980 – 2005. 198 living related kidney transplantation were performed for Omani recipients during this period. In order to look for cultural influences, transplantations performed to expatriates were excluded from the study. For the whole period 98 out of 198 donors (49.5%) were females. The female recipient was 75 out of 198 (38%) and male recipient were 123 (62%). We then sub-divided the period in to three intervals: 1980 till 1990, 1991 till 2000 and 2001 till 2005. The numbers of female and male donors for these three periods were 29/64 (45%), 35/64 (55%); 42/89 (47%), 47/89 (53%); 27/45 (60%), 18/45 (40%) respectively. There is a persistent preponderance of male recipients from 58 – 66% for these periods. We conclude that there was no gender imbalance for the kidney donors, yet there is some male preponderance in the recipient group.

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CYCLOSPORINE-A MONITORING BY LIMITED SAMPLING IN IRANIAN CHILDREN RENAL TRANSPLANT RECIPIENTS

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The optimization of cyclosporine-A (CsA) immunosuppression remains a challenge because of the narrow therapeutic window and highly variable pharmacokinetics. During the past decade, various pharmacokinetic strategies have been proposed, such as trough level (C0) monitoring, single point concentration at 2 hour postdose (C2) after drug administration, and various sampling algorithms using 2 to 5 sampling time points. In this study we evaluated the cyclosporine-A pharmacokinetic in stable Iranian children recipients of renal transplant. Subjects and methods A total of 29 stable renal transplant recipients (age 3-12 years) whose serum creatinine values were <2 mg/dL were the subjects of this investigation. All the cases had renal transplants more than 6 months ago. The subjects received cyclosporine-A based immunosuppression with Né. Blood samples were collected at 5 points predose, 0.5, 1, 2 and 4 hours after drug administration at clinical steady state. Whole blood cyclosporine-A concentrations were measured using Radioimmunoassay for cyclosporine (CycloTrac® SP). Whole blood IgM-anti CMV (IgM, IgG) were calculated using the trapezoidal method.

P 236
DONORS GENDER BALANCE IN A LIVING RELATED KIDNEY TRANSPLANTATION PROGRAMME IN OMAN

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It has been observed in several eastern and western countries that there was a gender imbalance in kidney donors. In the international experience approximately 65% of live kidney donors have been females. We studied retrospectively the female to male ratio for kidney donors and recipient from 1980 – 2005. 198 living related kidney transplantation were performed for Omani recipients during this period. In order to look for cultural influences, transplantations performed to expatriates were excluded from the study. For the whole period 98 out of 198 donors (49.5%) were females. The female recipient was 75 out of 198 (38%) and male recipient were 123 (62%). We then sub-divided the period in to three intervals: 1980 till 1990, 1991 till 2000 and 2001 till 2005. The numbers of female and male donors for these three periods were 29/64 (45%), 35/64 (55%); 42/89 (47%), 47/89 (53%); 27/45 (60%), 18/45 (40%) respectively. There is a persistent preponderance of male recipients from 58 – 66% for these periods. We conclude that there was no gender imbalance for the kidney donors, yet there is some male preponderance in the recipient group.

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CYTOMEGALOVIRUS INFECTION IN RENAL RECIPIENTS IN ALZAHRA HOSPITAL OF ISFAHAN

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Patients with renal transplant received immunosuppressive drugs are prone to any opportunistic infections such as CMV. CMV activity occurs in patients who have IgG anti CMV and causes sever disease with high mortality and transplant rejection. This study is planed to detect the prevalence of anti CMV (IgM, IgG) before transplantation and long term follow up of active CMV disease incidence. In this cross sectional study, 70 patients candidate for renal transplantation studied in Alzahra Hospital Of Isfahan. After blood sampling and filling questionnaires, ELISA test for anti CMV (IgM, IgG) performed and prevalence of these antibodies calculated. Prevalence of these antibodies calculated according to age and gender and long term follow up was done for incidence of acute CMV infection following transplantation. 70 patients studied among them 64 (91.4%) had IgG-anti CMV. There was 38 male (59/3%) and 26 female (40/6%). 2 person had IgM-anti CMV that both of them were female (100%). There was relationship between anti CMV-IgG prevalence and age (p=0/05) and no relationship of anti-CMV IgG and gender. There was no any relationship of anti CMV-IgM and age/gender. 2 cases (2/8%) of active CMV disease occurred during six months after transplantation and one of them rejected the transplant. According to the prevalence of anti CMV-IgM among studied patients here was high risk of re infection which causing sever complication and transplant rejection so this recommendable to prevent sever infection and mortality by performing CMV serology before transplant, detecting antigenemia (PP) and PCR weekly as a screening test.
Steroids have remained the mainstay of immunosuppression but their prolonged use is associated with a number of side effects. Recent data indicate that early elimination or steroid free regimens are feasible in renal transplant recipients (RTR), thereby reducing the side effects and improving compliance.

Methods: A prospective open labeled controlled study to assess the safety and efficacy of steroid avoidance in RTR was initiated in our centre with the following inclusion criteria: a) severe diabetes, b) ischemic heart disease, c) gross obesity and d) bone complications like osteoporosis or avascular necrosis. Exclusion criteria included high risk patients with, re- transplants, PRA of >20 or previous positive cross match. Primary end point was biopsy proven acute rejection. Total number studied was 40 with 20 in the steroid free group and 20 in the control group. In the steroid free group, all subjects other than those with no HLA mismatches received induction therapy with either antithymocyte globulin (ATG Fresenius) or interleukin 2 receptor antibody (IL2Rab) Basiliximax except one who received Campath1H. Steroids were given only for 5 days and then discontinued and the maintenance immunosuppression included a combination of mycophenolate mofetil (MMF) and Tacrolimus (Tac), n= 11; Rapamicin (Rapa) and Tac, n= 4 ; MMF and Cyclosporine A (CyA), n=3 ; and one case each of MMF and Rapa and Tac monotherapy (Campath1H induced patient). These subjects were compared to matched controls and were followed up for a median period of 8.8 months with a minimum of 3 months.

Results: Demographic details were comparable in both groups. Patient survival and graft survival were 100% in both groups. Biopsy proven ARE were 1 (5%) in the steroid group, compared to 3 (15%) in the control group with a mean serum creatinine of 118.8 umol/L and 108.2 umol/L respectively. Post transplant hypertension, higher number of antihypertensive medications, weight gain and post transplant diabetes mellitus were more common in the control group than the steroid free group. Steroid avoidance in selected patients using newer immunosuppressive protocols provides comparable graft survival, patient survival and rejection episodes and low incidence of steroid related morbidities. These results will be further verified as our study continues in larger number of patients with longer follow up evaluation.

Recurrence of glomerulonephritis (GN) in the allograft continues to be a significant cause of morbidity and graft loss in the renal transplant population, even with the improvement in short and long term kidney survival in the last 2 decades. It is estimated that between 5% to 10% of allografts fail due to recurrence of primary disease and their half life is diminished compared to those without recurrence.

Aim: The current study was to evaluate the impact of recurrent GN in renal transplant recipients (RTR) in our centre.

Materials and Methods: A retrospective analysis was done on 145 RTR with biopsy proven pre transplant diagnosis of GN for the prevalence and outcome of recurrent GN in the graft. The patients were followed up for an average of 5.1 years (61.2 months), with a minimum period of 1 year. Recurrent GN (Group1) was diagnosed by renal biopsy and the data from these patients were compared with those without recurrence (Group2).

Results: Recurrent GN (Group1) was diagnosed in 23 (15.8%) patients after an average period of 25.3 months and the diagnoses include Focal Segmental Glomerulosclerosis (FSGS), 13; IgA nephropathy (IgAN), 6; membranous nephropathy (MN), 2; mem- branoproliferative glomerulonephritis (MPGN), 1; and lupus nephritis (LN), 1. The results of group1 were compared with those of group 2 (n=122). The demographic characteristics of the two groups were not significantly different. The mean age was 48.1 years, males (n=13), females (n=10), the donor types were living related donor (LRD) n=9, living unrelated donor (LURD) n=14, deceased donor (DD) n=2, in group 1 compared to mean age 45.2 years, males (n=66), females (n=56), LRD (n=48), LURD (n=60), and DD (n=14) in group 2. The HLA mismatch was <3 (n=9) and >4 (n=14) and retransplants (n=2), in group 1 compared to HLA mismatch of <3 (n=54), >4 (n=68) in group 2. There were no patients with cold ischemia time (CIT) >20 hours in both the groups. The mean period of follow up for these patients was 5.1 years with a minimum period of 1 year and the mean period to diagnosis of recurrent GN was 25.3 months. Graft loss occurred in 5 (21.7%) patients in group 1 compared to 6 (4.9%) in group 2 and there were no patient loss in both the groups. Mean current serum crea- tinine was higher in group 1, 180 umol/L, compared to 123.8 umol/L in group 2. Recurrent GN is a significant problem after renal transplantation and is associated with increased incidence of graft loss and graft dysfunction.
Acute rejection episodes (ARE) have been one of the major causes of graft loss and morbidity in renal transplantation and with the judicious combination of efficacious immunosuppressive drugs, the incidence and severity of ARE have currently been significantly reduced.

**Aim:** This study investigates the impact of quadruple immunosuppression including induction with Antithymocyte Globulin (ATG) or interleukin 2 receptor antibody (IL2Rab), followed by maintenance therapy with steroids, mycophenolate mofetil (MMF) and a calcineurin inhibitor (CNI), on ARE in renal transplant recipients.

**Methods:** 175 renal transplants done over 2 years with a follow-up period of 6 to 18 months were analyzed regarding immunosuppressive regimens, donor type, HLA mismatches and delayed graft function, to correlate with the incidence, severity and response to therapy of ARE. 82 patients (HLA mismatches >4) received ATG, 87 patients (HLA mismatches 1-3) received IL2Rab (Basiliximab) and 6 patients (No HLA mismatches) received no drug as induction therapy. Maintenance immunosuppression included triple drug therapy with steroid, MMF and CNI of which alternate patients received cyclosporine (n=80) or tacrolimus (n=71) while 24 patients received other combinations including azathioprine or rapamicin. There were 99 male and 76 female recipients of age groups, <18 years (n=24), >60 years (n=26) and 18 to 60 years (n=125). 122 patients received kidneys from live donors while 53 received from deceased donors of which 15 had delayed graft function (DGF).

**Results:** The acute rejection rate was 26/175 (14.8%) of which 17 (65.3%) occurred within the first 3 months and 12 (46.1%) were severe steroid resistant rejections needing OKT3 or plasma exchange therapy. 15 (18.2%) patients in the ATG group developed ARE compared to 11 (12.6%) in the IL2 group and there was no significant difference in ARE among the different maintenance protocols. Subjects with 4 or more HLA mismatches displayed more ARE (25%) compared with those with 3 or less (6.9%). Deceased donor recipients had a higher ARE (18.8%) compared with live donor recipients (13.1%) and subjects with DGF had a higher incidence of ARE (33.3%) than those without them (13.1%). Subjects below the age of 18 years had a higher incidence of ARE (29.1%) compared to those between 18 and 60 years (15.2%) and those above the age of 60 years had no ARE. Quadruple immunosuppression including induction with ATG or IL2Rab, followed by triple drug maintenance therapy, reduced ARE to below 15%. Higher HLA mismatches, deceased donor, DGF and recipient age below 18 were observed to be major risk factors for the development of ARE.
nisolone 1mg/kg/day, MMF 1gm twice daily from 2 days pre-
transplant and all subjects on CyA one day pretransplant.
Induction IS was continued as before with either antithymocyte
globulin (ATG) or interleukin 2-receptor antibody (IL2RaB).
Dosage adjustments were promptly made to ensure maintenance
of adequate blood levels of CyA (C2) and tacrolimus. AR episodes
were documented and treated as per standard protocol. 7
episodes of AR occurred in a total of 75 RTR (9.3%) in the first 3
months post transplant. There was no significant difference in AR
episodes between subjects who received CyA (6.25%) and those
who received tacrolimus (8.3%). Cadaver donor recipients had a
higher rate of AR (19%) compared to live donor recipients (7.3%)
and subjects with 4 or more HLA mismatches showed a higher AR
rate (13.4%) compared to those with less mismatches (4.1%).
Pediatric recipients had higher AR rates (30.7%) compared to
adult recipients (6.3%). All subjects achieved adequate CyA (C2)
and tacrolimus blood levels. There was a significant reduction in
AR rates with the modified IS protocol (30% → 9.3%). Higher
dose of steroids, earlier adequate doses of MMF and scrupulous
maintenance of adequate CyA and tacrolimus levels reduced the
rates of AR. Higher HLA mismatches, cadaver donors and pedi-
atric recipients had higher AR episodes.

P 243
DISSEMINATED VARICELLA-ZOSTER INFECTION IN
RENAal ALLOGRAFT RECIPIENTS

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Disseminated infection with varicella- zoster virus (VZV) is a rare
but well recognized complication after renal transplantation. Infection develops either as primary varicella infection (chicken
pox) or as a reactivation of the virus in the form of herpes zoster
(disseminated shingles).
Objective: We report our experience in 15 renal transplant recipi-
ents (RTR) with disseminated VZV infection. Disseminated VZV
infection occurred in 15 RTR among 950 renal transplants per-
during the past 10 years. Among these 12 were primary varicella infection and 3 were disseminated herpes zoster. All the
subjects were on triple immunosuppression with cyclosporin, pred-
nisolone and azathioprine (2) or mycophenolate mofetil (13). The
duration after transplantation at the time of development of VZV
infection ranged from 7 to 102 months. All were treated with high
dose intravenous acyclovir in addition to decrease/discontinuation
of immunosuppressive medications. Presentation with severe abdom-
inal pain was typically present in the 2 subjects who had severe dis-
seminated disease leading to mortality. Severe disseminated
intravascular coagulation, hepatic impairment, pneumonitis and
graft dysfunction were characteristically present in the 2 RTR who
expired.
Conclusion: Disseminated VZV infection leads to high mortality in
RTR. Post exposure prophylactic passive immunization and rou-
tine pretransplant active immunization in children and in adults
with negative or low VZV antibodies should be recommended to
prevent this life threatening infection.

P 244
LIVING-RELATED RENAL TRANSPLANTATION IN
RIYADH MILITARY HOSPITAL, EXPERIENCE OVER
TWO DECADES

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To present the outcomes of the living related renal transplanta-
tion over last two decades in one of the first center in which renal
transplantation was started in Saudi Arabia.
Method and Material: Retrospective review of the medical charts
for all the patients who had underwent living related renal trans-
plantation from April 1979 to the end of 2005 in Riyadh Armed
Forces Hospital. Out of 734 patients had renal transplant, 452
patients had living donor renal transplantation. Mean age of the
recipients was 34 years, 66% male, 96% has primary renal trans-
plantation. There was no mortality among the donors. The 4-
years graft survival rate was 81%, while the 4-years patient sur-
vival was 94%. We also review the complications after renal trans-
plant in our series. Living related renal transplant in Riyadh Armed
Forces Hospital is highly successful and its results are comparative
with international results. Living related renal transplant is con-
sidered the primary option for the patients with end stage renal
disease in the countries where cadaveric graft is very scarce.

P 245
THE EFFECT OF ANGIOTENSIN CONVERTING ENZYME
INHIBITOR ON BONE MINERAL DENSITY AFTER
KIDNEY TRANSPLANTATION

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Severe osteoporosis frequently is observed after kidney trans-
plantation and some factors such as demographic characteristics
and drug therapy can affect on bone mineral density (BMD). The
aim of this study is to find out the effect of angiotensin convert-
ing enzyme inhibitor (ACEI) on BMD. A retrospective cohort study
of 41 adult (male 33, female 8) renal transplant recipients was
performed.
Mean age, months since transplantation and weight were 40.7±11.8 years (21-66 years), 31.65 ±27.84 months (7-108
months) and 69.46 ±12 Kg (44-92 Kg) respectively. Mean daily
dose of prednisolone and cyclosporine were 6.28±1.86 mg (2.50-
12.5 mg) and 200.97 ±40.25 mg (125-275 mg), respectively.
Osteoporosis was observed in 14 patients (34.1%) in any of fem
neck or spine region (17.1% in fem neck and 29.3% in spine).
12.2% of the patients treated by ACEI had a significant lower T-
score of femural neck as compared with patients not treated (-
2.43±0.5 versus -1.08±1.32, P=0.031). There were more osteo-
porotic patients in femural neck in ACEI treated group (60% ver-
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sus 12.5%, P=0.028). It was not significantly observed decreasing of T-score of lumbar spine in ACEI-treated patients. Sex, age ≥50 years versus age <50, history of diabetes, mean dose of prednisolone and cyclosporine had no significant relationships with bone loss in femur and spine. This study suggests that ACEI can cause decreasing of BMD in femoral neck. However further studies need to establish this effect.

P 246
IMPACT OF SCHISTOSOMIASIS ON PATIENT AND GRAFT OUTCOME AFTER RENAL TRANSPLANTATION: 10 YEARS’ FOLLOW UP

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The objective of this study was to assess the long term (10 years) impact of schistosomiasis on patients and graft outcome after renal transplantation.

Methods: This work was conducted by comparing two groups of a total 243 patients: group I consisted of schistosoma infected cases and group II schistosoma-free control cases. Schistosomiasis was documented in group I by identifying schistosoma eggs either in urine, stool or rectal mucosal biopsy, also biopsies from recipient bladder mucosa and lower end ureter of living donors were obtained intraoperatively to search for schistosoma eggs. Schistosomiasis was diagnosed in both recipients and donors in 63 cases, in recipients only in 65 cases, and in donors only in 8 cases.

All schistosoma infected cases (recipients and donors) with active lesions were treated at least one month before transplantation by combined antischistosomal drugs (praziquantel and oxamnique). The 243 patients (136 schistosoma infected cases and 107 control cases) were followed up regularly for a period of 10 years after transplantation. We found that there was no significant difference in the incidence of acute and chronic rejection between the groups; however, higher cyclosporine doses were needed for the schistosomal group with subsequent higher incidence of both acute and chronic cyclosporine nephrotoxicity. Moreover, the schistosomal group had significantly higher incidence of urinary tract infection and urologic complications with no evidence of schistosomal reinfection. Despite a higher incidence of schistosoma related complications after renal transplantation, schistosomal infection is not a major risk factor for transplantation. Therefore, schistosoma-infected patients can be considered as suitable recipients if they have been properly treated before transplantation.

P 247
INPATIENT GRAFT LOSS AND PATIENT SURVIVAL DURING THE FIRST RE-HOSPITALIZATION OF KIDNEY TRANSPLANT RECIPIENTS

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Reducing in-hospital mortality of kidney transplant recipients and graft loss is one of the signs of improvement in kidney transplantation. This study aimed to determine rates of inpatient graft loss and patient survival after re-hospitalizations. Factors associated with in-hospital death and graft loss were also studied.

Methods: A retrospective review of 390 renal transplant recipients first re-hospitalized after kidney transplantation in Baqiyatallah Hospital between the years 2000 and 2005 was performed. Data regarding age, gender, marital status, educational level, duration of hospitalization, any existing diseases like diabetes mellitus, etiology of end-stage renal disease (ESRD), ICU admission, outcomes of patients and grafts were recorded. Mortality rate was 2%, and graft loss, 8%. Out of 8 death cases, 5 (62%) patients had normal renal function at the time of death. Among 33 patients with graft loss, 30 (91%) subjects survived. Mortality was significantly correlated with age above 50 at the time of transplantation or hospitalization, diabetes, ICU admission and illiteracy, while it was not associated with recipient gender or marital status. Graft outcome was correlated with ICU admission, and it was not associated with duration of hospital stay, etiology of ESRD, recipient gender and age at transplantation. A considerable proportion of patients survive during re-hospitalizations despite relatively high rate of graft loss. In order to decrease death rates, more attention is warranted to over 50 year old patients, diabetics and low educated subjects.

P 248
FATALITY OF CAUSES OF RE-HOSPITALIZATIONS FOLLOWING RENAL TRANSPLANTATION

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Kidney transplant recipients admit to hospital secondary to different diseases or complications. This study compares the fatality of different causes of post renal transplantation re-hospitalizations. We randomly selected 419 records of re-hospitalization after kidney transplantation from 1995 to 2005 in a university-based referral center for kidney transplantation hospital, Tehran, Iran. The causes of re-hospitalization were categorized into infection, surgical complication, CVA, malignancy, and renal dysfunction. Fatality was defined as the relative frequency of death in all admissions with a same cause. To calculate fatality rates, we used the total number of deaths divided by the total number of admissions categorized into the same causes. Fatality rate was 7% for infection, 2% for CVA, 14.3% for surgical complications, 5.3% for drug complications, 7% for infec-
The histological changes are classified according to Banff 1997 for IMF and EM study in suspected cases of glomerulonephritides. One additional core was obtained under ultrasound guidance. Both are fixed in formalin and patients was carried out. Two cores of graft biopsies are obtained for light microscopy. One additional core was obtained for IMF and EM study in suspected cases of glomerulonephritides. The histological changes are classified according to Banff 1997 working classification of renal allograft pathology. A total of 1210 graft biopsies were performed in 700 patients. Acute rejection was seen in 292 (24%) cases, followed by acute tubular injury and CyA toxicity, found in 281 (23.2%) and 134 (11%) cases respectively. Chronic allograft nephropathy with variable degree of tubular atrophy was seen in 361 (29.8%) cases. Acute pyelonephritis was seen in 79 (6.5%) cases. Thirty (2.5%) cases of recurrent/denovo renal diseases were found. FSGS was the most common lesion found in 15 cases. Eight cases of IgA nephropathy were seen. Four cases of oxalosis were found. Two cases of MCGN and one case of Fabry’s disease were also noted. A number of rare lesions were found in 33 (2.7%) cases. The study defines the pattern of pathological lesions in a large cohort of live related renal transplant patients. The incidence of acute rejection is low in our patients as compared to Western studies and CyA toxicity is more common. Recurrent/denovo renal disease occurs in a significant minority of dysfunctional graft biopsies and among these, recurrent/denovo FSGS is the most common lesion.

P 249
CAN SIZE OF ALLOGRAFT KIDNEY AFFECT ON HEMOGLOBIN CONCENTRATION?

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The concentration of serum hemoglobin (Hg) depends on some factors in patients with kidney transplantation. The aim of this study was to determine the correlation between length of allograft kidney and Hg concentration.

Methods: A cross-sectional study was performed on 35 (20 male and 15 female) renal transplanted patients not treated by ACE inhibitor or Angiotensin II receptor antagonists. The mean age, duration of transplantation, BMI, serum creatinine and concentration of Hg were 40±14 years, 43±30 months, 24.8±3.3, 1.21±0.2 mg /dL and 14.4±1.7 g /dL, respectively. The mean length of kidney size measured by sonography was (114±8mm, rang: 91-134). There was a significant correlation between length of allograft kidney and Hg concentration (r=0.59, P<0.001). In the final multivariable linear regression model, independent variables that correlated with concentration of Hg were length of allograft kidney (p<0.0001) and taking of Acid folic (P<0.01). Factors entered into the multiple liner model but found to be insignificant included serum creatinine, duration of transplantation, age, sex, sex of donor, BMI, taking of iron supplement and taking of Azathioprine versus Cellcept. Higher size of allograft kidney can increase Hg concentration; However further studies should be done for proving of this subject.

P 250
CAUSES OF RENAL GRAFT DYSFUNCTION AS DETECTED IN RENAL ALLOGRAFT BIOPSIES IN A LIVE RELATED RENAL TRANSPLANT PROGRAM

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To determine the spectrum of pathological changes in renal graft biopsies performed for evaluation of graft dysfunction in a live related renal transplant program.

A retrospective review of 1210 biopsies from 700 renal transplant patients was carried out. Two cores of graft biopsies are obtained under ultrasound guidance. Both are fixed in formalin and processed for light microscopy. One additional core was obtained for IMF and EM study in suspected cases of glomerulonephritides. The histological changes are classified according to Banff 1997.
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**TUBERCULOSIS IN RENAL TRANSPLANT RECIPIENTS**


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Tuberculosis (TB) remain a major public health problem in our country. Diagnosis of this affection in immunodeficient patients is difficult. We analyse in this retrospective study the prevalence, the clinical presentation and the outcome of tuberculosis occurring after renal transplantation in Tunisian team experience. Among 359 renal transplanted recipients, 9 (2.5%) developed TB 49.6 months (3-156) after renal transplantation. There were 7 males and 2 females with a mean age of 37.8 years (15-53). The organs involved include lymph nodes in 1 case, lung in 5 cases, genito urinary in 1 case, rachis in 1 case, pleural in 1 case and both pulmonary and urinary in 1 case. The diagnosis was bacteriologic in 6 cases, histologic in 1 case and 2 patients had high index of suspicion. All patients were treated by a combination of rifapicin, isoniazide, pyrazinamide and ethambutol. Recurrence of TB infection was noted in 3 cases with multiple localisation: lymph node, muscle abscess, meningitis, genito urinary system, rachis and lung. Two patients died. In conclusion; In renal transplanted patients extra pulmonary involvement and recurrence of TB are frequent.

**P 253**

**POST TRANSPLANT HAEMOLYTIC URAEMIC SYNDROME (HUS); SINGLE CENTER EXPERIENCE**


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Thrombotic microangiopathy is rare but well recognized post transplant complication. The incidence of this syndrome varies among different transplant centers, primarily because of the lack of a uniform definition.

Patients and Methods: We retrospectively analyzed our data from medical records of 950 kidney recipients under follow up in our center since December 1994. We looked at the risk factors and basic criteria for diagnosis of the syndrome in these cases. We reviewed the kidney biopsies performed for these patients to exclude other conflicting diagnoses like antibody mediated rejection.

Results: HUS was diagnosed in 12 patients. 4 patients were male and 8 were females. None of them had HUS as the original kidney disease. Cyclosporine (CsA) was the primary immunosuppression in 10 and tacrolimus (Tac) in 2 patients. The median day of onset of HUS post transplant was 7 days. Criteria for diagnosis were anaemia (100%), thrombocytopenia (75%), elevated reticulocyte count (62.5%), fragmented red cells in blood smear (8.3%), elevated lactate dehydrogenase [LDH] enzyme (83.3%), increased fibrin degradation product [FDP] (83.3%), reduced haptoglobin level (42.9%) and hyperbilirubinemia (25%). Calcineurin inhibitor (CNI) elimination was the first step in the management. Transfusion of fresh frozen plasma [FFP] was used in 10 patients and plasma exchange [PE] using FFP as a replacement agent in the other two. All grafts recovered function. Two patients had reintroduction of CsA or Tac after complete clinical and laboratory recovery of CNI induced HUS. Both developed recurrence of HUS. While the former did not the later did recover on further treatment of HUS. Early CNI discontinuation and plasma replacement therapy can revert CNI induced HUS and save the graft. Reintroduction of CNI is deleterious to the graft and should be avoided.

**P 254**

**IS DIABETES MELLITUS A CONTRAINDICATION FOR RAMADAN FAST IN KIDNEY TRANSPLANT RECIPIENTS**

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Diabetic control may represent a difficulty during Ramadan fast in diabetic patients. We analyzed the effect of Ramadan fast in diabetic kidney transplant recipients to sort out difficulties and limitations and give the proper advice to them. Patients and methods: We prospectively studied 39 diabetic kidney transplant recipients during the month of Ramadan. Out of this group 18 patients were fasting and 21 were not fasting and taken as a control group. 7 patients in the fasting group were insulin dependent and 11 patients were on hypoglycemic drugs. Stable renal function for the previous 6 months with serum creatinine less 200 umol/l, adequate diabetic control and drug dosage as twice per day or less were the main inclusion criteria. The follow up parameters before, during and after Ramadan were renal function, blood sugar and blood pressure control. Adverse events and patient satisfaction were recorded. There was no statistically significant difference in renal function, blood pressure or blood sugar control between the fasting and non-fasting groups. All patients tolerated the fasting well without any adverse effects. However, there was a tendency for higher blood sugar levels in the fasting group specially in those patients who were insulin dependent compared to the non-fasting group. This difference was still statistically non-significant. Diabetic kidney transplant recipients with normal renal function can fast during Ramadan. Patient education regarding diet and diabetes should improve the glycemic control in these patients.
To evaluate the frequency and conservative management of pneumothorax following incidental pleurotomy by flank incision in living donor nephrectomy. Patients and Methods: Between Feb 1989 to May 2006, 562 living donors (328 males and 234 female; mean age 26.5, ranged 18-54) were nephrectomies via extraperitoneal, retropleural flank incision. Incisions made in lateral decubitus position, intercostally or by an 11th rib resection. Left kidneys were removed in 468 patients and right in 94 (L/R=5/1). Rib resection was done in 259 patients (46%). If incidental pleurotomy occurred, primary repair was done after a deep inspiration and control chest X-Ray was taken in recovery room. Incidental pneumothorax occurred in 118 cases (21%), that were 95 (80.5%) in left and 23 (19.5%) in right nephrectomies. Pleural injuries lengths were 4-75mm (mean 32mm), that all of them were recognized intraoperatively and immediate primary repair was done. Pleurotomy was occurred with and without rib resection in 27% (70 donors) and 16% (48 donors) respectively which had significant difference in statistical analysis (p<0.001). Mild pneumothoraces (<10%) occurred in 6 cases (1.1%) that were associated with respiratory symptoms. All patients managed conservatively without chest tube. Although pleurotomy is a common complication in donor nephrectomy, but incidence of pneumothorax is not high if primary pleural repair is done intraoperatively. Rib resection increases the possibility of pleural injuries. If pleural injuries recognized and repaired intraoperatively, insertion of chest tube is not usually necessary and routine postoperative chest radiography for pneumothorax diagnosis is not necessary too, except in patients with respiratory symptoms.

FREQUENCY AND MANAGEMENT OF PNEUMOTHORAX FOLLOWING LIVING DONOR NEPHRECTOMY

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Despite advances in immunosuppressant therapy in past decay allograft rejection remains the cause for kidney graft failure. Cytokines are known to be important mediators in renal allograft outcome. The aim of the present study was to ascertain whether IL4, IL-10 and TGF-ß cytokine genes polymorphism contribute to the prediction of kidney graft outcome.

Methods: We evaluated single nucleotide polymorphism (SNPs) in IL-4 (-1098G/T, -590C/T, -33C/T), IL-10 (-1082A/G, -819C/T, -592A/C) and TGF-ß (codon 10 and 25) in 100 renal transplant recipients and 123 normal healthy control by polymerase chain reaction based on sequence specific primers (PCR-SSP) analysis. Recipients were clinically characterized to rejection episode (RE) and stable graft function (SGF). This study shows the frequencies of IL-4 - 33 T allele in the RE, SGF and control group are 7%, 73% and 28% respectively. IL-10 - 592 A allele frequency was 39% in RE, 26% in SGF and 28% in control group. TGF-ß codon 10 T allele was 39% in RE, 35% in SGF and 53% in control group. Conclusion: it is suggestive by this study that alleles of TH2 high producer cytokines could effective in the SGF of kidney transplant recipients.

P 257
LAPAROSCOPIC DONOR NEPHRECTOMY IN THE PRESENCE OF VASCULAR ANOMALIES; IS THERE A PLACE FOR OPEN SURGERY?

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In laparoscopic donor nephrectomy, the presence of vascular anomalies remains challenging for the surgical team. In this study we show the outcome in donor and recipient of in cases with vascular anomalies. Between March 2003 and August 2006, 400 cases of laparoscopic donor nephrectomy were performed in our institution. Donors were evaluated as regards renal vasculature using CT renal angiography. We used the left kidney in 329 patients and the right kidney in 71 cases. All cases were performed trough transperitoneal route. Fifty-six cases had double renal arteries (left side n=52, right side n=4). In forty-two cases we anastomosed the two arteries separately into the iliac artery. In fourteen cases, we joined the spatulated edges of the two arteries to create a single bifurcating artery that was anastomosed end to side to the common or external iliac artery. Two patients had triple renal arteries (In one case we ligated one artery and the other we did separate anastomosis to the three). Seventeen cases had venous anomalies (retro-aortic n=11, double renal n=4, circumaortic n=2). Vein were anastomosed to the external iliac vein. All cases were completed laparoscopically with no open conversion. The mean operative time was 124±32 min. The mean blood loss was 65±38 cc, and none of the donors required blood transfusion. The mean warm ischemia time was 2.6±0.4 min. Mean renal artery length was 3.1±0.4 cm. The mean renal vein length was 3.5±1.2 cm. Donors were discharged on second post-operative day. None of the donors required readmission. Kidneys were transplanted successfully and mean creatinine of the recipient on discharge was 1.6±0.7 mg/dl. One patient with double renal arteries had thrombosis of the small artery just after the anastomosis. Five patients had ATN however only one of then required dialysis. Kidney function recovered there.
P 258
AVASCULAR OSTEO NECROSIS AFTER RENAL TRANSPLANTATION


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The avascular osteonecrosis (AVN) is a serious osseous complication after renal transplantation. Its prevalence clearly decreased from 20 to 4% after introduction of the cyclosporine and the reduction of the steroid doses. The aim of our study is to evaluate the frequency of the AVN among our kidney transplant recipients and to determine the risk factors by comparing them with a population without AVN. Among the 326 kidney transplant recipients between June 1986 and December 2005, fifteen patients developed an AVN (group I) with mean age: 40.86 years, they were 11 men and 4 women. Fifteen kidney transplant recipients without AVN matched for age, gender and date of transplantation were selected (group II). Cases of symptomatic AVN were diagnosed by hip radiographs, radioisotope bone scan or magnetic resonance imaging. The AVN was diagnosed 3 years after transplantation (range: 6 months – 13 years). The main localisation of the AVN is the fem head in 12 cases and the fem condyle in 3 cases. We studied the following risk factors: the type of donor (cadaveric or living donor), the time between beginning of dialysis and transplantation, the cumulative steroid dose, the number of acute rejection episodes, and the post transplantation weight gain. The statistical analysis showed that the acute rejection episodes were higher in group I than group II (p=0.05) and the cumulative steroid dose was higher in group I (p=0.04). The prevalence of the AVN in our population is 4.6%; it is probably underestimated since they are symptomatic cases. The reduction or early withdrawal of steroids remains the only efficient preventive treatment.

P 259
URINE MACROPHAGE MIGRATION INHIBITORY FACTOR LEVEL IN HUMAN ACUTE RENAL ALLOGRAFT REJECTION

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Macrophage migration inhibitory factor (MIF) is a pro-inflammatory cytokine that is a potent activator of macrophages and T cells. Previous studies have shown that local MIF production is increased in acute renal allograft rejection, suggesting that it may play an important role in the rejection process. Thus we assessed the ratio of MIF to creatinine in urine in two pediatric patients with acute rejection episode. Case one was a 10 years old girl with hypoplasia who underwent transplantation 3 years ago. Urine MIF/cr ratio was 1.5 pg/micromole cr in outpatient visit. She involved by acute rejection episode. In this phase the urine MIF/cr ratio was 43.3. The second case was an 8 years old girl with cystinosis who underwent transplantation 1 mo ago. Her assessment showed that the urine MIF/cr was 96.3 in phase of acute rejection. We measured urine MIF/cr in 4 patients with renal transplantation who were not in acute rejection and mean age, sex and year of transplantation of them was similar to our patients. The mean urine MIF/cr ratio in them was 2.5 pg/µmole cr. We also measured the urine MIF/cr ratio in 4 healthy children as control group and this ratio was 1.9 in these children. This case study demonstrates that the concentration of MIF in urine increases with episodes of acute rejection. This is important for diagnosis of acute rejection and differentiation of it from other states such as cyclosporine nephrotoxicity.

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POST TRANSPLANT DIABETES MELLITUS IN HASHEMINEjad HOSPITAL IN LAST FIVE YEARS


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During last decade the patient and graft survival after transplantation has been improved and attention has been placed on non-immunologic outcomes that contribute to patient morbidity and mortality. Data have shown post transplant diabetes mellitus (PTDM) increases the rate of cardiovascular disease and infection, and is a major cause of morbidity and mortality. We planned a study to evaluate the prevalence rate, risk factors of PTDM, patient and graft survival in this group in comparison to non diabetic Tx recipients. The study group was consisted of 175 renal transplant (Tx) recipients that were transplanted from January 2001 to March 2005 with negative history of DM before Tx. There were 100 (57.1%) males and 75 (42.9%) females. The mean age was 40.3 ±13.8 years. All of recipients received triple immunosuppressive therapy including Cyclosporine, Mycophenolate mofetil and Prednisolone. HCV antibody was negative and CMV IgG was positive in all patients. On the basis of American Diabetes Association criteria, PTDM diagnosed in patients with Fasting Plasma Sugar (FBS) >126 mg/dl and impaired fasting sugar (IFG) in patients with FBS between (100-125) mg/dl. All data extracted from hospital and follow up charts. Since some patients received intravenous serum therapy in first month after Tx, We reported the 3, 6, 12, 24 months blood sugar after Tx. Spss program (version 14.1) used for data analysis. The prevalence rate of
PTDM were 9.7%(15), 7.8%(12), 5.9%(8), 6.4% (7) and IGT were 11 %(17), 10.4%(16), 13.2%(18), 17.4% (19) in three, 6, 12, 24 months after Tx respectively. The risk factors for PTDM were age (P < 0.05), and recipient weight (P<0.05) that showed a higher risk of PTDM with increasing age and weight of recipients. Five years graft survival rate in PTDM group was 96.9 % vs. 96.2% in non PTDM (P=NS) and five year patient survival in PTDM group was 96.9 % vs 97 %in non PTDM group (P=NS). Near 10-20% of our Tx patients had high blood sugar after Tx that shows a high rate of IFG and PTDM in our patients. Increasing the age and weight of recipients were the risk factors for PTDM in our recipients. We couldn’t find a significant difference in 5 years graft and patient survival in our PTDM patients in comparison to non diabetic Txs. We need to continue our follow up in this population.

P 261
TREND OF RENAL TRANSPLANTED PATIENTS IN IRAN: A CLOSER LOOK

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Renal transplantation model is very complex. For a continuous progress in every models, continuous monitoring is necessary. In this study, we tried to have a closer look at the consequences of the current model of kidney transplantation in Iran. Materials and method: We used the DAPTA (Dialysis And Transplant patients Public Association) data of all kidney transplantations performed in Iran from 1986 to 2005. Our analysis included kidney donors’ and recipients’ data (including demographic and clinical findings). The number of kidney transplantations increased from 98 in 1986 to 1779 in 2005. In this period, the female to male ratio in donors decreased from 1.70 to 0.22. In recipients, this ratio increased from 0.48 to 0.52. The mean age of recipients increased from 27 to 40. From 1986 to 1991, the mean age of donors showed an abrupt decrease from 38 to 28 and then remained constant until 2006. Diabetes mellitus (DM) and hypertension, as the causes of ESRD, took account for less than 1% and 1.9% of all causes in 1986, while they increased after that and reached to 11.4% and 16% in 2005, respectively. Some findings of this study like decrease in female donors, equal access of either genders to transplantation, increase in age of recipients and decrease in the age of donors could be attributable to the progress of the system itself. Some others like increase in the number of transplants, increase in proportion of DM and HTN are attributable to global trend.

P 262
POST-TRANSPLANT LYMPHOPROLIFERATIVE DISEASE AFTER KIDNEY TRANSPLANTATION

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Post-transplant lymphoproliferative disease (PTLD) is a serious and potentially fatal complication after solid organ transplantation, it complicates 1 to 2 % of kidney transplant recipients. We report a monocentric retrospective study of PTLD after renal transplantation, to define their incidence, clinical presentation, pathologic features and outcome. Since 1986, 309 kidney transplantations was performed in 308 patients, seven of them developed PTLD: 3 men and 4 women, their mean age was 44.5±13 years (27 to 61 years). Immunosuppressive regime consisted of a triple therapy azathioprine, corticosteroids and cyclosporine. The average interval between the transplantation and the diagnosis of PTLD was 37.1±28 months (6 to 93 months). The discoveries circumstances were varied according to PTLD localisations. All patients had a voluminous tumor mass with extranodal sites: graft (1), stomach (1), skin (1), central nervous system (1), graft and vertebra (1), cavum and lung (1) and lung, nodal and hepatosplenic (1). Histological analysis revealed six cases large cell B lymphoma in most cases. EBV was positive in one patient. Treatment consisted of decreasing immunosuppressive therapy in all cases combined with surgical removal of the lymphoma in one case, chimiotherapy in five cases and radiotherapy in one case. The outcome was favorable in four patients with the complete remission and good graft function. Three patients died, the main cause of the death of two patients was sepsis, and the cause of third death is still unknown. Lymphoproliferative disease is an increasingly common problem after renal transplantation and the outcome is poor. Measures to reduce its incidence might include reduction of long-term immunosuppression exposure in this population. This is particularly important in patients with high risk to develope PTLD, such as negative EBV recipients who receive kidney from positive EBV donors. Although therapy with newer agents (anti B Lymphocyte monoclonal antibodies) may on the future positively impact on survival after development of PTLD.

P 263
EFFECT OF LOSARTAN ON DYNAMIC TISSUE PERFUSION OF RENAL ALLOGRAFT MEASURED BY COLOR DOPPLER SONOGRAPHY: CLINICAL TRIAL STUDY

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Angiotensin II receptor antagonists could lower both systemic on intraglomerular pressure and increase functional reserve of transplanted kidney. These effects have been shown by dynamic renal scintigraphy. The aim of this study was determining of the effect
of losartan on dynamic tissue perfusion of renal allograft by color Doppler sonography. Methods: In a randomized, blinded, controlled trial, we compared treatment group by losartan (25 mg two times daily) with no treatment group for changing of duplex sonographic measurements in renal allograft recipients (male=20, female=15) from living donor. The patients in the two groups had similar base-line characteristics. Thirty five patients (losartan group: 16 and control group: 19) completed two months follow up. The mean difference of resistive indices (RI at baseline and after two months) of infrarenal and main artery in the losartan and control groups were (-0.0007±0.038 vs -0.0004±0.036, P=0.6) and (-0.032±0.07 vs 0.001±0.053, P=0.11) respectively. The mean difference of pulsatility indices (PI at baseline and after two months) of arcuate artery and main artery in the losartan and control group were (-0.082±0.27 vs -0.027±0.34, P=0.63) and (-0.13±0.33 vs -0.81±0.25, P=0.58) respectively. There wasn’t any significant different between changing of acceleration time of main artery in losartan and control group after two months (3.9±10.7 vs 3.8±16 m.sec, P=0.9). We conclude losartan have no effect Doppler sonography indices. How ever, longer follow up is needed to confirm this subject.

264 PROLONGED RE-HOSPITALIZATIONS FOLLOWING RENAL TRANSPLANTATION: CAUSES, RISK FACTORS AND OUTCOMES

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Prolonged hospital stay has been identified as a major component in the increase of health care costs. Although some studies have described re-hospitalization after transplantation, few of them have focused on risk factors and consequences of prolonged hospital stay. Our goal was to determine the causes, risk factors and outcomes of prolonged re-hospitalizations following renal transplantation. 574 consecutive re-hospitalization records of kidney recipients in Baqiyatallah hospital from 1994 to 2006 were reviewed retrospectively. Admissions which lasted more than 14 days were considered as prolonged stay (PS). Demographic data, cause of End Stage Renal Disease (ESRD), cause of re-admission, ICU admission, time interval between transplantation and re-hospitalization and mortality were compared in two groups. 149 hospitalizations (26%) had a prolonged stay. ESRD secondary to diabetes was a risk factor for PS (28% vs 15.4%, p=0.006). Admissions due to infections (56.4% vs 42.4%, p=0.003) or renal dysfunctions (55% vs 41.4%, p=0.004) caused a higher frequency of PS. Higher ICU admissions (8.8% vs 2.8%, p=0.002) and mortality (6.7% vs 3.05%, p=0.001) were also detected in those with PS. Conclusion: In this study we found that diabetic kidney recipients are at higher risk of prolonged re-hospitalization. Infections and renal dysfunctions cause a higher number of prolonged re-hospitalizations. To reduce high costly and fatal prolonged re-hospitalizations, preventive strategies to decrease the rate of infections and renal dysfunctions in diabetic kidney transplant recipients seem to be helpful.

P 265 IS POSITIVE FLOW CYTOMETRIC CROSS-MATCH A RISK FACTOR FOR CHRONIC KIDNEY GRAFT DYSFUNCTION?

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Chronic allograft nephropathy (CAN) is considered one of the main problems facing successful renal transplantation and has a negative impact on both graft function and survival. Both immunologic and non-immunologic factors share in the pathogenesis of CAN. The final decision about transplantation is based primarily on a negative result of a complement-dependent cytotoxicity cross-match. The significance of a positive flow cytometric cross-match (FCXM) is unclear. The aim of the present work was to study the relation between B and T-cell flow cytometry crossmatch post-renal transplantation and chronic allograft nephropathy. This study was conducted on 40 living kidney allograft recipients, They were classified into 2 groups: Group I: 20 transplanted patients with stable renal functions at least 6 months post-transplantation. Group II: 20 transplanted patients with progressive increase in serum creatinine. The renal transplant recipients were subjected to routine biochemical investigations, viral markers (HBV, HCV, HIV, CMV), and cyclosporin assay. In addition, complement dependent cytotoxicity crossmatch (CDCXM) and B&T-cell flow cytometry crossmatch (FCXM) were done for all patients. For all transplanted patients CDC was negative when done before transplantation and repeated at the time when FCXM was done. T-Cell FCXM and B-Cell FCXM was positive in 20%, 40% of cases in group I and 50% and 60% of cases in group II respectively, but the difference was insignificant. There was a significant positive correlation between serum creatinine and both positive B-cell FCXM and the number of total HLA mismatches in both transplanted groups. We conclude that allo-anti-bodies detected by flow cytometry crossmatch after kidney transplantation may have a little risk in the development of chronic allograft nephropathy.

P 266 DONOR AND RECIPIENT: IMPACT OF AGE AND SEX

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There are various reports in the literature regarding the effects of age and sex matching of donors and recipients on short and long term outcomes of organ transplantation. This study aimed to
investigate the effects of age and sex matching on patient and graft survival in kidney transplant recipients. In a retrospective study in Baqiyatallah Hospital (Tehran, Iran) between the years 1993 and 2005, 2649 records of first kidney transplantations were reviewed. Based on age, donors (D) and recipients (R) were divided into four age groups as follows: group I (R<40, D<40), group II (R<40, D>40), group III (R>40, D<40) and group IV (R>40, D>40). With regard to gender, they were also categorized into four groups: group I (R: female, D: female), group II (R: male, D: male), group III (R: female, D: male) and group IV (R: male, D: female). Age and sex groups were compared with respect to 5-year graft and patient outcomes. Graft survival in four age groups was 70%, 73%, 37% and 43%, respectively (p=0.001). Patient survival in age groups was 89%, 84%, 55% and 55%, respectively (p=0.001). Graft survival in four sex groups was 73%, 70%, 73% and 51%, respectively (p=0.022). Patient survival in sex groups was 90%, 87%, 88% and 68%, respectively (p=0.003). This study confirms the concomitant effect of age and gender of donors and recipients on the outcomes of transplantation. It is necessary that future survival studies of organ transplantation, consider matching of demographic variables of donors as well as recipients.

P 267
LONG TERM PATIENT AND GRAFT SURVIVAL AFTER NONFATAL HOSPITALIZATION AFTER KIDNEY TRANSPLANTATION

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A large number of kidney transplant recipients are annually hospitalized due to various etiologies after transplantation, some pass away and some lose their kidneys. There are many reports regarding the causes and short term effects of hospitalizations on these subjects, but literature lacks data on the long term effects of such re-hospitalizations on persons discharged with normal renal function. A follow-up of 253 kidney transplant recipients during 2000-2003 was performed. All patients had been hospitalized some time after transplantation and, subsequently, discharged with normal renal function. Mean duration of follow-up was 38.9±11.21 months. Patient and graft survival were recorded at 6 months, 1, 2 and 5 years after their discharge. Also, data regarding time of recurrent hospitalizations, if any, was recorded. Patient survival at 6 months, 1, 2 and 5 year intervals was 98%, 97%, 95% and 93%, respectively. Graft survival at the mentioned intervals was 88%, 82%, 77% and 63%, respectively. Out of 253 patients, 54 (21.9%) subjects did not have recurrent hospitalization, while 193 (78.1%) patients had recurrent hospitalization(s) during follow-up. Number of re-hospitalizations was 2.6± 2 times in more occasions on average (range: 1-11). Mean duration from the first recurrent hospitalization to the second one was 11.16±19.86 months. This study shows that appropriate treatment of the cause of hospitalization in kidney transplant recipients and discharging them with normal renal function, will give the chance of long term survival to the patients. This study emphasizes on the importance of inpatient care and thus improving patient and graft survival in the long run.

P 268
DATA-ENTROPY ANALYSIS OF RENAL TRANSPLANTATION DATA

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The terms entropy and robustness, are now being used by biomedical investigators to know about the risk of the change in system in future. The former is the mathematical identification of uncertainty about the systems, while the later, is defined as the likelihood of system stability. We aimed to report an entropy based analysis of our renal transplantation data set. Moreover, we used the index of relative CoV (Coefficient of Variation) to measure the responsiveness level of medical (or curing) process to our input variables variation.

Material and methods: We designed a model consisting of input variables comprised of demographic variables of donor and recipients, past medical history, and further clinical data. Output variables included 6 months, 1 and 2 years patient and graft survival. Data-entropy analysis was done by using software Ontonix s.r.l. (www.ontonix.com). Our data showed the total input and output entropy as 13.14 and 1.54, the mean input and output robustness as 39.14%, and 29.54%, and the robustness amplification index as 0.75. Minimum entropy of inputs were reported for MI hx (0.07), vascular disease hx (0.1), bladder remaining urine (0.13) and urologic surgery hx (0.15). The Minimum entropy of output variables were 0.20 and 0.22, 0.25 and 0.27, and 0.28 and 0.32 for 6 months and1 year patient survival, 6 months and 1 year graft survival, 2 year patient and graft survival, respectively. This analysis highlights the heterogenic certainty of various variables in our transplantation data set. Within our output variables, in comparison to those in 6 months, future 2 years patient and graft survival seems to be more unpredictable. Also, the CoV s suggest that the undertaken medical system is strictly irresponsible to the variation of input measures. This technique can be used for statistic experts who work in the field of transplantation in other MESOT countries.
OUR EXPERIENCE ABOUT THIRD RENAL TRANSPLANTATION: RESULTS, SURGICAL TECHNIQUES AND COMPLICATIONS

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Despite the popularity of kidney transplantation in the current era, second and third kidney transplantation are not yet widely accepted and practiced. Each center has its own regulations and experiences and there is no accepted protocol for the third kidney transplantation. We report here our 15 years experience with the third kidney transplantation.

Methods: This is a report of all third kidney transplantations performed in Baghiyatallah hospital, Tehran, Iran, between 1991 and 2006. Demographic data, surgical techniques, complications and outcomes are reported. From the 9 third kidney transplant recipients, six were males. The mean age was 43.3 years (32-52). All operations performed by a midline incision and the grafts placed midline, in the intraperitoneal space. For arterial anastomosis, we used internal iliac, right common iliac, right external iliac and inferior mesentric artery in 4, 3, 1 and 1 cases, respectively. For venous anastomosis, we used vena cava, common iliac and external iliac veins in 3, 5 and 1 cases, respectively. During the follow up period, 6 grafts (66.6%) were functioning. Non of the graft rejections were due to surgical complications. Wound dehiscence occurred in two patients. No other surgical complications including infection, lymphocele or hemorrhage were observed. The third kidney transplantation is a not fully explored field. Although the sample size in our report was low, the rate of complications seems not to be such higher than the first transplantation. Defining a standard protocol seems to be necessary.

PRINCIPAL CAUSES OF RE-HOSPITALIZATION IN DIFFERENT POST-KIDNEY TRANSPLANTATION PERIODS

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Re-admission following kidney transplantation is an extremely costly aspect of health care. We sought to investigate what factors were the principal causes of re-admission in different post-kidney transplantation periods. In this retrospective analysis, 562 randomly selected re-admissions of kidney recipients in Baghiyatallah Hospital from 1994 to 2006 were divided into 3 groups: Group 1: within the first 6 months (n=278); Group 2: between 6 – 24 months (n=115); and Group 3: 24 months and afterwards (n=169). The groups were compared in terms of demographic variables, lengths of hospital stay, causes of end-stage renal disease (ESRD), and fatalities. Infections (p=0.01) and surgical complications (p=0.03) were significantly more common, but malignancies was less common (p=0.05) in Group 1 in comparison with the other two groups. The length of hospital stay was also significantly longer in Group 1 (p=0.001). Mortality remained the same in the three groups (p>0.05). Age at admission, sex, and cause of ESRD were not significantly different between the three groups (p>0.05). In early post-kidney transplantation phase, infections and surgical complications put the kidney transplant recipients at a higher risk of re-hospitalization than do malignancies. These findings can be used to better design time-specific preventive programs. The self-care education should be more focused on infections and surgical complications in earlier stages and malignancies later on.
Osteoporosis is a complication of kidney transplantation (KTx). We measured bone mineral density (BMD) before and after KTx to determine the frequency and severity of preoperative and postoperative osteoporosis. We conducted a cross-sectional study of BMD in before (n=40, men: 22 and women: 18) and after (n=61, men: 43 and women: 18) KTx. The prevalence of osteoporosis in lumbar spine and fem neck were more frequent in transplantation group than healthy population of our country (24% vs 4.7%; P<0.001, odds ratio=6.1), (11% vs 2.4%; P=0.01, odds ratio=6.05) respectively but not significantly different from dialysis group (24% vs 18%, P=0.25), (11% vs 17.5%, P=0.16) respectively. In transplantation group, there were significant negative correlation between BMD of lumbar spine (g/cm2) and cumulative prednisolone dose (r=-0.34, P=0.007), and months since transplantation (r=-0.31, P=0.016). There weren’t any correlation between BMD of lumbar and fem neck and BMI, age and cumulative cyclosporine. The patients in translation group treated by supplement of Ca and vitamin D had less osteoporosis frequency in lumbar spine than patients without treatment (13.8% vs 37.5%, P=0.046). Osteoporosis is more frequent in transplant and dialysis patients than general population. However, there isn’t any difference osteoporosis frequency between transplant and dialysis patients. In lumbar spine, supplement of Ca and vitamin D can prevent osteoporosis and more cumulative prednisolone dose results in decreasing of lumbar BMD in renal transplant.

P 273
POST RENAL TRANSPLANT CMV INFECTION CAN AFFECT GRAFT FUNCTION

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Cytomegalovirus (CMV) is the most important single pathogen that affects transplant recipients. The type and degree of immunosuppression influence the CMV risk. Early diagnosis and management is crucial in controlling the infection. We retrospectively studied CMV infection among our kidney transplant recipients (KTR) from 1994 till 2006, we included 1850 consecutive KTR for detection and monitoring of CMV disease by CMV pp65 antigenemia assay (AA) test. All our patients were treated with intravenous gancyclovir for 21 days. Patients were followed after treatment with CMV pp65 AA as the main laboratory test for viral detection along with CMV IgM and IgG.

Results: A total number of 126 patients (4.8%) had positive CMV antigen. In this population, 107 patients (5.8%) had normal kidney function, 14 (3%) were on dialysis treatment and 5 (1.7%) eventually died. In patients with normal kidney function CMV infection caused a decrease in renal function (p value =0.002). CMV infection in renal transplant patients has the potential to significantly decrease renal function and affect transplant outcome. For this reason prophylaxis with gancyclovir and early diagnosis and treatment is strongly recommended.

P 274
HEPATITIS C INFECTION AND OUTCOME OF RENAL TRANSPLANTATION

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Hepatitis C infection (HCV) has been incriminated for bad patient and graft survival after kidney transplantation and till now the behavior of patients with HCV infection is a matter of research. For this reason, we investigated retrospectively clinical and laboratory parameters related with patient and graft survival and well being. 2600 consecutive renal transplant patients were enrolled in this study from November 1984 to July 2006. HCV antibody was assessed in all before transplantation. The immunosuppression was steroid, AZA/MMF and CsA. The number of acute rejections (AR), post transplant diabetes mellitus, cause of death, cause of graft loss were recorded too and graft survival, patient survival were calculated. Among 2600 recipients of kidney transplant patients, 128 (4.8%) were positive for HCV infection. In the HCV-positive group, 86 (67.2%) were male and 42 (32.8%) were female. 56 (12.1%) of dialysis patients were positive for HCV infection and death occured in 10 (3.5%) of them. HCV infection affected the function of transplanted kidney (p=0.000). The presence of HCV infection greatly influenced graft survival in renal transplant patients and a higher proportion of infected patients had renal and hepatic dysfunction The presence of HCV infection greatly influenced graft survival in renal transplant patients and a higher proportion of infected patients had renal dysfunction.

P 275
THE IMPACT OF LONG TERM FOLLOW UP: POSTTRANSPLANT LYMPHOPROLIFERATIVE DISEASE GOT THE FIRST RANK

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The frequency of malignancy in renal transplant recipients is much higher than in general population. Long-term immunosuppression and loss of immunologic surveillance over the neoplastic cells enhance the development of malignancy. The aim of the study was to investigate the occurrence of de novo neoplasms in
renal transplant recipients according to immunosuppressive regimen and time after transplantation. The study included 2600 consecutive renal transplanted patients between 1984-2006, regardless of their graft function. The 2600 patients who underwent renal transplantation in more than 20 years had a mean follow up of 1-254 months (mean 55±52). Malignancy occurred in 56 patients (2.2%). The most common malignancies were lymphoma and post transplant lymphoproliferative disease (PTLD) (30.4) Kaposi sarcoma (28.6%), squamous cell carcinoma (12.5%) basal cell carcinoma (5.4%) melanoma and breast cancer (each 3.6%). Malignancies occurred in 32 (1.7%) of patients who had normal kidney function and in 8 (1.7%) of those who underwent dialysis after transplantation. Although Kaposi sarcoma was the most common malignancy after transplantation in our previous study, it seems that long term follow up of patients and improvement in patients and graft survival makes the PTLD the most common malignancy among them.

**P 276**

**GUILLAN-BARRE SYNDROME AFTER RENAL TRANSPLANTATION-CASE REPORT**

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Guillan-Barre Syndrome is characterized by rapid-onset weakness, hyporeflexia or areflexia, and elevation of protein levels in CSF with- Guillan-Barre Syndrome. CSF analysis was not done. Plasmapheresis and IV IgG=4.8. Nerve conduction velocity showed: Acute axonal polyneuropathy compatible with a kind of Guillan-Barre Syndrome. Plasmapheresis and IV Ig (4mg/kg/qid for 5 days) was started, as treatment and cyclosporine dose was reduced to 200 mg/d. After four sessions of plasmapheresis, symptoms improved but didn’t completely resolve. Based on previous literature, only 11 cases of post renal transplant GBS have been reported. In 9 patients GBS was attributed to CMV infection and in one to cyclosporin A neurotoxicity and one to C. jejuni. This case suggests that the onset of the GBS after renal transplantation could be related to cytomegalovirus infection or cyclosporin neurotoxicity. Early diagnosis and treatment of CMV infection, cyclosporin dose reduction and considering plasmapheresis in especial cases are strongly suggested.

**P 277**

**IS ANTIBIOTIC NECESSARY FOR KIDNEY DONOR? HOW?**

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Management of live donor is very important for future of donor. There have been approximately 60,000 living donor nephrectomies in the world to date, and approximately 20 known deaths due to the operation. The most common cause of death has been pulmonary embolus. Reported incidence of complications includes: Pancreatic injury: 0.2% Splenic injury: 0.3%, Arterial complication of arteriogram: 0.5%, Peripheral nerve palsy: 1.1%, Deep venous thrombosis: 1.9%, Hernia: 2.0%, Wound infection: 2.1% Pneumonia or pleural effusion: 4.3%, Urinary tract infection: 8.6%, Pneumothorax: 9.1%. Atelectasis: 13.5%. Hypertension (late): 15%. Post operation Wound infection is the third most common nosocomial infection, which dependent to surgeon and his or her team, theater room, number and virulence of contaminated bacteria, patient (immunity and defense), and time of administration and duration of antibiotic. Since 1960 there is some guideline for prophylaxis of wound infection especially for antibiotic. Some centre treat wound as infection instead of prophylaxis for infection. Approach of prophylaxis for wound infection in donors is different between transplant centers, in our center, donor takes antibiotic conventional at least seven days post discharge from hospital. We had trial case study about antibiotic prophylaxis in live donor for changing conventional approach. Hundred kidney donors classified randomly in two group: group one fifty kidney donors, in them according our conventional method immediate- ly post operation antibiotic is given for at least seven days. Group two, fifty kidney donors, in them one gram cephalozine IV injected before anesthesia and continued for 24 hours. And surgical wound followed for one month in both groups. In group one case and in group two case had secretion p value =0.5 difference was not significant. Antibiotic prophylaxis starting before incision and continued for 24 hours in donor nephrectomy is safe and effective and cost benefit in preventing wound infection.

**P 278**

**CAROTID INTIMAL-MEDIA THICKNESS (CIMT) CHANGES, AS A PREDICTOR OF ATHEROSCLEROSIS, AFTER KIDNEY TRANSPLANTATION**

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Atherosclerosis and cardiovascular disease are the main cause of mortality and morbidity in patients with kidney transplants. CIMT is a good measure of atherosclerosis in both in normal population and ESRD patients. We followed a group of kidney transplanted patients for a period of 6 months to evaluate their change of ath-
erosclerosis status. B-mode sonography was performed in each patient to evaluate the carotid IMT at 12 different points: right and left common carotid, carotid bulb and internal carotid. The mean of the 12 points regarded as the CIMT. The baseline measure for CIMT was 0.83±0.22 mm. The measure increased after 2,4 and 6 months intervals after the transplantation and reached to 0.83±0.22 (p=NS), .86 ± 0.23 (p=0.012) and 0.85±0.18 (p=0.003), respectively. the results here shows that the atherosclerosis is an early event after kidney transplantation. The changes in CIMT were significant after 4 months post transplant. Interventions to reverse or slow this process should be taken into account as soon as possible to prevent the long-term morbidity and mortality in kidney transplanted patients.

P 279
ATHEROSCLEROSIS IN KIDNEY TRANSPLANT RECIPIENTS

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A main issue in handling the CRF patients is to control the cardiovascular disease. This dilemma continues even after kidney transplantation as CVD and atherosclerosis are the main cause of morbidity and mortality in this population. This study aims to assess the atherosclerosis in a group of kidney transplant recipients and it’s correlates. We measured carotid intimal-media thickness (CIMT) as a powerful indicator atherosclerosis, and other laboratory and other findings in the candidates of kidney transplantation, prior to the transplantation and compared them to a healthy control group. The relationship between the measures and CIMT were investigated. P value of less than 0.05 considered as significant. The mean±sd for CIMT in transplant recipient was 0.78±0.18 mm which was significantly higher than normal population (0.55±0.05 mm, p<0.001). The mean of plasma tHcy, folic acid vitamin B12, LDL were significantly higher in transplant recipients. In this group the level of Hgb was significantly lower. Systolic and mean blood pressure as well as pulse pressure was also higher in transplant recipients. Among these; Vitamin B12 (r=0.537), tHcy (r=0.373), Hgb (r=0.269) and LDL (r=0.233) were significantly associated with elevated measure of CIMT. The findings here are in accordance to other observations which has demonstrated a significant incidence of atherosclerotic and cardiovascular events in ESRD patients. Attention to correct the modifiable risk factors may benefit the morbidity and mortality.

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HISTOPATHOLOGIC EVALUATION AS A FACTOR INFLUENCING GRAFT SURVIVAL AFTER KIDNEY TRANSPLANTATION IN 3-YEARS OBSERVATION

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The study’s purpose was analysis the influence of histopathologic changes in pre-0 biopsy during organ harvesting and biopsy after graft explantation on graft function and survival in 3-years observation as a major outcome of chronic allograft nephropathy (CAN). Many factors affect long-term results such as donor quality, renal function undertaken, rejection, immunosuppression, coexisting diseases. One of them is histological damage as a independent predictor of late outcome. It was proved that CAN grade based on histopathologic findings is predictive of further graft survival independently of the serum creatinine level, intestinal fibrosis and tubular atrophy are more prominent features of chronic graft damage than vascular rejection. It was concluded that early protocol biopsies are useful to detect patients at risk of losing their graft due to CAN and they could be used to improve prophylaxis. We analyzed 94 renal biopsies (47 pairs) taken before perfusion during kidney harvesting and multiorgan harvesting as well and 19 biopsies after graft explantation. In histopathologic evaluation we analyzed gromerular mesangial fibrosis, percentage of inflammatory infiltration (focal lymphocytic infiltration), semiquantitive scores of focal and diffuse interstitial fibrosis, tubular lesions (tubular atrophy, tubular necrosis), sclerosis of vessels’ intima, hyalinization of arteries. In postoperative time we analyzed patients condition, urine output, serum concentrations of creatinine, urea, uric acid and ions (Na, K), exigeny of postoperative dialysis. Basing on those factors patients were divided on 3 groups: IGF (immediate graft function), DGF (delayed graft function), NGF (no graft function). During 3 years of observation we analyzed 3 groups of patients: living recipients, graft loss, decease with functioning graft. Pre-0 biopsy allows to describe graft’s initial state different from protocol biopsies after transplantation, where histologic findings, dependently on time since operation, are affected by numerous factors: recipients condition, recurrent disease, post-transplant hypertension, immunosuppression, chronic allograft nephropathy or episode of rejection. Biopsies after explantation in comparison to pre-0 allowed to describe degree of histopathologic changes during graft lifetime. Our study answers the questions: what is average initial state of grafts before transplantation in our material, which and how histological findings, its intensity, frequency and irreversibility correlate with graft long-term function and prediction of delayed graft function.
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POST KIDNEY TRANSPLANT REGISTRY AT DAMMAM CENTRAL HOSPITAL
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Renal Transplantation is the optimum therapy of end-stage renal disease (ESRD) patients. Transplant registry is quite essential in determining the different factors that may influence the success, failure and long term outcome of a transplant program. Our registry has been established in early 1980s. A specific registry book was created to include the name of patient, age, sex, nationality, diagnosis of ESRD, date of starting dialysis, type and date of kidney transplantation and post transplant follow up. We retrospectively analyzed our registry from 1978-2006. There were 231 post kidney transplantation and post transplant follow up. We retrospectively analyzed our registry from 1978-2006. There were 231 post kidney transplantation patients (68% males and 32% females); about 15% of the total ESRD patients that have been on dialysis. Currently, 31% are in active follow-up, 44% moved to other renal units, 17% went back on dialysis and 8% died. The source of the graft in 67% of cases was from live unrelated donors, 13% from live related donors and 20% from cadaveric donors. Out of the total recipients 76% where Saudi and 24% non-Saudi, 28% performed in the kingdom of Saudi Arabia and 72% abroad. The median age was 46 years (19-80) and duration of follow-up was 8.4 years (1-28). The blood group was O+ in 44%, 26% A+ and 18% B+. The majority of patients (62%) were negative for HCV and HBsAg, 32% HCV positive, 5% had HBsAg+ and 1% positive for HBsAg and HCV. All patients were HIV negative. The immunosuppressive regimen was: 0.5% on prednisolone alone, prednisolone and azathioprine 2%, prednisolone and cyclosporine 12%, prednisolone, cyclosporine and azathioprine 62.5%, cyclosporine and mycophenolate mofetil in 23%. Mean serum creatinine in the active group was 1.8 mg/dl (0.6-5.9). There were five patients (4%) treated for reactivation of tuberculosis, 1% developed CMV infection and 3% developed different post transplant malignancies. Post transplant diabetes mellitus and hypertension accounted for 40% and 60% respectively. In conclusion, early analysis of our registry shows that only minority of our dialysis patients managed to get transplanted. Most of those transplanted were males and the majority performed abroad from live unrelated donors. The most immunosuppressive regimen was the combination of prednisolone, cyclosporine and azathioprine; though some patients are still on prednisolone alone or with azathioprine with normal graft functions. Post transplant infection rate was relatively low, but the major complications were hypertension and diabetes mellitus.

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WHICH ONE IS PREFERRED IN PREVENTION OF OSTEOPATHY IN RENAL TRANSPLANTED PATIENTS, VITAMIN D3 OR 1,25 DIHYDROXYVITAMIN D3?
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Bone disorders cause important long-term morbidity in renal transplanted recipients. Vitamin D3 (vit D) or 1,25 dihydroxy vitamin D3 with calcium (Ca) are used for prophylaxis of osteopathy of these patients. In order to investigate which preparation of vit D is preferred we design this study.

Methods: in a retrospective cross-sectional study, 318 (age 38.9 ± 13.5, F/M 116/202) renal transplanted patients were studied. They were taking various type of vit D (vit D3 or 1,25 dihydroxy vit D3) and Ca preparations (calcium carbonate) with different dosage, to prevent progression of osteopathy after kidney transplantation, at least for 3 months before laboratory evaluation. Serum creatinin (Cr), Ca, albumin (Alb), phosphate (Ph), PTH, 24 hours urinary Ca and cr were measured. Basal characteristics and above mention parameters were compared with Anova.

Results: Mean ± SD of serum cr, Ca, Ph, PTH were 1.45 ± 0.59, 9.3 ± 0.59, 3.54 ± 0.63 mg/dl, 49.6 ± 73.8 ng/ml, respectively and urinary Ca was 127.82 ± 75.51 mg/d. There was a strong correlation between serum Ph and urinary Ca (r = 0.91, P = 0.01) and also between body weight and urinary Ca (r = 0.25, P = 0.001). There was no correlation between serum or urinary Ca with type of vit D and Ca preparations.

Conclusion: Concentration of urinary Ca is lower than expected (150-200 mg/d) with no correlation between serum and urinary Ca. Checking of urinary Ca with more frequent intervals is recommended to determine prophylactic dosage of Ca and Vit D regardless of preparation.

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PREEMPTIVE RENAL TRANSPLANTATION IN A BARDET-BIEDEL PATIENT: A CASE REPORT
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Bardet- Biedl syndrome is a rare autosomal recessive trait with retinitis pigmentosa, hypogonadism of various etiologies, polydactyly, obesity, learning difficulties and renal defects. We describe here the case of a 38 year old girl with Bardet-Biedl syndrome, diagnosed during adolescence according to retinitis pigmentosa, polydactyly, hypogonadism, obesity and learning difficulties. Three years ago, she presented with hypertension and renal failure. At imaging study, kidneys were enlarged with innumerable cysts scattered diffusely throughout renal cortex and medulla. The patient received conservative therapy until one year ago when she was referred to our hospital for kidney transplantation. She received preemptive renal allograft and was prescribed...
a triple immunosuppressive regimen. The course of the operation was complicated with wound infection and Guillain Barre syndrome. The patient was discharged in a good condition with normal kidney function. At our center, a Bardet-Biedle patient with renal failure and cystic kidney disease successfully received a renal allograft.

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**CLINICAL MANIFESTATION, LABORATORY FINDINGS AND THE RESPONSE TO TREATMENT OF KIDNEY TRANSPLANT RECIPIENTS WITH CMV INFECTION**

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To report clinical manifestations, laboratory findings and the outcome of treatment in kidney transplant recipients who had CMV infection in our center. This study was performed retrospectively on the records of the kidney transplant recipients of our center who have followed up regularly from 2001 to 2006; in some patients the complementally information were gathered through telephone call and physical examination in the clinic. The CMV infection diagnosis was also made by detecting P.65 Antigen in cells per 50,000 leukocytes of peripheral blood. Of the 200 kidney transplant recipients, 66 were infected by CMV including 42 men and 24 women. The patients’ age ranged from 14 to 67 years, with the mean of 40±13 year. Seventy nine percent of patients were infected during the 1st six-month following the transplantation. All except 22 patients (33%) had constitutional complaints. Fever was present in 65% patients, abdominal pain in 21%, diarrhea in 20% and vomiting in 15%. Likewise, pulmonary complaints including cough and dyspnea were reported by 32% and 23%, respectively. However, 20% of patients were completely asymptomatic. Hematologic lab data showed 64% anemia, 47% thrombocytopenia and 21% leukopenia. Seventy eight percent of patients had creatinin ≤2 before infection but it was ≤2 in just 26% when CMV was diagnosed and in 60% after treatment. Antiviral therapy was done with intravenous gancyclovir in 80% of patients and gancyclovir plus acyclovir in 20%. Corticosteroid pulse-therapy was also done in 78% of patients. No statistically significant correlation was found between CMV antigen load and severity of clinical manifestations or the time of response to treatment and also the recurrence prognosis. In our series 1 patient died, 28 patients (42%) treated but experienced CMV recurrence and 37 (56%) showed no recurrence. CMV infection should be considered in any renal transplant recipient who have rise in creatinin even if s/he is symptom free. In spite of the results of other studies, we found no prognostic value for the viral antigen load.

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**IRANIAN MODEL OF RENAL ALLOGRAFT TRANSPLANTATION IN 3028 RECIPIENTS: SURVIVAL AND RISK FACTORS**


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Iran is a one of leading countries in renal allograft transplantation (RT) and Living donors have always been the basic resources of transplantation in our country, where cadaveric harvesting is still hampered for various reasons. Objective: to construct a national model of prognostic factors leading to graft and patients survival. Methods: From July 1984 to December 2005, 4588 RT cases were performed in Labbafi nejad and Baqiyatallah hospitals, Tehran, Iran of whom 3028 cases included because of favorable follow up data. The analyzed variables were donor relationship, recipient age and sex, donor age and sex, Viral hepatitis B&C infections. Graft survival rate was assessed with the Kaplan-Meier method and the significance of possible variables with the Cox proportional hazard model. Results: a total number of 3028 RT recipients (94.8% first RT, 63.4% male, mean±SE of age in RT 36.4±0.3 years, mostly got ESRD due to Glomerolunephritis, Hypertension and Diabetes Mellitus) were studied. One, five, ten and 15 years graft survival were 85.4%, 68.2%, 46.2% and 27.4% respectively and for patients survival were 95.4%, 87.5%, 79.9% and 76.3% respectively. Most of cases lost graft function due to chronic rejection (86.3%). Donor age (Relative Hazard [RH]: 1.024, P<0.001), Unrelated donors (RH:1.7, P<0.001) and Hepatitis C Virus (HCV) Infection (RH: 2.65, P<0.001) were the only significant factors effecting graft survival. Conclusion: increased donors age, unrelated donor and HCV infection rate both are the most important factors on graft rejection rate and proper management of these factors may led to more graft functioning and survival.

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**ICU RE-HOSPITALIZATION IN KIDNEY TRANSPLANT RECIPIENTS: CAUSES, OUTCOME, AND CORRELATED FACTORS**

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There being an increasing number of patients with functioning renal allograft, more long-term complications are expected. To our knowledge, few studies have been published to date regard-
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**P 287**
**EVALUATION OF EFFECT OF RENAL TRANSPLANTATION IN TREATMENT OF RESTLESS LEGS SYNDROME IN HEMODIALYSIS PATIENTS**

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Restless legs syndrome (RLS) is a common cause of sleep disturbance and is frequently experienced by hemodialysis patients. It is a neurologic movement disorder, patients with RLS suffer an irresistible urge to move the legs during inactivity and relieves by motions and different activities. We investigated the clinical course of RLS in 30 (12 female and 18 males) hemodialysis patients with mean dialysis duration of 16.8±14.13 months who underwent kidney transplantation. Patients were given a standardized questionnaire evaluating details of RLS at baseline, and twice after their kidney transplants and diagnosed to have RLS by International RLS study Group criteria. Biochemical (Serum calcium, phosphate, Na & K and blood urea & creatinin) and hematological indices (serum Iron, hemoglobin) were measured, in each time. RLS in hemodialysis patients (93.3%) significantly reduced with renal transplantation (43.3%), (P<0.0001). There was a significant association between RLS and lower serum iron (by mechanisms different than its effect on hemoglobin) that result in the study group than in the control group. We observed that cutaneous lesions, especially those caused by infectious diseases, had a higher frequency in RTRs. The findings emphasize the regular dermatological screening in these patients to obtain an early diagnosis and treatment.

**P 288**
**SKIN DISEASE IN RENAL TRANSPLANT RECIPIENTS**

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Renal transplant recipients (RTRs) are predisposed to a variety of cutaneous complications due to immunosuppressive therapy. We aimed to determine the incidence and the clinical manifestation of skin diseases in these patients. Ninety RTRs (51 males and 39 females), aged 15 to 58 years (mean: 36.42±11.90), with mean interval after kidney transplantation (RTX) of 23.05±19.48 months were consecutively examined as outpatients. The effects of age, sex and duration time after transplantation on cutaneous manifestations were evaluated and the dermatologic manifestations in RTRs were compared with control group consisting of 90 persons. The immunosuppressive regimen consisted of cyclosporine, systemic corticosteroids, mycophenolate mofetil. Sixty two patients (68.8%) had skin manifestations, 52 patients (57.7%) had drug-related manifestations, including acneiform eruption (n=43), gingival hypertrophy (n=18), hypertrichosis (n=49). Cutaneous viral infections identified in 20 patients (22.0%) included verruca vulgaris (n=9), herpes zoster (n=5) and herpes simplex (n=6) &Human papilloma virus (HPV) (n=11). 3 patients (3%) had premalignant or malignant skin lesions. Fungal infections, consisting of dermatophylosis (n=8), onycomycosis (n=4), pityriasis versicolor (n=24) and mucocutaneous candidiasis (n=7). There was a significant relation between age and the incidence of skin diseases in RTRs. The incidence of HPV infections, tinea versicolor and premalignant and malignant lesions increased with the duration of immunosuppression. The incidence of infectious skin diseases, especially those caused by infectious diseases, had a higher frequency in RTRs. The findings emphasize the regular dermatological screening in these patients to obtain an early diagnosis and treatment.

**P 289**
**THE EFFECT OF INTRAVENOUS PAMIDRONATE ON EARLY BONE LOSS OF RENAL TRANSPLANT RECIPIENTS**

Azar SA, Tayebi H, Safa J, Mortazavi M, Argani H, Ardalan MR, Bahloli A, Badroghli N
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Renal Transplant Recipients (RTRs) are at risk of developing osteoporosis and osteopenia due to underlying renal osteodystrophy, hypophosphatemia, and immunosuppression. Which is more frequent in the first year after Renal Transplantation (RTX) that result in the Intensive Care Unit (ICU) re-hospitalization after kidney transplantation. The purpose of this study was to compare re-hospitalization of kidney transplant recipients in ICU and that in other wards. This study was a retrospective comparative analysis of 581 consecutive re-hospitalizations of kidney recipients in Baqiyatallah Hospital from 1994 to 2006. A total of 581 re-hospitalizations were divided into admissions in ICU and admissions in other wards. The two groups were compared in terms of demographic variables, length of stay at hospital, causes of end-stage renal disease (ESRD), time intervals between transplantation and re-hospitalization, hospitalization costs, and mortality rates. 25 patients (4%) used ICU care in their re-hospitalizations. Causes of ICU admissions were renal dysfunction in 36%, CVA in 24%, sepsis in 16%, brain tumor in 8%, brain abscess in 4%, diabetic ketoacidosis in 4%, trauma in 4% and hemodynamic shock in 4%. We found a significant higher mean (SD) age (49.4±11.3 vs 39.9±14.1, p=0.001), length of stay at hospital (18.36±22.88 vs 10.30±8.74, p=0.00), mortality rate (32% vs 2.8%, p=0.00), and mean (SD) hospitalization costs (9.075±3.945 vs 2.725±3.183, p=0.00) (1000 IRR) in the ICU admissions than those in others. There was no significant difference in sex, ESRD cause, and TH-time between the two groups (p>0.05). ICU re-admission imposes higher costs and prolonged length of hospital stay upon the health care system (an approximate increase of 250% and 80%, respectively). Renal dysfunctions, sepsis, and cerebrovascular accidents seem to be the principal causes of ICU re-admission after renal transplantation.

**P 287**
**EVALUATION OF EFFECT OF RENAL TRANSPLANTATION IN TREATMENT OF RESTLESS LEGS SYNDROME IN HEMODIALYSIS PATIENTS**

Azar SA, Talebi M, Hatefi R, Safa J
Transplantation Ward, Imam Hospital-Tabriz University Of Medical Science, Iran

Renal transplant recipients (RTRs) are at risk of developing osteoporosis and osteopenia due to underlying renal osteodystrophy, hypophosphatemia, and immunosuppression. Which is more frequent in the first year after Renal Transplantation (RTX) that result in the Intensive Care Unit (ICU) re-hospitalization after kidney transplantation. The purpose of this study was to compare re-hospitalization of kidney transplant recipients in ICU and that in other wards. This study was a retrospective comparative analysis of 581 consecutive re-hospitalizations of kidney recipients in Baqiyatallah Hospital from 1994 to 2006. A total of 581 re-hospitalizations were divided into admissions in ICU and admissions in other wards. The two groups were compared in terms of demographic variables, length of stay at hospital, causes of end-stage renal disease (ESRD), time intervals between transplantation and re-hospitalization, hospitalization costs, and mortality rates. 25 patients (4%) used ICU care in their re-hospitalizations. Causes of ICU admissions were renal dysfunction in 36%, CVA in 24%, sepsis in 16%, brain tumor in 8%, brain abscess in 4%, diabetic ketoacidosis in 4%, trauma in 4% and hemodynamic shock in 4%. We found a significant higher mean (SD) age (49.4±11.3 vs 39.9±14.1, p=0.001), length of stay at hospital (18.36±22.88 vs 10.30±8.74, p=0.00), mortality rate (32% vs 2.8%, p=0.00), and mean (SD) hospitalization costs (9.075±3.945 vs 2.725±3.183, p=0.00) (1000 IRR) in the ICU admissions than those in others. There was no significant difference in sex, ESRD cause, and TH-time between the two groups (p>0.05). ICU re-admission imposes higher costs and prolonged length of hospital stay upon the health care system (an approximate increase of 250% and 80%, respectively). Renal dysfunctions, sepsis, and cerebrovascular accidents seem to be the principal causes of ICU re-admission after renal transplantation.
in bone loss and fractures. The purpose of this study was to evaluate the effect of low dose intravenous pamidronate in prevention of early bone loss after RTX. We prospectively studied 40 (M=20, F=20) successfully RTRs with mean age of 38/0±13.93± mean BMI: 24.1±4.73± mean dialysis duration of 24.9±17.67 and assigned them in two age & sex match groups: Pamidronat treated (Pam) group received Vit D during the study 80.5 mg/kg intravenous Pamidronate at the time and one month after RTX & control group received only Vit D. We measured serum calcium, phosphate, Alkaline phosphatase, blood urea & creatinine at baseline & monthly and ITTH & BMD at baseline and 3 & 6 months after RTX. Lumbar BMD in Pam group increased significantly from 0.827±0.11 to 0.857±0.12, (p<0.01) & decreased in control group from 0.900±0.16 to 0.812±0.11, (p<0.001) 6 month after RTX. There was also significant increase of Radius BMD (p<0.001) & non significant increase of Femor BMD in Pam & and significant decrease of BMD of Femor & Radius (p<0.001) in control group 6 month after RTX. T& Z score of Spine & Femor & Radius in month 6 after RTX significantly increased (p<0.001) in pam group & decreased in control group (p<0.001). After multivariate analysis there was significant correlation between Pamidronate & BMD of Spine, (r=0.3, p<0.001) but there was not any linear regression between age, sex, BMI, duration of dialysis & ITTH with BMD changes of Femor & Spine & Radius at month 6 in each groups. Intravenous Pamidronate is significantly useful in prevention of fast bone loss and can increase the BMD immediately after RTX.

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THE OUTCOME OF DIVERTICULOSIS IN KIDNEY RECIPIENTS WITH POLYCYSTIC KIDNEY DISEASE

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Diverticulosis is a common finding in Autosomal Dominant Polycystic Kidney Disease (ADPKD). To avoid the serious complications of diverticulosis after kidney transplantation, some policies have recommended aggressive actions, such as elective colectomy, in these patients. These policies are not widely agreed upon. This made us to investigate the serious complications and the outcome of diverticulosis in ADPKD kidney recipients to see whether these therapies are justified or not. From 2002 to 2006, we followed 18 kidney recipient ADPKD patients with barium enema approved diverticulosis in Baqiyatallah hospital, Tehran, Iran. All subjects were asymptomatic for diverticulosis at the time of transplantation. The mean ± SD of follow up duration was 17.78 ± 10.53 months. Demographic data, Familial history of ADPKD, findings of Barium enema and complications as well as graft and patient survival were registered. Hepatic flexure was the most prevalent site for diverticula. The mean (SD) of diverticules count was 6.06±5.14. Patients with familial history of ADPKD, had a higher number of diverticules (p=0.01). Colon perforation occurred in 3 patients (16.7%) which all of them led to death.

Conclusion: Perforation of colon is a fatal but not a rare complication in ADPKD patients. The rate of complications in our study is similar to previous finings, but we observed the serious complications even in asymptomatic patients at the time of transplantation. The decision about taking an aggressive action like elective colectomy remains to be a matter of debate and needs further evaluation.

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IMPACT OF PREGNANCY ON THE OUTCOME OF KIDNEY TRANSPLANT

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Although fertility is reduced significantly in End Stage Renal Disease (ESRD), it is believed to improve after kidney transplantation. Due to homodynamic changes which occur during pregnancy, there is still concern about the impact of pregnancy on the outcome of kidney transplantation. In this study we surveyed this probable effect. In this historical cohort, we grouped female kidney recipients who were in their reproductive ages into Group I (n=86, pregnancy occurred) and Group II (n=125, pregnancy did not occur). Census sampling was done in Baqiyatallah hospital, Tehran, Iran, 1995-2002. The two groups were matched for age, cause of ESRD and treatment protocol. All the subjects had normal creatinine level (<1.5 mg/dl) on entry to our study. The subjects were followed for 45.4±22.05 and 46.38±19.84 months, respectively, in each group (p>0.05). Rise in the creatinine level (>1.5mg/dl) was considered as the main outcome measure. Mean (SD) age in Groups I and II were 26.6±7.9 and 26.9±8.1, respectively (p>0.05). In Group I, only in 9 (10.5%) subjects did the creatinine level rise, while in Group II, the serum creatinine level rose in 35 subjects (28%) (P=0.02). In this study we found that a lower number of subjects who became pregnant after kidney transplantation show an increase in their plasma creatinine level in comparison to the others. It may be secondary to the physiological immune suppression which happens during pregnancy.
The prevalence of end-stage renal disease (ESRD) in patients with diabetes mellitus (DM) has increased. Despite the higher prevalence of some diseases in diabetic ESRD patients, compared with non-diabetic subjects, few studies have focused on difference in pattern of hospital admissions after kidney transplantation in these groups. This study compares the causes of re-hospitalization after renal transplantation in ESRD attributable to DM and non-diabetes mellitus (NDM) patients. We performed a retrospective study on 366 re-hospitalization records in Baqiyatallah hospital, Tehran, Iran from 1994 to 2006. Of these, 69 were due to DM patients and 297 were due to NDM patients. Causes of admission were categorized to renal dysfunction, infection, surgical complication, and macrovascular disease and were compared in two groups. The proportion of infections (59.4% vs 43.1%, p<0.05) and surgical complications (14.5% vs 5.7%, p<0.05) were higher in diabetics compared to non-diabetics. No significant differences were found in the proportion of macrovascular disease (0% vs 3%, p>0.05) or renal dysfunction (34.8% vs 44.4%, p>0.05). According to the results of this study, diabetic renal transplant patients are at higher risk of infections and surgical complications following renal transplant. This recommends a closer follow-up of diabetics after kidney transplantation, which may be beneficial in decreasing rate of preventable hospitalizations.

In young patients, kidney transplantation improves the quality of life, and increases patients' survival, but in old patients, such benefits are not apparent. Our aim was to compare the outcome of kidney transplantation between the old and young recipients. In this historical cohort at Baqiyatallah hospital, we enrolled 44 kidney recipients in Group I (≥60 years old) and 358 recipients in Group II (<60 years old). We used one protocol for assessment and treatment of both groups. All the recipients had a normal creatinine level (<1.5 mg/dl) on entry to our study. We followed the recipient's serum creatinine level, graft and patient survival for 5 years. Graft survival was determined under both death censored and uncensored approaches. The findings of the two groups were compared at the time points of 6 months, 1 year and 5 years. There was no significant difference in the serum creatinine level between the two groups, in all time points (p>0.05). Patient and graft survival in 6 months was not statistically different between the two groups (p>0.05), whereas at the 1 year and 5 year time points, patient and death-uncensored graft survival was significantly worse for patients above the age of 60 (p<0.05).

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**IS THE PATTERN OF RE-HOSPITALIZATION IN DIABETIC AND NON-DIABETIC KIDNEY TRANSPLANT RECIPIENTS THE SAME?**

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The prevalence of end-stage renal disease (ESRD) in patients with diabetes mellitus (DM) has increased. Despite the higher prevalence of some diseases in diabetic ESRD patients, compared with non-diabetic subjects, few studies have focused on difference in pattern of hospital admissions after kidney transplantation in these groups. This study compares the causes of re-hospitalization after renal transplantation in ESRD attributable to DM and non-diabetes mellitus (NDM) patients. We performed a retrospective study on 366 re-hospitalization records in Baqiyatallah hospital, Tehran, Iran from 1994 to 2006. Of these, 69 were due to DM patients and 297 were due to NDM patients. Causes of admission were categorized to renal dysfunction, infection, surgical complication, and macrovascular disease and were compared in two groups. The proportion of infections (59.4% vs 43.1%, p<0.05) and surgical complications (14.5% vs 5.7%, p<0.05) were higher in diabetics compared to non-diabetics. No significant differences were found in the proportion of macrovascular disease (0% vs 3%, p>0.05) or renal dysfunction (34.8% vs 44.4%, p>0.05). According to the results of this study, diabetic renal transplant patients are at higher risk of infections and surgical complications following renal transplant. This recommends a closer follow-up of diabetics after kidney transplantation, which may be beneficial in decreasing rate of preventable hospitalizations.

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**COLOR DOPPLER FINDINGS IN TRANSPLANTED KIDNEYS AND REMNANT KIDNEYS OF DONORS 6 TO 12 MONTHS AFTER KIDNEY TRANSPLANTATION**

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Ultrasonography and color Doppler has been used extensively in the evaluation of transplanted kidney. The aim of this study was evaluation and comparison of the color Doppler sonography findings in remnant kidney of living donors and transplanted kidney 6-12 months after kidney transplantation. In a cross sectional study we evaluated ultrasonographic (US) and color Doppler findings in 20 kidney allograft recipient and donors. Group 1: Kidney donors including living (unrelated and related) donors. Group 2: Kidney allograft recipients. Color Doppler US was performed by a single sonologist from remnant kidney of living donors and transplanted kidney of recipients, 6-12 months after kidney donation and transplantation. Kidney size (including length and width) cortical thickness, Resistive Index (RI), Pulsetile Index (PI) were recorded. Statistical analysis was performed using SPSS 13 win (t test) for comparison of the results in donors and recipients. All data was presented as +/- SD and P value less than 0.05 was considered significant. Group 1: Mean age of kidney allograft recipients was 39.92 +/- 11.95 years with male to female ratio of 1/2. Mean length, width and cortex thickness of the transplanted kidney were 120.15 +/- 7.50 ml and 8.53 +/- 1.00 ml respectively. Mean RI, PI were 0.60 +/- 0.08 and 1.02 +/- 0.23 respectively. Mean serum creatinine was 1.23 +/- 0.24 mg/dl. Mean duration of renal transplantation was 7.27 +/- 1.10 months. Group 2: Mean age of donors was 25.63 +/- 3.50 years with M/F= 1/10. Mean length, width and cortical thickness were 120.77 +/- 9.28 ml, 53.36 +/- 4.52 ml and 9.04 +/- 1.27 ml respectively. Mean RI and PI were 0.60 +/- 0.02 and 1.07 +/- 0.13 respectively. There was no significant difference in length, width, cortical thickness, RI and PI of donors and transplanted kidney 6-12 months after transplantation (P>0.05). There was significant increase in both donor’s and recipient’s kidney size 6 to 12 months after transplantation. (P<0.05, it seems that renal ultrasonographic and Doppler parameters remain stable and well in recipients body as donors body at least in short term evaluation. Long term study with more patients recommended.

**P 294**

**THE OUTCOME OF KIDNEY TRANSPLANTATION AMONG OLD AND YOUNG RECIPIENTS**

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In young patients, kidney transplantation improves the quality of life, and increases patients’ survival, but in old patients, such benefits are not apparent. Our aim was to compare the outcome of kidney transplantation between the old and young recipients. In this historical cohort at Baqiyatallah hospital, we enrolled 44 kidney recipients in Group I (≥60 years old) and 358 recipients in Group II (<60 years old). We used one protocol for assessment and treatment of both groups. All the recipients had a normal creatinine level (<1.5 mg/dl) on entry to our study. We followed the recipient’s serum creatinine level, graft and patient survival for 5 years. Graft survival was determined under both death censored and uncensored approaches. The findings of the two groups were compared at the time points of 6 months, 1 year and 5 years. There was no significant difference in the serum creatinine level between the two groups, in all time points (p>0.05). Patient and graft survival in 6 months was not statistically different between the two groups (p>0.05), whereas at the 1 year and 5 year time points, patient and death-uncensored graft survival was significantly worse for patients above the age of 60 (p<0.05). However, death-censored graft survival was similar between the two groups (p>0.05). Due to the similar death-censored graft survival in the old and young kidney recipients, it may be regretful to exclude the patients on the basis of their age from receiving a kidney. This needs to be promoted by the experienced transplantation team for older patients with ESRD.
The aim of this retrospective study was to characterize the patients who experienced Borderline Rejection (BLR) Utilizing Banff criteria for diagnosis of acute rejection, 202 biopsies in 420 patients showed BLR out of 429 biopsies with the diagnosis of acute rejection (47%). Patients with a minimum follow up for two years were enrolled in this study (106 patients). Patients of minimum 2 ys follow up with BLR (n=47, after exclusion of those with associated chronic interstitial fibrosis) were compared to patients with acute cellular rejection Grade I (AR) (n=650) and patients with free rejection episodes (FR) (n=444) regarding the different characteristics. In this group with BLR, the mean age is 25.14 ± 10.29 years with male to female ratio 2.2:1. Patients aged 20 years or less were less frequent in BLR group than other groups which is statistically significant (p=0.001). Significant differences were found in recipient and donor ages, consanguinity, pre transplant blood transfusion, and immunosuppression plan. Most patients in BLR group received triple immunosuppression therapy than other groups (p=0.001). Univariate and multivariate regression analysis of different variables on graft survival in BLR patients revealed that none of them was statistically significant. BLR is a frequent finding in biopsy proven acute rejection after kidney transplantation. Time of occurrence, frequency, presence of chronic changes, treatment or not and response to therapy were not predictors to graft survival.

**P 296**

**EFFECT OF CALCITERIOL ON PREVENTION OF ACUTE REJECTION IN LIVE DONOR RENAL TRANSPLANTATION**

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The incidence of acute rejection has declined dramatically as a result of new immunosuppressive medication. Unfortunately, some of these drugs have important metabolic side effects. Recently, it has been shown that new immunomodulator drugs have potential advantages on rejection prevention without any side effects. Calcitriol is now believed to play a role in the immune responses both in vitro and in vivo. This study was aimed to compare the rate of acute rejection and its effects on metabolic consequences between patients receiving and those not receiving calcitriol. Fifty patients undergoing renal transplantation from living donors were randomized into a prospective controlled trial. They were divided into two groups and all of them received prednisolone, cyclosporine and mycophenolate mofetil. One group (C+) was treated with calcitriol for six months. They were matched for age of recipients and donors, recipient-donor relationship, underlying dis-eases, length of hemodialysis and panel reactivity test status. While C+ group received less cyclosporine, the incidence of acute rejection was similar in both groups. They received 4.9 +/- 0.7 mg/kg and 2.32 +/- 0.9 mg/kg of cyclosporine at the end of first and sixth months respectively while the control group received 5.4 +/- 1.3 mg/kg and 3.75 +/- 0.9 mg/kg (p value=0.08 and p value=0.09). No significant difference between two groups was observed on serum calcium, phosphorous, lipid profile and infection rate. This study indicates that calcitriol without having any significant side effect is useful for prevention of acute rejection when added to an immunosuppressive regimen.

**P 297**

**MIDLINE EXTRA-PERITONEAL APPROACH FOR DUAL KIDNEY TRANSPLANTATION; DESCRIPTION OF A TECHNIQUE**

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Cadaveric dual kidney transplantation using organs from marginal donors that would otherwise be discarded offers a good option for older individuals who may not withstand a long waiting time. To describe the technique of dual kidney transplantation using an extra-peritoneal approach through a lower midline incision. Lower midline incision two fingerbreadths above the umbilicus down to symphysis pubis. Identification of peritoneum and careful blunt dissection of extra-peritoneal space bilaterally. Buckwalter retractor application with the ring positioned over the side to be transplanted. After implanting the kidneys, the ureters can be anastomosed extra or intravesicular. Drains placement bilaterally before closure. We believe that there are advantages to this approach, which are: 1) an extra-peritoneal approach and 2) using one incision. The extra-peritoneal approach has the following advantages: 1) Less graft mobility 2) Easier access to the iliac vessels than the trans-abdominal approach 3) Less post-operative bowel ileus and no adhesion complications 4) Easier biopsy access and placement of drains or nephrostomy tubes with reduced risk of bowel injury. The advantages of using a mid-line incision include: 1) Easier conversion to intra-abdominal approach if necessary 2) less potential hernia complications with one incision than with two incisions 3) If a wound infection develops, the wound is far from the grafts 4) Faster operation & less time under anesthesia than with two incisions reducing cold ischemia time 5) Faster patient post-operative recovery with one incision. Extra-peritoneal midline approach is a useful technique in dual kidney transplantation.
P 298
PATIENTS AND THEIR ALLOGRAFT SURVIVAL IN PRIMARY AND POST-TRANSPLANT DIABETES MELLITUS WITH CONTROLLED GROUP

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Primary diabetes mellitus and post-transplant diabetes mellitus has been linked to graft and patient-related complications, including graft loss, cardiovascular disease and infection. It is a major cause of these complications and mortality. The aim of this study was to evaluate the complications. In this historical cohort research, 111 patients were studied from 1996 to 2004. Patients were studied in 3 groups: A: non-diabetic patients pre- and post transplant (controlled group), B: primary diabetic patients, C: post-transplant diabetes mellitus. 72.9 percent of the subjects were male and others were females. Delayed graft function was occurred in 2.7, 8.9 and 10.9 percent, rejection in 7.2, 14.2 and 16.3 percent and mortality in 2.7%, 12.5 and 5.4 percent of group A, B and C respectively. There is no significant difference between incidence of complications in group B and C. Chi square showed incidence of delayed graft function, rejection and mortality between group A and each of B and C were significant, \( p=0.027 \), \( R=3.67 \) and CI 0.95, \( p=0.004 \), RR=2.45 and CI 0.95, \( p=0.045 \), RR=3.33 CI 0.95, respectively. According to the results obtained, it seems that post-transplant diabetes mellitus and primary diabetes mellitus are major risk factors and must be exactly followed up prior to and post kidney transplantation. It is recommended more study to modify proper and better treatment is recommended.

P 299
PRETRANSPLANT CALCIUM-PHOSPHATE-PTH HOMEOSTASIS AS A RISK FACTOR FOR EARLY GRAFT FUNCTION

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While excellent organ quality and ideal transplant conditions eliminate many of the know factors that compromise initial graft function (IGF), poor early graft function (EGF) still occurs after living donor kidney transplantation (LDKT). Hyper calcemia and hyper parathyroidism are associated with impaired renal function. Little is known on the effects of serum calcium level on poor EGF. Between April 2004 and January 2006 data were collected on 353 (302 male, 52 female) LDKT to determine risk factors for poor EGF, defined as either delayed or slow graft function (DGF or SGF). Recipients were analysed in three groups, based on initial graft function (IGF) (creatinine <3mg/dl 5 days after transplantation, SGF (creatinine>3mg/dl 5 day after transplantation and DGF (need for dialysis in the first week post-transplant). A multivariate analysis looked specifically at pretransplant serum calcium, phosphate, calcium-phosphate product, PTH and use of calcium blockers for IGF as compared with SGF and DGF RESULTS: Of the 353 recipients, 317 (89.8%) had IGF, 22 (6.2%) had SGF and 14 (3.9%) had DGF. diabetic etiology of renal disease (p=0.09) and duration of dialysis (p=0.02) associated with poor EGF. recipient with DGF had higher serum phosphate (p=0.007), calcium phosphate product (p=0.01) than recipients with IGF and SGF. PTH in recipient with SGF and DGF was higher but not significant (p=0.1). Serum calcium level (p=0.9) did not with the occurrence of poor EGF, and use of calcium channel blockers has not a protective effect. In this study we conclude that serum phosphate calcium phosphoate product as a risk factor for DGF, and PTH level as a risk factor for SGF and DGF may be considered. We cannot find correlation between calcium level and poor EGF, also use of calcium blockers cannot reduce the risk. Efforts to improve calcium phosphate-PTH homeostasis in patients on the waiting list of renal transplantation should be encouraged also to improve graft function.

P 300
KIDNEY TRANSPLANTATION IN ELDERLY PATIENTS

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The population of elderly people with chronic renal insufficiency is increasing around the world. It has been shown that renal transplantation may be the best treatment for these patients. However, it has been observed that older patients who have received a renal transplant (RTX) have a higher mortality rate associated with infections than those who are younger. This study was aimed to evaluate renal transplantation in recipients over 50 years of age. Six hundred fifty renal transplantations were performed at Imam Reza hospital from 1989 to 2002 out of which 83 were done in patients older than 50 years (50 to 66). We determined one year, three years and five years survival and the prevalence of hypertension, hyperlipidemia, and urinary tract infection (UTI) after transplantation. Rate of patients survival at 1, 3 and 5 years after renal transplantation were 92.4%, 84.7% and 75.5% respectively. 80% of recipients had hypertension after transplantation and 67.1% had UTI. Cholesterol level was high in 55.4% of recipients and hypertrigliceridemia occurred in 70.8% of patients. Actuarial evaluation showed no relation between one year, three years, five years survival and the three complications (hypertension, hyperlipidemia, UTI). There was no correlation observed between age and sex of recipients with the three major complications. It seems that renal transplantation can be performed safely and with acceptable prognosis in the elderly patients after clinical evaluation.
There is limited information about osteoporosis in end stage renal disease (ESRD) patients. We studied bone mineral density (BMD) changes in Iranian patients with ESRD. In 57 ESRD patients who were candidate for renal transplantation, bone mineral density at fem neck and spine were assessed using a DEXA Norland scanner, stepwise multiple linear regression analysis were used to identify risk factors associated with low bone density. Mean BMD, T-score and Z-score of fem neck and spine were significantly reduced (respectively, at the fem neck: 0.78±0.14; -2.4±1.1; -1.6±1.0 and at the spine: 142.25±105; -1.09±1.1; -1.07±0.9). Osteoporosis and osteopenia were found 55.2% and 36.2% at fem neck and 8.6% and 58.6% at spine. There were significant correlation between fem SBMD and spine SBMD (r=0.448). The BMD had significant negative association with age (r=-0.615), female gender (r=-0.394) and corticosteroid intake (r=0.286) and positive association with weight (r=0.394), and BMI (r=0.626). There was no significant association between BMD measurements and calcium, phosphorous and PTH levels. Follow up of 11-months, after renal transplantation of 20 patients, subject had lost a mean of 2.4% T-score and 2.8% Z-score at the lumbar spine (p=0.027 and 0.13, respectively), but did not experience significant declines at the fem neck. Low bone density is too common in ESRD Iranian patients. Early screening and treatment of this group and importance of calcium supplement in prevention of significant declines at the fem neck and importance of calcium supplement in prevention of significant declines at the fem neck and importance of calcium supplement in prevention of significant declines at the fem neck and importance of calcium supplement in prevention of significant declines at the fem neck and importance of calcium supplement in prevention of significant declines at the fem neck.

P 302
IMPROVEMENT OF SEVERE HEART FAILURE WITH MULTI-VALVULAR DYSFUNCTION AFTER SUCCESSFUL KIDNEY TRANSPLANTATION: 2 CASE REPORTS

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It is well known that CRD (chronic renal disease) is responsible for many cardiac complications. The exact pathophysiology of heart disease in ESRD have not been understood but many theories have been assumed. After renal transplantation many of these complications improve. It is not known to what extent cardiac failure due to CRF is reversible. We report two cases with ESRD and severe heart failure with multi-valvular dysfunction, which were in the waiting list of heart transplantation. Both cases had LVEF below 20%. After medical management LVEFs were up to 30%. After successful kidney transplantation, both were asymptomatic and LVEFs rose to more than 50% after three months. Successful renal transplantation can significantly improve the cardiac function in ESRD, even with sever heart failure.

Upper gastrointestinal (UGI) symptoms are common in uremic patients, and higher serum levels of urea have been suggested to be related to Helicobacter pylori (HP) colonization and UGI mucosal inflammation. To compare HP infection and UG endoscopic findings between uremic patients, renal transplantation recipients (Tx) and controls. A total number of 474 subjects (71chronic renal failure (CRF), 73 hemodialysis (HD), 25 Tx and 305 controls) from Baqiyatallah Hospital, Tehran, Iran were recruited between April 2002 and March 2004 for evaluation of dyspepsia, excluding Those receiving any HP-eradication therapy. All subjects were examined for any changes in their esophagus, stomach and duodenum mucosa and infection with HP using a fiber optic endoscope and color reagent in a 24-hour period on two distinct tissue samples of the antral region. Four groups of subjects (mean±2se age 45±1.6 years, 62.9% male) were studied. Duodenal ulcer in the uremic patients (CRF: 16.1%; HD: 13.7%) was more common than that in the Tx subjects (8%) and controls (6.5%); P=0.038. Erosive gastritis and duodenal bulb deformity were also more common in the uremic subjects (CRF: 23.9%, 36.9%; HD: 30.1%, 20.5%, respectively) than those in the other subjects (Tx subjects: 16%, 8% and controls: 8.2, 0%, respectively); P<0.001. HP infection was found to be higher in the uremic patients (CRF: 66.2%; HD: 63%) than that in the Tx subjects (40%) and controls (34.8%); P<0.001. Higher rates of gastric and duodenal mucosal lesions and HP infection in the uremic patients in comparison with the subjects with normal renal function may have resulted from higher serum levels of urea, anemia and fluctuations in the gastric blood supply in the CRF and HD patients. However, more tenable evidence from controlled trials is required for the eradication of HP in all uremic patients and Tx candidates.

P 303
GASTRO-DUODENAL LESIONS AND HELICOBACTER PYLORI INFECTION IN UREMIC PATIENTS AND RENAL TRANSPLANT RECIPIENTS

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Upper gastrointestinal (UGI) symptoms are common in uremic patients, and higher serum levels of urea have been suggested to be related to Helicobacter pylori (HP) colonization and UGI mucosal inflammation. To compare HP infection and UG endoscopic findings between uremic patients, renal transplantation recipients (Tx) and controls. A total number of 474 subjects (71chronic renal failure (CRF), 73 hemodialysis (HD), 25 Tx and 305 controls) from Baqiyatallah Hospital, Tehran, Iran were recruited between April 2002 and March 2004 for evaluation of dyspepsia, excluding Those receiving any HP-eradication therapy. All subjects were examined for any changes in their esophagus, stomach and duodenum mucosa and infection with HP using a fiber optic endoscope and color reagent in a 24-hour period on two distinct tissue samples of the antral region. Four groups of subjects (mean±2se age 45±1.6 years, 62.9% male) were studied. Duodenal ulcer in the uremic patients (CRF: 16.1%; HD: 13.7%) was more common than that in the Tx subjects (8%) and controls (6.5%); P=0.038. Erosive gastritis and duodenal bulb deformity were also more common in the uremic subjects (CRF: 23.9%, 36.9%; HD: 30.1%, 20.5%, respectively) than those in the other subjects (Tx subjects: 16%, 8% and controls: 8.2, 0%, respectively); P<0.001. HP infection was found to be higher in the uremic patients (CRF: 66.2%; HD: 63%) than that in the Tx subjects (40%) and controls (34.8%); P<0.001. Higher rates of gastric and duodenal mucosal lesions and HP infection in the uremic patients in comparison with the subjects with normal renal function may have resulted from higher serum levels of urea, anemia and fluctuations in the gastric blood supply in the CRF and HD patients. However, more tenable evidence from controlled trials is required for the eradication of HP in all uremic patients and Tx candidates.

P 301
BONE MINERAL DENSITY CHANGES WITHIN 11 MONTHS OF RENAL TRANSPLANTATION IN IRANIAN PATIENTS

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After successful kidney transplantation, both were asymptomatic and LVEFs rose to more than 50% after three months. Successful renal transplantation can significantly improve the cardiac function in ESRD, even with sever heart failure.
**P 304**

**GASTROINTESTINAL EVALUATION IN PEDIATRIC RENAL TRANSPLANTATION CANDIDATES**

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To determine the importance of gastrointestinal evaluation in pre-transplantation phase in pediatrics with End Stage Renal Disease (ESRD). Twenty four children with ESRD (13 female, 11 male) mean age 14.7 (±3.4) years on hemodialysis were included in this study. Upper gastrointestinal endoscopies were performed and four gastric antral and duodenal biopsy specimens were obtained for urease test and histological study for all patients. Serum gastrin levels were measured in all patients, too. A control group was chosen to compare the rate of H. pylori infection using student’s t. test. Gastrointestinal symptoms were present in 16 (67%) of 24 patients. Seventeen (71%) patients had abnormal upper gastrointestinal endoscopic findings. H. pylori was detected in 66% of patients and 20% in control group (p<0.001). In symptomatic patients 75% had abnormal endoscopic findings and 63% had positive urease test for H. pylori infection. While, in asymptomatic cases these rates were 30% and 75%, respectively. Seventy one percent of patients with gastrointestinal lesions and 50% of patients with normal endoscopic examination were infected. High serum gastrin levels in infected and non-infected patients were detected in 75% and 12.5%, respectively (p<0.001). We demonstrated a significant number of patients with peptic ulcer diseases and H. pylori infection and secondary hypergastrinemia. This study showed that, clinical symptoms are not a reliable predictor of gastrointestinal problems. Our results emphasize the importance of periodic, and also pre-transplant gastrointestinal evaluation in these patients to find out their problem and manage appropriately.

**P 305**

**ACUTE REJECTION AFTER KIDNEY TRANSPLANTATION**


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Acute rejection episodes (ARE) are a major determinant of renal allograft survival. The incorporation of new immunosuppressive agents explains the improvement of the transplantation results in the last four decades. The objectives of this study are to analyse the incidence and severity of ARE, their risk factors and their influence on graft and patient survival. It's a retrospective study of 280 kidney transplants performed in adults during the period 1984, 2004. The diagnosis of ARE was based on the clinical and the analytical data, the intention to treat and the response to treatment. Renal biopsies were performed only in 10 cases. The treatment of ARE consisted of pulses Methylprednisolone and ATG or OKT3. Recipients were 186 males (66.4%) and 94 females (33.6%), their mean age was 31±8.9 years. The mean incidence of ARE was 40.4%. This incidence was > 45% between 1986 and 1997, decreased to 20.5% between 1998 and 2000 and to 9% between 2001 and 2003.

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<th>Donors</th>
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<td>Living</td>
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The late graft survival was better in patients without ARE. Graft survival rates at 1-3-5 and 10 years were 98%- 93% - 90%- 83% and 98%- 91%- 82%- 73% respectively in patients without ARE and patients with ARE. We found a decrease in the incidence of ARE in the last decade in adult renal transplants. This is related to the introduction of sensitized cross match and the new immunosuppressive agents particularly MMF. In the other hand, ARE had a deleterious impact in late graft survival in our population.

**P 306**

**FACTORS INFLUENCING HEIGHT AFTER RENAL TRANSPLANTATION**

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Growth retardation is a frequent finding in patients after renal transplantation. The aim of study is to evaluate the height of patients received renal transplant during a 7-year period of follow-up. 45 children (26 boys and 19 girls) who underwent renal transplantation in Labbafi nejad Hospital in Tehran, Iran from 1997 to 2004 were included. All patients had regular annual follow-ups until 7 years after transplantation. Their data were reviewed retrospectively and variables like sex, age, height, serum calcium and phosphorous, serum level of cyclosporine, type of chronic renal failure, number of acute renal failure attacks, history and duration of dialysis were evaluated. The paired sample t-test and the Pearson coefficient of correlation were used in univariate analysis and multivariate analysis was performed by linear logistic regression. The mean age of samples was 10.8 (SD 2.7) years. The mean standard deviation scores of height (HSDS) before surgery, 1 year, 3 years, 5 years and 7 years post-operation were respectively -3.3 (SD 1.9), -2.6 (SD 1.1), -3 (SD 1.4), -3.5 (SD 1.4) and -3.3 (SD 1.5). The only significant difference was between HSDS before and one year after operation (p=0.007). The factors affecting the HSDS in 3, 5 and 7 years after transplant were the duration after transplantation and the cumulative dose of corticosteroids. Our results indicate that the early increase in HSDS does not continue in the following years and the kidney transplantation does not improve the
The children with bladder dysfunction who underwent renal transplantation have difficulties in treatment. Bladder dysfunction leaves the bladder unsuitable for urine drainage in a significant proportion of children presenting for kidney transplantation. We retrospectively reviewed the outcome, medical and surgical outcome of 43 recipients with augmentation cystoplasty. We divided our patient into two groups: patients who underwent renal transplantation before or after augmentation cystoplasty. Augmentation cystoplasty was performed before transplantation in 21 patients (Group 1) and after transplantation in 22 patients (Group 2). These groups compared with control group (45 patients with medical etiology who underwent renal transplantation). The actuarial graft survival at 1, 3, 5 and 7 years was 90%, 76%, 65% and 43% respectively in group 1 (pre-transplantation cystoplasty) and 94%, 61%, 50% and 40% in group 2 (post-transplantation cystoplasty). The graft survival was not different significantly between these two groups. The actuarial graft survival at 1, 3, 5 and 7 years was 94%, 87%, 81%, and 75% respectively in control group. Graft survival rate at 3, 5, 7 years after transplantation were better significantly in control group ($P<0.05$). Febrile UTI was seen in 5/21 (24%) of patients in group 1 (pre-transplantation cystoplasty), 6/22 (27%) of patients in group 2 (post transplantation cystoplasty), 1/45 (2%) of patients in control group. Febrile UTI was less significantly in control group in relation to cystoplasty group, but was not different between group 1 and 2. Acute rejection was seen in 9/21 (43%) of patients in group 1, 9/22 (41%) of patients in group 2, 15/45 (33.3%) of patients in control group ($P=0.2$). Chronic rejection was seen in 11/21 (52%) of patients in group 1, 11/22 (50%) of patients in group 2, 13/45 (29%) of patients in control group. Chronic rejection was less significantly in control group ($P=0.03$) but not different between groups 1 and 2 ($P=0.1$). Surgical complications were seen in 4 patients. These included: paunch rupture in 2 patients, anastomosis leak in one patient and ureterovesical junction stenosis in one patient. The distribution of complications was not different between groups 1 and 2. Cystoplasty is a safe surgery in children with renal transplantation. Pre and post transplantation cystoplasty does not have any effect on outcome and rate of complications after transplantation.

Magnesium, the 2nd most abundant intracellular cation in the human body plays a key role in all enzymatic reactions involving ATP. The presence of hypomagnesemia should be suspected in the following situations: Chronic diarrhea, hypocalcemia, refractory hypokalemia, ventricular arrhythmia. Therapy with cyclosporin (CSA) or tacrolimus increases the urinary loses of magnesium in renal transplant recipients (RTR). Hypomagnesemia has been reported to be associated with hypertension, glucose intolerance abnormal lipid metabolism, and cardio vascular complication. To analyze the effect of the hypomagnesium early post transplant and to identify its etiological factors. This is a retrospective study. Forty nine Renal transplant recipients (RTR) are selected, following blood tests were performed (Day O, Day7, Day14) total Mg, K, Albumin, Alkaline phosphatase, bicarbonate, FBS, cholesterol, PTH. These patients are assessed clinically in the early post operative periods for convulsion and cardiac (palpitation and chest pain) complications. There is insignificant negative correlation between total magnesium and patients developing convulsions early post operative period at the beginning, middle & end of study ($P$ value 0.06, 0.0078, 0.07 respectively). There is positive significant correlation between hypomagnesemia and improving renal function (beginning, middle and end of study ($P$ value 0.002, 0.01, 0.03) & total cholesterol (at middle and end of study ($P$ value 0.002, 0.05) respectively). There is insignificant positive correlation between total magnesium & K+, Alb, FBS at the beginning, middle and end of study. There is significant negative correlation at the beginning and middle of study between total magnesium and Tacrolimus level ($P$ value 0.04, 0.0002) respectively. Similar relations would not be seen with early cyclosporin or Sirolimus. Non significant negative correlation between total Mg and PTH levels. Hypomagnesemia should be considered as an etiology for convulsion in early post operative period in RTR. Hypomagnesemia is associated with hypokalemia, glucose intolerance, and lipid abnormalities in RTR. Hypomagnesemia is more prominent in patients with Tacrolimus treatment compared to other immunosuppression in early post transplant.
Circulating endothelial progenitor cells (EPCs) promote vascular reparative processes and their concentration has been inversely correlated with the endothelial condition and cardiovascular risk. This impaired angiogenic function has been found in patients with chronic renal failure, partially justifying the accelerated atherosclerosis pattern they show. We analyzed the ‘in vitro’ effect of the addition of uremic solutes - p-cresol, homocysteine, urea and creatinine - to the culture medium on EPCs concentration, proliferation and adhesion and compared with the proliferation on control medium in a time and concentration-dependent manner. We also analyzed the relationship between clinical and biochemical atherosclerosis risk parameters (creatinine, urea, cholesterol, HDL, LDL, proteinuria, GFR, homocysteine and fibrinogen) and EPCs concentration in 94 renal transplant patients (RT) and in 39 controls. On the other hand we compared the EPCs proliferative capacity between 70 RT and 30 controls. Study subjects were between 25-75y. and GFR was above 15 mL/min in RT and 60 mL/min in controls. All RT were either on cyclosporine (n=43) or tacrolimus (n=51). Fifty. were also under MMF. Only 34 RT were on steroids. EPCs proliferation and adhesion was progressively impaired in presence of growing concentrations of uremic solutes. EPCs concentration and proliferation was significantly impaired in RT compared to controls in the univariate analysis. In the regression multiple analysis, EPCs concentration correlated directly with HDL, GFR and body weight, and inversely with LDL and fibrinogen, both in RT and C (r2=0.26, p<0.001). HDL, LDL, body weight and RT were independent predictors of EPCs proliferation (r2=0.172, p<0.001). EPCs proliferation and adhesion was also impaired in presence of uremic solutes. Concentration of EPCs was higher in RT taking MMF compared to those non receiving MMF (51.6±37 vs. 36.8±32, p=0.01). In contrast, EPCs proliferation was reduced in RT on MMF (353.7±217.7 vs. 395.3±243.9, p=0.454). Corticosteroids did not influence the concentration and proliferation of EPCs. Isolated uremic solutes reduced EPCs proliferation and adhesion in a concentration-dependent manner. EPCs concentration correlates directly with HDL, GFR and body weight, and inversely with LDL and fibrinogen. HDL, body weight and RT are independent predictors of EPCs proliferation. Our study suggests that the deleterious effect of uremic solutes in the endothelium starts in the first endothelial line. Impaired renal function may be a potent inhibitor factor of the cardiovascular repair mechanisms in RT patients by means of the reduction of EPCs concentration, proliferation, differentiation and adhesion. Immunosuppression may have an additional deleterious effect in EPCs proliferation.
and targets for graft rejection. The aim of this work was to detect AECAs in patients with end-stage renal disease (ESRD) awaiting transplantation and correlate this with graft outcome. Sixty ESRD patients were enrolled into the study. All patients were subjected for routine HLA typing (class I and II antigens) and cross match technique. Sera from the patients were collected for detection of AECAs by ELISA technique. According to the presence or absence of AECAs the patients were divided into 2 groups; Group I: 40 patients with AECAs +ve, and Group II: 20 patients with –ve AECAs. We observed a statistically significant higher serum creatinine levels (mg/dl) in group I compared to group II at 1 (P=0.04) and (P=0.04) at 12 month after transplantation. There was no statistically significant difference in the incidence (P=0.5), or the severity (P=0.4) of acute rejection episodes, but there was a statistically significant frequent attacks (22 vs. 6 in group I and II, respectively; P=0.04). At last follow-up, there were 3 graft losses, one of them due to death with functioning graft in group I, 1 graft loss in group II (P=0.8). Kaplan-Meier at 5 year graft survival was not statistically significant (P=0.1). Detection of anti endothelial cells antibodies before kidney transplantation may be of value. Larger number of patients and longer follow up period may be warranted to confirm our results.

P 312
POST RENAL TRANSPLANTATION UROLOGICAL COMPLICATIONS
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To explore the incidence, risk factors, clinical presentation, management options, and outcome of post renal transplantation (RTx) urological complications (UC). Between November 1993 and December 2005, 646 RTx procedures were performed. After exclusion of patients who died, had graft loss or left country soon after Tx, recipients were 344 males, 237 females and 81 of them were children. Medical records were retrospectively reviewed for (UC). Affected patients presented clinically with impaired kidney function and diagnosis was confirmed by ultrasound, isotope renal scan, MRI and antegade urography. Ureteric stricture (US) was managed by percutaneous antegrade ureteric dilatation and stenting, or by surgical reconstruction. Urine leak (UL) was treated by prolonged bladder drainage or surgical reconstruction. Renal stone was treated with ESWL. (UC) were detected in 31 recipients (4.8%). (US) presented late post transplantation and found more common in children (4.23%), male recipients (3.2%) and after cadaveric transplantation (4.08%). While (UL) presented early and found more common in elderly (4.69%), male patients (2.91%) and after cadaveric transplantation (4.08%). All (UC) were successfully managed with no graft loss.

P 313
RENAL TRANSPLANTATION IN ALPORT SYNDROME
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Alport syndrome is a hereditary nephritis with progressive glomerular disease, hearing loss and ocular abnormalities with prevalence of 1 in 50,000 live births and 2% in new cases of end stage renal disease. Three to 4 percent of these patients develop de novo anti-GBM antibody disease after transplant (Tx). Affected patients are at risk (up to 75 percent) for crescentic glomerulonephritis and graft loss especially during one year after Tx. We planned a study to evaluate the survival rates in our transplanted Alport patients. From 1986 to January 2005, a total of 1760 renal Txs were performed at Hasheminejad Hospital. There were 10 cases of Alport syndrome (9 males and one female) in this group. Diagnostic criteria were based on clinical findings of neurologic deafness, positive family history and renal involvement in 9 cases and renal biopsy in one case. Data analyzed by Spss program and Kaplan-Meier test for survival analysis. The mean age of patients was 25±8.3 years. The source of kidney was from living unrelated in 11 Txs and living related in one Tx. Two patients received second Txs. One and 8 years graft survival were 83.3% and 71.4% respectively. Two of three graft losses occurred in three months after Tx. Patient survival was 91.7% in one and 10 years after Tx. In our last center report the 8 years graft survival was 77 % and 10 years patient survival was 75.5%. Our data showed in spite of better patient survival in Alport syndrome patients, our graft survival is a lower than our general Tx population with higher risk of graft loss in first year after Tx. We conclude that anti GBM level should be checked regularly in this group after Tx and in the cases with Anti GBM disease and graft loss retransplantation carried out under specific conditions.

P 314
VASCULAR COMPLICATIONS AFTER RENAL TRANSPLANTATION
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One of the major complication that affect graft survival is Vascular. This includes Vascular thrombosis, Arterial stenosis, Intra renal infarctions and Aneurysms. The Aim of the study is to evaluate the incidence and the various risk factors that would
have lead to this complication at our center. A total of 678 renal transplants have been done during a period from November 1993 to May 2006. (487 live renal transplants and 191 cadavers). Retrospective analysis of the patient record was conducted. A total of 32 recipients were detected to have vascular complication. Among these 13 were renal artery thrombosis (1.9%), 6 were renal vein thrombosis (0.8%), 6 were renal artery stenosis (0.8%), 6 were intra renal infarction (0.8%), 1 was a mycotic aneurysm (0.14%). Of these 17 Patients had cadaver renal transplant (8.9%) and 15 had Live renal transplants. Graft loss directly attributable to the vascular complication occured in 16 patients (2.36%) The incidence of vascular complication at our centre is 4.27%. There has been a significantly higher incidence noted in cadaver renal transplant. Almost all the patients were on Cyclosporine based immuno suppresion protocol. The EGFR calculated at the time of the vascular complication was found to be low. All the patients were found to have a lower level of Hemoglobin. All these factors could be attributable as risk factors for the vascular complication. Maintaining proper hydration in the post operative period, correction of anemia, and starting all patients who are on Cyclosporine based regimen on low dose Aspirin would reduce the incidence further.

P 315
FASTING RAMADAN IN KIDNEY TRANSPLANT PATIENTS IS SAFE
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Renal transplants Muslims often ask their doctors whether fasting Ramadan is safe. Scanty studies addressed this question with controversial results. This prospective study was undertaken to look for any clinical or biological changes during the month of the fast. Twenty two kidney transplant patients with stable kidney functions, who were transplanted for more than one year, and voluntary chose to fast during Ramadan in 1425 H (Oct - Nov2004), were studied. There were 10 men and 12 women, mean age 47±11.6 years (25-69 y). Mean age of graft 78.8± 61.7 months (14-250 m). The etiology of ESRD was unknown in 13 (59%) patients. Eighteen (82%) recipients had living unrelated donors. 19 patients were on triple immunosuppresor regimen. Comorbid conditions were hypertension, dyslipidemia and diabetes mellitus found in 20, 9 and 5 patients respectively. Full clinical and biological assessment was done once during the month preceding Ramadan, once during Ramadan and once in the month following the fast. Medications were taken in two divided doses at sunset (time of breaking the fast) and pre dawn (before the fast). Unpaired 2 tail Student’s t test was used and p<0.05 was considered significant. All the included patients did fast the whole of the month of Ramadan, none of them experienced any undue fatigue, or any other symptoms compared to the period before the fast. Body weight, blood pressure, kidney function tests, blood sugar, lipid profile, and drugs blood levels were all stable without any significant difference during Ramadan compared to pre or post the fast. Fasting Ramadan in renal transplant recipients after one year of transplantation and with stable graft function is safe and well tolerated.

P 316
RESULTS OF THE FIRST 40 LAPAROSCOPIC DONOR NEPHRECTOMY
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We reviewed the experiences and follow up of the first 40 laparoscopic donor nephrectomy at our institution. Charts of patients who underwent laparoscopic donor nephrectomy from January 2004 to February 2006 were reviewed. We performed 40 procedures. Mean age was 23 years, 35 males and 5 females. All of the nephrectomies were on the left side. Patients weights were between 50 to 75 Kg operating time and warm ischemia time were recorded. Complications and convalescence were followed postoperatively. Mean follow up was 13 months (2-24). In the beginning, operating time was about 4 hours but after 5 cases it reached to about 2 to 2 ½ hours. Warm ischemia time was 4 minute (2-8). All of the grafts have a very good function and we did not have any ATN (acute tubular necrosis). Seven patients complained of left shoulder pain following operation. One patient opened due to bleeding 12 hours following operation. Patients discharged from the hospital 2 to 3 days following operations. Analgesic consumption was lower than conventional open nephrectomy. Donor nephrectomy can be performed routinely, safely and with minimal morbidity using a laparoscopic approach and we strongly recommend it for all renal transplant surgeons. Laparoscopic donor nephrectomy seems to be the gold standard for donor nephrectomy.

P 317
IMPACT OF DONOR / RECIPIENT BODY WEIGHT MISMATCH ON ALLOGRAFT OUTCOME IN RENAL TRANSPLANT RECIPIENTS
Ali G, Afshari AT
Urmia University Of Medical Sciences, IRAN

There have been conflicting reports that kidneys from small donors may be at risk for graft loss if they are transplanted into large recipients. The aim of this work was to examine the impact of Donor/Recipient Body Weight Ratio (D/RBWR) on allograft outcome. 217 kidney transplant recipients were selected and all patients achieved of five years follow up. All patients received kidney from living unrelated donors. Immunosuppression consisted of cyclosporine A, mycophenolate mofetil (or azathiopurine) and prednisolon. According to D/RBWR patients were divided into 3 groups: low (less than 0.8 G1), medium (0.81-1.1 G2) and high (more than 1.1 G3). One, three and five years graft survival, episodes of acute rejections and means of creatinine was recorded. Among patients 126 (58%) were female. Mean age was 41.62 years. There were no statistically significant difference in the incidence of acute rejection episodes, means of creatinine and one, three and five years allograft survival between groups.(Table1). We conclude that low Donor/Recipient Body
Weight Ratio has no effect on short and long term renal allograft survival.

Table 1: Allograft survival rates among different groups

<table>
<thead>
<tr>
<th>Years of Graft Survival</th>
<th>G1</th>
<th>G2</th>
<th>G3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>92.62%</td>
<td>91.41%</td>
<td>90.22%</td>
</tr>
<tr>
<td>3 years</td>
<td>81.21%</td>
<td>80.34%</td>
<td>79.23%</td>
</tr>
<tr>
<td>5 years</td>
<td>69.46%</td>
<td>66.93%</td>
<td>70.17%</td>
</tr>
</tbody>
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P 318
PLASMA SODIUM (pNa) AND POTASSIUM (pK) CONCENTRATIONS IN FIRST TWO WEEKS AFTER RENAL TRANSPLANTATION

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Urmia University Of Medical Sciences, IRAN

Polyuria is a common finding after renal transplantation, and 24-hour urine volume (24huv) up to 15 liters is not uncommon in this polyuric state variation in pK and pNa may occur. To describe this issue and its clinical significance, we evaluate pK and pNa concentrations in first two weeks after kidney transplantation. Daily pK, pNa, Creatinine (Cr) and 24huv was recorded for 185 consecutive renal transplant recipients. Dialysis was done on the day before transplantation in all patients (pts). Pts with delayed graft function (need to dialysis) were excluded. Among 185 pts 109 (58.9%) were male, mean of age was 38.82 years (range 12-80). Mean of pre transplantation dialysis time was 16.59+-9.84 months (range 0-48m). Mean of Cr on first and 14th day were 4.84+-2.23 and 2.05+-2.03 respectively. Mean of pK on first and 14th day were 19.22% and 3.95% of pts respectively. Most of hypokalemic episodes (69.54%) occurred on second day and hyperkalemic episodes (59.84%) on 13th day after transplantation. Mean of pNa on first and 14th day were 131.77+-6.19 and 136.59+-4.74 respectively. Hyponatremia (pNa<135) and hypernatremia (pNa>145) were seen in 40.83% and 11.9% of pts respectively. Most of hyponatremic episodes (72.34%) occurred on first day and hyponatremic episodes (68.98%) on 13th day. Mean of 24huv on first and 14th day were 14190.06 +- 6932.55 and 2394.02 +- 994.93 ml. There was not any severe hyponatremia (pNa<125), severe hypernatremia (pNa>155) and severe hyperkalemia (pK>6.5), but severe hypokalemia (pK<3) occurred in 6.2% of pts which mandated K supplementation. We conclude that with good renal function after renal transplantation pK and pNa variations tend to be within normal ranges and only in the first three days severe hypokalemia may occur rarely.

P 319
RENAL TRANSPLANTATION IN CHILDREN LESS THAN 6 YEARS OF AGE

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We report our experience with renal transplantation in 38 children (40 transplants) of ages 1 to 5 years old, performed between 1989 and 2005. Demographics, patient and graft survival are reported. At the transplant the mean age was 3.3+1.3. The mean weight was 14kg (range from 5.4 to 25). 92.5% were Caucasians, 7.5% African-Brazilians. Main etiology of ESRD was uropathy/vesicoureteral reflux (45%), followed by glomerulopathy (25%), congenital/hereditary diseases (10%), and hemolytic uremic syndrome (12.5%). Prior to transplantation, 5% were under hemodialysis, 85% peritoneal dialysis and 10% were preemptive. All children were followed at least 6 months post-transplantation, except 2 who died in the first month. Kidneys were obtained 67.5% from living related donors and 27.5% from deceased donors. 39 kidneys were placed extraperitoneal. The primary immunosuppressive therapy consisted of cyclosporin (61%), tacrolimus (39%), and mycophenolate (48.8%) without prednisone in 17%. In the last 21 cases, basiliximab or daclizumab were added. There were 13 (32.5%) graft losses (3 artery/vein thrombosis, 3 chronic rejection, and 3 deaths, 4 others). The 5-year patient and graft survival rates were 85% and 68%. We conclude that renal transplantation can be performed with good long-term results in children less than 6 years old.

P 320
RENAL RE-TRANSPLANTATION: IS IT JUSTIFIED?

Hamed Al-Essa Organ Transplantation Centre, KUWAIT

There is a dispute about the justification of renal re-transplantation in the presence of organ shortage, and the concept that patients who have lost a transplanted kidney are widely recognized as a high risk for re-transplantation. This is a retrospective study of the outcome of renal re-transplantation (Re-Tx) and to find out if renal re-transplantation is justified. Between 1993 and December 2006, 646 kidney transplantation procedures were performed in our centre, 39 of these (6%) were Re-Tx. The medical records of these patients were reviewed. They were 19 males and 20 females, aged 10 to 62 years (mean 36 years), and nine of them were children. Kidney grafts were obtained from 16 living and 23 cadaveric donors. Induction immunosuppression was with ATG in 28, and with anti-Interleukin-2 receptor antibodies in 5 recipients. Patients were followed up for 12 months to 134 months. Post transplantation complications were in the form of: 14 instances of surgical complication, 12 episodes of acute rejection, and 2 cases of malignancy. Four recipients died with functioning graft at 4 months to 62 months.
Renal allograft vein thrombosis (RVT) is an uncommon but serious complication of renal transplantation. It usually occurs early after transplantation surgery, as a result of compression of renal graft vein, or secondary to early severe rejection and haemostatic defects. It usually presents with haematuria, and sudden drop of urine output and rise of serum creatinine. Diagnosis is often delayed because of the non specific clinical features. Findings on ultrasound Doppler (USD) and isotope scanning may resemble those of acute rejection or acute tubular necrosis. Diagnosis of RVT was suspected by the clinical picture and the findings on USD and isotope scan. Urgent exploration was performed in all suspected cases. Seven incidents of biopsy-proven RVT were recorded at 1-8 days after transplantation; it was associated with perigraft haematoma in 3, and acute vascular rejection in one case. 3 of recipients were males, and one recipient was a child. 4 of thrombosed grafts were from cadaveric donors. Three renal grafts were salvaged by early renal vein thrombectomy, two out of these are dialysis free for 6 months and 4 years, and third graft was lost secondary to chronic dysfunction 6 months later. The incidence of RVT in the present series is 1%. It develops during the first post-transplantation week, and tends to be more common with cadaveric transplantation (2%). Renal grafts could be salvaged if RVT is diagnosed and treated early.

It was observed in the present series that renal Re-Tx is associated with recipient survival rates which are similar, and graft survival rates which are 10-13% lower than those in primary Tx. These results are still quite reasonable to justify renal re-transplantation.

### P 321
**RENAL ALLOGRAFT VENOUS THROMBOSIS: IS IT SALVAGEABLE?**

*Fathi T, Samhan M, Gawish A, Donia F, T Al Otaibi, Al Mousawi M*

Hamed Al-Essa Organ Transplantation Centre, KUWAIT

Renal allograft vein thrombosis (RVT) is an uncommon but serious complication of renal transplantation. It usually occurs early after transplantation surgery, as a result of compression of renal graft vein, or secondary to early severe rejection and haemostatic defects. It usually presents with haematuria, and sudden drop of urine output and rise of serum creatinine. Diagnosis of RVT was suspected by the clinical picture and the findings on USD and isotope scan. Urgent exploration was performed in all suspected cases. Seven incidents of biopsy-proven RVT were recorded at 1-8 days after transplantation; it was associated with perigraft haematoma in 3, and acute vascular rejection in one case. 3 of recipients were males, and one recipient was a child. 4 of thrombosed grafts were from cadaveric donors. Three renal grafts were salvaged by early renal vein thrombectomy, two out of these are dialysis free for 6 months and 4 years, and third graft was lost secondary to chronic dysfunction 6 months later. The incidence of RVT in the present series is 1%. It develops during the first post-transplantation week, and tends to be more common with cadaveric transplantation (2%). Renal grafts could be salvaged if RVT is diagnosed and treated early.

### P 322
**IMPACT OF NONE- AND DELAYED GRAFT FUNCTION ON PATIENTS’ SURVIVAL**


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The retrospective study surveyed 442 patients after kidney transplantation. A were performed years 1990-1995 i 2 Stettin centres: Department of Surgery and Transplantation, Pomeranian Academy of Medicine and Department of Surgery, Provincial Hospital in Szczecin. Study population was divided in 3 groups; criterion for the division was graft function:

- **IGF** group (immediate graft function) – 312 patients;
- **DGF** group (delayed graft function) – 107 patients;
- **NGF** (none graft function) – 23 patients.

Factors connected with none graft functions immediately after transplantation were separated for further statistical analysis. The effect of this action was connection of both groups DGF and NGF (107+23=130 patients). As immediate graft function we defined situation, when patient did not need dialysis after transplantation, what was connected with gradual normalisation of creatinine and potassium levels and appearance of effective diuresis. Moment of back to permanent dialysis schedule or graft explanation was border time of graft function. We observed 1-year patient survival in IGF, DGF, NGF groups: 87,8%, 72,9%, 65,2%, and graft survival respectively: 92,3, 87,0%, 0,0%; 3-year patient survival: 79,8%, 65,4%, 60,9% and graft survival: 83,5%, 76,5%, 0,0%; 5-year patient survival: 76,6%, 62,6%, 60,9% and graft survival: 73,9%, 65,5%, 0,0%. Comparing Kaplan-Meier equilibrium for patients from groups IGF, DGF and NGF survival we observed statistically significant differences between them (p < 0,017). Log-rank test showed significantly longer time of survival in IGF group than in DGF group (p < 0,048). According to Cox model risk of death in DGF group was 1,47 time higher than in IGF group in one-factor analysis and 1,59 time higher in multi-factor analysis (p < 0,019). So DGF appearance was independent risk factor of patient’s death. In view of small numer of patients in NGF group we did not show significant differences in patients survival comparing with IGF and DGF group. In groups IGF, DGF i NGF. Significance of differences DGF and NGF comparing with IGF was analysed with chi2 test. Appearance of DGF is independent risk factor of patients’ death comparing with patients with immediate graft function.
P 323
LYMPHOCELE FOLLOWING RENAL TRANSPLANTATION

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Lymphocele is a fluid collection between the renal graft and the urinary bladder and it is a known complication after kidney transplantation (KTx). In this retrospective study we explore the incidence, clinical presentations, and outcome of lymphocele in renal recipients. 684 patients (399 males and 285 females), aged 3 – 76 years, received renal allograft from 493 living and 191 cadaveric donors. 73 of recipients were under the age of 18 years, and the procedure was re-transplantation in 40 patients. Diagnosis of lymphocele was made basically by ultra sound examination, and symptomatic collections were drained either percutaneously or into the peritoneal cavity. 68 instances of lymphocele were diagnosed at 2 weeks to 9 months after transplantation, in 40 male and 28 female recipients. Kidney grafts were obtained from 45 living and 23 cadaveric donors. 6 patients were children, and the procedure was re-transplantation in 3 patients. Lymphocele presented clinically as pelvi-abdominal swelling alone (45 cases), or as a swelling associated with manifestations of ureteric and/or venous compression (21 cases). Per cutaneous drainage was attempted in 34 cases and it gave permanent cure in 14 cases. Intraperitoneal drainage was performed in 48 recipients, as a primary procedure in 28 and in 20 cases of recurrence after percutaneous aspiration. The remaining 6 cases were treated conservatively. All cases of lymphocele were successfully treated with no graft loss. Lymphocele is an uncommon complication after renal transplantation, and it is formed during the early post transplantation period. Its incidence in the present series is similar to what reported in literature. While the incidence was more common following cadaveric transplantation, it was not influenced by recipient gender, age or transplant number. Percutaneous aspiration has a high rate of recurrence and intraperitoneal drainage is the most effective management.

P 324
MYCOPHENOLATE MOFETIL DOSE REDUCTION AND THE RISK OF ACUTE REJECTION AFTER RENAL TRANSPLANTATION

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Mycophenolate mofetil (MMF) is a highly effective adjunct immunosuppressive agent in transplant therapy. Although MMF is generally well tolerated, optimal therapy may be limited by adverse effects. MMF dose changes resulting from these adverse events may lead to sub-therapeutic dosing and impaired clinical outcomes. We conduct this study to determine whether MMF dose reduction after renal transplantation is associated with subsequent risk of acute rejection. This retrospective study analyzed clinical records from 558 renal transplant patients from two Iranian transplant centers who were initiated on MMF. One hundred seventy nine patients (32%) had MMF dose reductions during the study. MMF dose was reduced because of gastrointestinal symptoms (32.9%), bone marrow suppression (28.4%) infection (20.7%), malignancy (2.3%), and unknown reasons (15.7%). The cumulative number of days with the MMF dose reduced below full dose was an independent predictor of acute rejection. The relative risk of rejection increased by 3.6% for every week that the MMF dose was reduced below full dose. No significant association was observed between the number of days with MMF dropped below full dose and allograft failure. The cumulative number of days with the MMF dose dropped below full dose is a significant predictor of acute rejection after renal transplantation. Clinicians need to be aware of the rejection risk when the MMF dose is reduced and maintain close surveillance on such patients.

P 325
EVALUATION OF BRAIN DEATH REASONS IN DONORS OF ORGAN FROM 2002 TO 2005

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Transplantation is the only way to rescue the patients who are at end stage of kidney disease, liver disease, heart disease, lung disease and pancreas disease. Since the only source to access the suitable organ for transplantation is using of hemograft, we have decided to study brain death reasons in the cadavers which we transplanted their kidney, liver, heart, lung and pancreas to other patients. We studied 86 organ donor cadavers (kidney, Heart, Liver, cornea) who had admitted in ICU of Imam Reza hospital. Then reasons of admission and kinds of head injury were evaluated. We studied 86 brain death patients including 20 female (33/3%) and 66 male (76/7%). Reasons for admission are divided to 4 groups: 9 brain tumor, 68 head trauma (crashing, fall out of height, stricke ground), 6 cerebral hemorrhage without trauma (such as aneurysm and brain stroke) and 3 cases of cerebral hypoxemia (suffocation, apnea after epilepsy). We found that head trauma specially caused by crashing is the most common reason for brain death. It is more common in men and in the age range of 10-30 years.
Every year many patients with end stage function of kidney were done kidney transplantation surgery that could have different complications. Evaluation of complications of kidney transplantation (KTP) in three groups, live unrelated, related and cadaveric donors. We retrospectively studied 130 KTP in a 16 months period. Complication of Kidney was recorded according to type of donors. We had 67 live unrelated (group I), 16 live related (group II) and 47 cadaveric (group III) donors. We had 6 cases of recipients deaths (4 cases in group II and 2 cases in group I). We didn’t have early diuresis in 6 patients in three groups respectively (5 cases in group II and 1 case in group I). Systemic and urinary infections were occurred in 10 patients (5 cases in group I, 4 cases in group II and 1 case in group III). Increased hematocrit treated by phelebotomy was observed in two cases and Lymphocele in 3 patients of group II were seen. Pulmonary edema was most common complication (3 cases of 4) in cadaveric group (group III). The major complications of KTP including lack of early diuresis and mortality are common in cadaveric KTP.

Kidney transplantation is the most common and the most important method of end stage renal disease treatment. Evaluation of primary graft function after kidney transplantation in three groups of live unrelated, related and cadaveric donors. We retrospectively studied 130 KTP in a 16 months period. We have three groups of recipients: live unrelated (group I), live related (group II) and cadaveric (group III) donors. Volume of urinary output in first day after transplantation and renal functioning tests (serum urea, Creatinine, Na and K) in first week after transplantation were recorded and compared in three groups. We have 67 male and 63 female recipients. According to age and sex 67 patients (51.54%) were in group I, 16 patients (12.30%) in group II and 47 patients (36.15%) in group III. Mean first day urinary output in group I, II and III were 10621, 10884 and 6400 ml. This parameter in group III was significantly lower than others two groups. Decreasing in creatinine serom (<1.5 mg/dl) in first day, first week and first year were 7.40%, 59.25% and 81.25% in group I, 20%, 60% and 85.71% in group II and 5.12%, 38.8% and 67.56% in group III. There were no significant differences in renal function tests in three groups. Recipients of cadaveric kidney have the worst primary renal function and urinary output in first day after kidney transplantation.

Kidney transplantation is the treatment of choice for patients with end stage renal disease. Long term renal allograft survival is improving despite the high risk of complications and rejection. This study included 189 renal allograft recipients who had functioning graft for 10 years or more; out of which 101 patients had no previous rejections (study group) and 88 had previous rejection episodes (control group). The two groups were compared regarding different variables. The mean age of rejection free patients was 31 years and that of the control group was 28 years (P=0.013). Male recipients constitute 62% of the study group versus 77% of control group (P=0.027). Donor gender and age showed no significant difference. The study group showed sig-
significantly fewer HLA (A&B) mismatches than control group (P=0.012). DR matching showed no significant difference. Renal allograft function was significantly better in the study group (P=0.001). Long term complications developed in both groups however only hypertension was significantly more common in the control group. Diabetes and infection were more common in the non rejector group but the difference was not significant. Multivariate analysis revealed significant impact of recipient gender, age and post transplant hypertension. Renal transplantation despite long term complications and rejection has provided 10 years or more of near normal life. The most important characteristics of rejection free long term survivors included female gender, recipient age, HLA (A&B) matching and development of post transplant hypertension.

P 330
PRETRANSPLANTATION URODYNAMIC STUDY IN PATIENTS WITH END STAGE RENAL DISEASE

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Neurogenic bladder is one of the causes of end stage renal disease (ESRD) and kidney transplantation (KTP) is the preferred method of therapy for it. We evaluated the results of urodynamic study (UDS) in ESRD patients and compared them with patient’s symptoms and other pretransplantation tests. 28 patients with ESRD who were candidates for KTP referred to our urodynamic ward because of symptoms of voiding dysfunction included urinary frequency, urgency, urge incontinence, voiding problems or signs included vesicoureteral reflux, bladder trabeculation or low capacity in sonography or voiding cystourethrography (VCUG). History and physical examination were taken in all patients and then all of them underwent uroflowmetry followed by pressure-flow study. Results of UDS and all above mentioned information were analyzed by IPSS soft wear. 10 patients were female and 14 were male with mean age of 31.1 years (ranged 21-49). The most frequent symptom was urinary urgency and the most frequent sign was bladder trabeculation. Total diuresis per day was significantly correlated with bladder capacity and compliance (p=0.001). Other positive correlations were between low bladder capacity in sonography or VCU with low bladder capacity in filling phase (p=0.003), urge incontinence and uninhibited bladder contraction in UDS (p=0.01) and urge incontinence with uninhibited bladder contractions (p=0.005) and low compliance bladder (p=0.01). Urodynamic study appears to be a useful diagnostic method in minority of patients schedule for KTP. History of voiding problems, voiding diary and signs of voiding dysfunction in noninvasive methods such as sonography or VCU can be useful in selection patients for more invasive methods included urodynamic study.

P 331
THE INCIDENCE AND RISK FACTORS OF DELAYED GRAFT FUNCTION IN 689 CONSECUTIVE LIVING UNRELATED DONOR RENAL TRANSPLANTATION

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Delayed graft function (DGF) that results in inferior renal allograft outcome has been extensively studied after deceased donor and living related donor renal transplantation (Tx). The purpose of this study was to investigate the incidence and risk factors of DGF in living unrelated donor (LURD) renal Tx recipients. Between March 1999 and March 2006, a total of 689 LURD renal Txs were performed at our center, 429 (62.3%) of recipients were male, 260 (37.7%) were female and 596 (86.5%) of donors were male, 93 (13.5%) were female. 50 (7.2%) of Txs were second Tx. 59 (8.6%) of allografts had multiple arteries. 53 of 689 recipients required dialysis within the first week after renal Tx so were defined to have DGF (incidence 7.7%). The characteristics of these 53 cases with DGF and 636 cases without it were compared by univariate and multivariate analysis models. In univariate analysis the female gender of kidney donor (P= 0.027), renal allograft with multiple arteries (P= 0.012) and retransplantation (P< 0.005) were significant risk factors for development of DGF. But donors’ age and weight, recipients’ age, gender, weight, years on dialysis, causes of renal failure and warm ischemia time were not significant risk factors for DGF. High panel reactive antibodies was more common in recipients with DGF (P= 0.09), however, it was not statistically significant. By multivariate analysis only significant risk factor for development of DGF was retransplantation (P= 0.02).

P 332
ASSOCIATION OF HYPERGLYCEMIA ON ALLOGRAFT FUNCTION IN THE EARLY PERIOD AFTER RENAL TRANSPLANTATION

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Patients with diabetes have an increased risk for allograft rejection. Hyperglycemia is also common following renal transplantation in patients without diabetes. This study was conducted to evaluate the relationship of perioperative serum glucose levels and acute rejection (A.R) in patients without a history of diabetes. In Dr Shariati Hospital, 100 non-diabetic patients (pt) who underwent renal transplantation from living unrelated (84 pt) or related (16 pt) donors, or deceased donors (9 pt) were studied. Blood glucose was measured immediately following surgery and every 6 hours during the first 48 hours post transplant and patients were followed for 1 month for occurrence of acute rejection. A.R
was defined by clinical criteria and by ≥20% increase in baseline serum creatinine. Renal Biopsy was performed in 13 patients and showed acute tubular necrosis in 2 and A.R in 11 according to Banff criteria. Mean age of patients was 35.2 ±13.9 years and 52% were men. A.R occurred in 33% of 100 patients studied. There was no significant correlation between A.R and donor’s or recipient’s age or sex, donor graft function, type of donor and treatment. The mean blood glucose level immediately after surgery in patients with A.R and without A.R was 249.67±61.78 mg/dl and 148.82±73.35, respectively (p<0.0001). Hyperglycemia in the first 2 days post transplantation did not correlate with A.R. There was a significantly greater risk of acute rejection, in patients who had a higher blood glucose level immediately after kidney transplantation surgery. Blood glucose monitoring during and immediately after surgery may be helpful for predicting and possibly reducing the risk of acute transplant rejection.

**P 333**
PUSTULAR PSORIASIS AFTER RENAL TRANSPLANTATION

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Cutaneous manifestations in renal transplant recipients are frequent represented mainly by infections and cancerous lesions. However dermatologic lesions secondary to autoimmune diseases are rare. We report a relapse of pustular psoriasis occurring after renal transplantation in a 31-year-old woman with a past history of vitiligo. The patient was on haemodialysis during 2 years for undetermined chronic nephropathy. She received a life related renal transplantation in a 31-year-old woman with a past history of vitiligo. The patient was on haemodialysis during 2 years for undetermined chronic nephropathy. She received a life related renal transplantation from her brother with total HLA identities. She was maintained on an immunosuppressive regimen with corticosteroids, Azathioprine and Ciclosporine. This latter was replaced by mycophenolate mofetil because of neurotoxicity and Azathioprine was stopped. Thirty one months after renal transplantation, she developped a pustular psoriasis treated by retinoids was not efficient. Reintroduction of azathioprine induced remission.

**P 334**
VASCULAR TROMBOSIS OF RENAL GRAFT: 9 CASES

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Allograft renal thrombosis can occur in 1 to 6% of cases. Many predisposing factors has been identified especially alteration of coagulation. We analyzed in this retrospective study frequency and predisposing factors of renal graft thrombosis. Among 319 renal transplant recipients, 9 patients (2.8%) presented venous graft thrombosis in 5 cases and arterial thrombosis in 4 cases. There were 6 men and 3 women aged of 30,6 years meanly (10-56) which developed the thrombosis 6 days (1-48) after the ransplantation. Surgical difficulties were noted in 3 cases and all patients didn’t received preventive anticoagulation. Detransplanted was performed in all cases after 16,2 days and 1 patient died. Thrombosis constitutes an important cause of graft loss. A perfect surgical technic and prophylactic treatment in high risk patients are necessary to reduce this complication.

**P 335**
SYMPTOMATIC LYMPHOCELE AFTER RENAL TRANSPLANTATION: A SINGLE CENTER EXPERIENCE

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In this retrospective study we evaluated the incidence, clinical presentation and management of lymphocele in recipients after renal allograft transplantation. Between September 1984 and June 2005, 2147 patients (1185 males and 962 females) have received renal allografts all from living donors. Diagnosis of lymphocele was made by ultrasound examination only in symptomatic patients. There were 17 (0.8%) cases of symptomatic lymphocele (9 females and 8 males) that presented with rise of serum creatinine (8 patients; 47%), pain and pelvi-abdominal swelling (5 patients; 29%) and lower extremity edema (4 patients; 24%). The average volume of lymphocele was 275±120 ml. Percutaneous drainage was primarily performed in 11 patients but re-accumulation occurred in 7 of them that were treated with surgical approach. In 6 cases with multiloculated collection or inappropriate access for percutaneous drainage, the primary approach was surgical intraperitoneal drainage. All the cases were successfully treated with no graft loss. Symptomatic lymphocele is an uncommon complication after kidney transplantation. If not treated, it could result to ureteral compression and rise of creatinine. Surgical intraperitoneal drainage is the most effective approach for the management of symptomatic lymphocele.
P 336
THROMBOTIC MICROANGIOPATHY(TMA)AFTER RENAL TRANSPLANTATION.

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Thrombotic microangiopathy (TMA) is a disease of microvascular. It presents with Thrombocytopenia, microangiopathic hemolytic anemia and tissue ischemia. After renal transplantation TMA may occur as a recurrent form or as a result of calcineurin inhibitors or infection. We retrospectively studied renal biopsy slides of 57 allograft biopsies that were performed within the first two months of renal transplantation. These biopsies were performed in 237 patients in a five years period. (2001-2005), all specimens were stained using hematoxylin and eosin, masson trichrome and periodic acid-schiff. All slides were reviewed by one pathologist for histological findings compatible with TMA. Clinical and laboratory information of these patients were gathered by retrospective review of medical records. Those with significant thrombocytopenia (platletes<100,000/ml), shistocyte on peripheral blood smears or lactate dehydrogenase >1000U/l, called systemic and those without these manifestations defined as localized TMA. The incidence of TMA was 7 of 57 biopsy (12%), or 3% in 237 transplanted patients. Five of them (71%) had systemic criteria and two (29%) were localized. three of systemic patients improved with plasma exchange. But one of localized TMA that plasma exchange was not started for him lost his allograft. Two patients with TMA died, one of them had systemic aspergillus and another one had a previous history of liver hydatid cyst. It seems that some of post-renal transplant TMA is renal limited, and allograft dysfunction is their only manifestation. Timely treatment could improve the allograft outcome.

P 337
IS LIVING KIDNEY DONATION REALY SAFE?

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Living-donor kidney transplantation (LDKTx) yields the best results of all renal replacement therapies in term of patient and graft survival. It is the main way of RTX in many countries because of worsening patients’ outcome due to the accumulation of aged patients with long time period of dialysis treatment and no more possibility to increase the number of cadaver transplantation. Because of concerns dealing the risks inflicted to the donors, we decided to evaluate the risks & long term complications of (LDKTx). A total of 86 living kidney donors (M=58,F=28) with kidney donation more than 1 years (Mean=17.24±5.04) & mean age 28.97±4.75 years were evaluated for 3 years. Basic information regarding the donor’s current health status including physical examination & blood pressure and serum urea & creatinine & serum Albumin, blood glucose, Lipid profile, Urine analysis & 24hours protein were evaluated every 6 month after kidney dona-

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P 338
STUDY OF THE EFFECT OF RENAL TRANSPLANTATION ON METHACHOLINE CHALLENGE TEST IN PATIENTS WITH END STAGE RENAL FAILURE IN SHAHID DOCTOR LABAFINEGAD HOSP

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Pulmonary complications are common in patients with chronic renal failure (CRF). The objective of this study was determination of the effect of renal transplantation on pulmonary function, using the methacholine challenge test. This was an intervention-al before after study. 14 patients with CRF on maintenance dialysis underwent serial spirometry and astography before and after renal transplantation. None of them was known to have clinically important pulmonary and heart diseases and the results of the spirometry, astography, echocardiography and CXR were normal.5 of the patients were male and all others were female. The age range was from 15-45 years (mean age = 28.6± 10.9). For every patient 4 times astography was done. The mean value of spirometric and astography indices before and after renal transplantation were within normal limit. But in statistic tests by repeated measure ANOVA, the results show improvement in airway responsiveness (although in normal limit) because the most common pathological condition of the lungs in CRF is pulmonary oede-

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P 339
AN OPHTHALMOLOGICAL COMPLICATION: CENTRAL SEROUS CHORIORETINOPATHY (CSCR) IN A RENAL TRANSPLANT RECIPIENT

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Ophthalmological complications in transplanted patients are often due to underlying disorders or long term drug use. Retinal complications in transplant recipients can be one of the following: A) Infectious B) Microvascular retinopathy C) Thrombocytopenia, anemia and hyperviscosity due to cytotoxic drugs D) Central serous chorioretinopathy (CSCR) often occurs after solid organ transplantation and is probably related to high dose steroid, stress, hypertension and cyclosporine. Case report: A 36 years old man was readmitted three weeks after renal transplantation because of acute rejection. He was treated with methylprednisolone for 3–5 days. On the second day he complained of left eye blurred vision that was begun from one week ago. Physical exam showed that visual acuity of left eye was 4/10 and there was macular edema. After 8 days the right eye became blurred. With the impression of CSCR, fluorescein angiography was done and CSCR was confirmed (figure 1-3). Steroid was tapered more rapidly. He was followed up for 3 months and visual acuity improved gradually and reached 10/10, so no laser therapy was needed. In this case, under treatment with cyclosporine and prednisolone, CSCR was developing and high dose steroid used to treat acute rejection accelerated the complication (CSCR) resulted in severe visual loss.

P 340
EFFECT OF ORANGE AND TANGERINE JUICE ON CYCLOSPORINE SERUM LEVEL IN RENAL TRANSPLANT RECIPIENTS

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The main goal of this study is evaluation of the effects of tangerine juice (citrus reticulate var. unshiu) on cyclosporine pharmacokinetics in renal transplant recipients. This study was done on ten renal transplant recipients older than eighteen years old who were under maintenance treatment for at least four weeks. Mean age of patients was 40.3 ± 14 year and mean cyclosporine dose prescribed was 3.4 ± 0.5 mg/kg/d. The study was done in three steps with a minimum of one week apart. In each of these three steps each patient is given water, 250 cc of orange juice or tangerine juice with cyclosporine and cyclosporine level was measured at 0, 0.5, 1, 1.5, 2, 3, 4, 5, 7, 12 hours. Results: Orange juice was not significantly different with water in its effects on area under the curve (AUC) (95% CI–769 to 734, P= 0.63) and maximum concentration (Cmax) (95% CI–264 to 74, P=0.32) and time to reach to maximum concentration of cyclosporine (Tmax) (95% CI–0.79 to 0.28, P=0.32) so as tangerine juice on AUC (95% CI–453 to 1166, P= 0.28), Cmax (95% CI –239 to 179, P=0.37), Tmax (95% CI –1 to 0.12, P=0.1) (table and figure 1). Discussion and conclusionWe conclude that at present we cannot limit orange or tangerine use in patients taking cyclosporine.

P 341
LAPAROSCOPIC VERSUS OPEN DONOR NEPHRECTOMY FOR PEDIATRIC KIDNEY RECIPIENTS: A PRELIMINARY REPORT OF A RANDOMIZED CONTROLLED TRIAL

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Laparoscopic surgery is widely accepted for nephrectomy in adult renal transplantation. The success of this technique has not been compared with open donor nephrectomy (ODN) in children. In this randomized clinical trial, a total of 40 adult kidney donors were randomly divided into two groups: Twenty cases of laparoscopic donor nephrectomy (LDN) and 20 of ODN. We included patients with age of <15 years. Our Exclusion criteria were: history of previous renal transplantation, hemolytic uremic syndrome, focal segmental glomerulosclerosis, oxalosis in recipients, and existence of multiple renal arteries in donors. All laparoscopic and open donor nephrectomies were completed as scheduled and no cases of LDN group required conversion to open nephrectomy. No patients in ODN or LDN groups required reoperation. Acute rejection was diagnosed in 6 cases of ODN (30%), and 4 patients (20%) in the LDN group (P=0.3). No recipients or donors in two groups died. One-year graft survival in the ODN and LDN groups were 310.8 ± 28.8, 302.7 ± 28.2 days, respectively (p=0.8). At our medical center, pediatric LDN recipients had graft outcomes comparable to those of ODN recipients. We recommend use of LDN for pediatric recipients at experienced centers.

P 342
THE EFFECT OF SUCCESSFUL RENAL TRANSPLANTATION ON ERECTILE DYSFUNCTION

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To evaluate the prevalence of erectile dysfunction (ED) in hemodialysis patients and the effect of successful renal transplantation on it. Two hundred and seventy hemodialyzed patients underwent live unrelated renal transplantation from Sep. 2002 to Nov. 2005 in Sina hospital, Tehran University of Medical Sciences, Iran. Those who were younger than 20 years, positive history for diabetes mellitus, ischemic heart disease, hypercholesterolemia, pelvis trauma or prostate surgery cigarette smoking, previous renal transplantation and medication use with adverse effect on erectile dysfunction were excluded. Eighty eligible patients entered the study and were
assessed by international index of erectile function, version 5 (IIEF-5) pre and six-month post renal transplantation. The prevalence of ED in hemodialyzed patients was 87.5%. Aging had not statistically significant effect on it. There was no relationship between the duration of dialysis and ED severity. Sixty four patients had good functioning graft in 6-month follow-up and completed the study. Successful transplantation improved IIEF-5 score significantly (P<0.001). Pretransplantation IIEF-5 score, age at the time of transplantation and transplant artery anastomosis to common iliac artery had statistically significant association with ED improvement, while duration of dialysis had not. ED is highly prevalent in hemodialyzed patients. It improves significantly after successful kidney transplantation.

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THE OUTCOME OF RENAL ALLOGRAFTS WITH MULTIPLE ARTERIES

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Renal allograft transplantation with multiple arteries (MA) was always less preferred and it was avoided as much as possible as it is technically demanding and carries higher complication risk. To determine patient and graft outcome of live and cadaveric kidney transplantation with multiple renal arteries. We reviewed total number of 646 cases which were transplanted between November 1993 and December 2005, 185 (28%) from cadaveric donors (CAD), (72%) live donors. Thirty-five allografts with MA, 18 CAD, 9 LRD, 8 LURD. We analyzed surgical techniques, number and type of anastomosis, serum creatinine, arterial thrombosis and stenosis, hypertension, graft and patient survival. ut of 35 grafts, 30 had duple arteries, 21 of them transplanted with 2 separate end to side anastomosis to external iliac arteries, 9 had single (conjoined or cuff anastomosis). Five grafts had 3 arteries, with duple or multiple anastomosis, and all were end to side to external iliac artery. Two patients developed perigraft hematoma 5.7%, compared to 4.5% in the single artery (SA) group. Serum creatinine of MA group at one month recorded (122.3+44.5) (MEAN+SD), (139+86) at one-year and (156+151.5) at 5 years. One case showed renal artery stenosis presented with resistant hypertension. Six grafts 17% were lost in MA group, in 10 years, compared to 15.6% in SA group. We had 5 patients lost in 10 years in MA group 14%. Three in cadaveric group 16%, one with pulmonary embolism, two with septicemia, compared to 12% in SA group, and one in each of LRD and LURD groups. Although MA renal allografts might carry a higher relative risk for complications, but it gives comparable results in graft and patient outcomes to SA grafts, which justifies its use.

**P 344**

ASSOCIATION OF POST-TRANSPLANT DIABETES MELLITUS WITH AUTOSOMAL-DOMINANT POLYCYSTIC KIDNEY DISEASE

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Autosomal-dominant polycystic kidney disease (ADPKD), a common hereditary disease, is characterized by the progressive development and enlargement of multiple cysts in both kidneys, and typically resulting in end stage renal disease (ESRD) by the fifth decade of life. Post-transplant diabetes mellitus (PTDM), a common complication after transplantation with an incidence rate of 2.5-20%, is associated with poor graft and patient survival. In few studies, PTDM has been more frequent in ADPKD transplanted patients. In the present study, we investigated whether there is an association of PTDM with ADPKD in our patients. In this prospective study, 140 nondiabetic and nonsmoker successfully transplanted patients (27 ADPKD and 113 nonADPKD patients) were enrolled during three years. Both groups were matched for age, sex, body mass index (BMI), duration of renal replacement therapy before transplantation and also immunosuppressive protocols after transplant. We applied the definition of post-transplant diabetes mellitus presented by Canadian Diabetes Association as Clinical Practice Guidelines for the Management of Diabetes Mellitus in 2002. These patients were evaluated for 12 months. The incidence rate of post-transplant diabeted mellitus was 11.1% In ADPKD transplanted patients and 13.1% in nonADPKD group without any statistically significant difference (P=0.05). The development of PTDM in ADPKD group was not related to sex, age, hypertension, duration of renal replacement therapy before transplantation, BMI and serum creatinine levels (P=0.05). Post-transplant diabetes mellitus appears not to be associated with autosomal-dominant polycystic kidney disease as an etiology of end stage renal disease.

**P 345**

CLINICAL COURSE OF HEPATITIS C VIRUS INFECTION IN RENAL TRANSPLANT RECIPIENTS

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Patients with end-stage renal disease are at high risk for exposure to hepatitis C virus (HCV) infection. Although both viral replication and liver disease progression are accelerated after renal transplantation (RTx), long term-impact of chronic HCV infection is unclear. Our aim was to detect the course of HCV infection in renal transplant recipients (RTR) and to detect the effect of HCV
Blood levels of parathyroid hormone usually decrease after successful renal transplantation. However, some patients with good renal function develop elevated PTH levels and/or persistent hypercalcemia. The aim of this study was to determine the prevalence of hyperparathyroidism and hypercalcemia three months and one year after transplantation and to assess the correlation between medical care with prevalence of hyperparathyroidism. 121 patients with chronic renal failure, who had successful transplantation between August 2000 and August 2002 in Namazee Hospital, were evaluated. Ca, Ph, Albumin, Creatinine and iPTH were assessed before transplantation, and three months after the operation. 21 patients developed hypercalcemia and were followed for 1 year. Five cases were excluded from the study. One patient developed chronic graft rejection and four cases had immigration or poor follow ups. 3 months after operation, 9 (7.4%) subjects had PTH values above 60pg/ml and 21 (17.4%) were hypercalcemic. Five cases were excluded and at the end of the first post Op year, seven cases (43.8%) out of 16 had persistent hypercalcemia. At all, nine patients out of 121 (5.6%) were still hypercalcemic at the end of the 1st year. The maximum level of calcium was 11.7mg/dl and no patient had any indication for parathyroidectomy. Significant correlation was found between duration of dialysis and age with level of PTH after transplantation. (P<0.05) The prevalence of hypercalcemia, 1 year after transplantation in this study is approximately similar to previous reports. Meticulous medical care and management before and after transplantation decreases persistent hypercalcemia and renal osteodystrophy after transplantation.

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**EVALUATION OF CHANGES OF Ca, Ph, AND PTH IN EARLY AND LATE POST TRANSPLANT PATIENTS IN NAMAZEE HOSPITAL IN TWO YEARS DURATION**


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Posters
Multiple studies reveal factors that influence transplanted kidney function. We evaluated the electrolyte imbalances during the first year after transplantation. This is a prospective study on 100 renal transplanted patients with normal kidney function for 6 months after operation. Na, K, Ca, and Ph were evaluated before and on the 1st, 3rd, 7th, and 14th day after operation, and in the 1st, 3rd, and 6th month follow-up. PTH levels were determined before and in the 6th month after operation. On the 3rd and 7th days after transplantation, 32.4% and 62% of patients developed hyponatremia, and 29.6% and 37% had hypokalemia respectively. At the end of the 1st month, no one had hypokalemia and 21% showed hyperkalemia. Average serum Ca level was 9.26 ± 0.49 mg/dl in 1st week which raised to 9.8 ± 0.64 mg/dl (p=0.000) 6 month later. All the patients who developed hypercalcemia, had PTH levels more than 3 times the normal values at 6 month post Op and PTH level more than 300 pg/ml before operation. After transplantation serum PTH decreased from 198.58 pg/ml to 85.78±70.75 pg/ml. Hypophosphatemia was found in 31.4% in the 1st week and in 29.2% 6th month after operation. We did not observe any relationship between hypophosphatemia and serum PTH level before and after operation. Hyponatremia and Hypokalemia are prevalent in the 1st week after renal transplantation. Serum PTH level decreased after renal transplantation in all patients. Higher serum PTH level before operation is a main factor in establishment of hyperparathyroidism after transplantation.

To evaluate the effect of bilateral nephrectomies on post-transplantation urinary tract infection (UTI) in patients with end-stage renal disease (ESRD) due to Autosomal dominant polycystic kidney disease (ADPKD). In a retrospective case-control design, 62 ESRD patients with ADPKD were divided in two groups: A) cases that underwent bilateral nephrectomies B) patients in whom bilateral nephrectomies had not been done. Pre-transplant and post-transplant urine cultures were evaluated for UTI. Statistical analyses were performed using SPSS (SPSS, Chicago, IL) package. 62 ESRD patients with ADPKD were enrolled in this study. Average age was 42 years (Range: 6-60 years). Forty patients (64.5%) were male and twenty-two (35.5%) were female. The mean duration of hemodialysis was 24 months (2 to 120 months) which was the same for both groups. Bilateral nephrectomies were done for 24 participants (37.8%). There were thirty-eight patients (61.3%) in group B who did not have the operation. UTI occurred in twenty-three patients (37.1%): six patients (26%) in group A and seventeen patients (74%) in group B. The incidence of UTI was not statistically different between the two groups (P>0.05). Furthermore, no relationship was found between age, sex, blood group, and UTI in ADPKD patients (P>0.05). According to our study, the presence of large non-functional kidneys is not a risk factor for post-transplantation UTI in patients with ADPKD and ESRD.

Experience with anomalous kidney transplantation is limited. Due to higher vascular and urological anomalies, these kidneys are underutilized for transplantation. The aim of this case-report is to familiarize the transplantation teams with anomalous kidney transplantation. The first case: A 32-year-old brain dead man was selected for organ donation. Abdominal exploration revealed a horseshoe kidney with good isthmus parenchyma, two arteries, one vein, and one ureter on each side. It was harvested en block and by cutting the isthmus, it was divided into two parts on back table. Then two parts were transplanted in two separate recipients. The second case: A 29-year-old brain dead man was selected for kidney donation. Abdominal exploration revealed a lump kidney on left lumbar area with four arteries, a main renal vein and 2 accessory small veins, and two ureters. It was harvested en block and transplanted, two arteries were anastomosed together and then to aorta. Another artery was anastomosed to external iliac artery and other to internal iliac artery. Main renal vein was anastomosed to external iliac vein, and other small veins were ligation. The ureters were implanted to bladder separately. After transplantation, two recipients developed adequate urine output and discharged with normal creatinine. The third patient, who received one part of horseshoe kidney, developed ATN and after conservative management, her creatinine returned to normal. Considering organ shortage, the anomalous kidneys can be appropriate for transplantation provided that there is no significant pathology and meticulous attention is paid to technical details.
**P 351**

**OUTCOME OF KIDNEY TRANSPLANTATION IN POLYCYSTIC KIDNEY DISEASE: A SINGLE CENTER STUDY.**


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Autosomal dominant polycystic kidney disease (ADPKD) is a common cause of end-stage renal disease and a common indication for renal transplantation. Recipients of renal grafts with ADPKD show some differences in graft outcome and complications. In this study, we evaluated the demographics, outcomes and complications of renal transplantation in patients with ADPKD. In a retrospective case-control design, 51 patients with ADPKD were recognized among all 1200 renal transplant patients. For each case, a matched control based on sex, age (±5 years) and kidney donor, was selected. All demographic and operation data was gathered using patients’ records and PNOT software. There were 34 males (66.7%) and 17 females (33.3%) with ADPKD. Mean age at transplantation was 42.6±14.3 years and source of organ transplantation was predominantly live unrelated (72.5%). Forty patients (78.4%) presented with extrarenal manifestations of ADPKD, the most common of which were: cardiac valvular disease (24 cases, 47.1%), and liver cysts (10 cases, 19.6%). Rejection occurred in 12 patients in case group (23.5%) comparing to 9 patients (17.6%) in the control group (p>0.05). Twenty-nine cases (56.9%) were free of any complications. Common complications included infections (15.7% in cases vs. 19.6% in controls), and cerebrovascular accidents (13.7% in cases vs. 16.6% in controls). Extrarenal manifestations were not different from other studies. Patient outcome was slightly better in the ADPKD population than the control group in short- and long-term follow-up; however, it was not statistically significant. In contrast to other studies, no complication was found to occur more frequently in ADPKD patients.

**P 352**

**MANAGEMENT OF INFRARENAL DOUBLE IVC DURING LIVING RELATED KIDNEY TRANSPLANTATION.**


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Congenital anomalies of the inferior vena cava are a relatively rare pathology, usually with an abnormal inferior vena cava. Recently we had two patients with incidental finding of left infrarenal double IVC. In this article we described management of kidney harvesting with this anomaly and review of venous anomalies in literature. During harvesting of living related kidney donor we found unexpected left infrarenal double IVC in two cases. In first case we explored and after confirmation of right-sided IVC we ligated the left sided IVC and harvested left kidney with preserving normal length of renal vein. In second one we divided left renal vein more proximal with acceptable short length renal vein to preserve patency of left IVC. We had only mild oedema and discomfort around pelvis girdle area for 2 week in first case. Duplicated inferior vena cave was found unexpectedly at the time of resection of abdominal aortic aneurysm or in patients investigated by venography or incidental finding on CT scan. In review of literature we couldn’t find any article about this anomaly during kidney harvesting. We discussed this entity and review other venous anomalies including circumaortic or retroaortic left renal vein during laparoscopic nephrectomy. Venous anomalies are not as important as arterial anomalies during kidney harvesting. We should be familiar with these anomalies and do safe operation on both donor and recipient of kidney transplantation.

**P 353**

**THE OUTCOME OF RENAL TRANSPLANTATION IN 28 PATIENTS RECEIVING KIDNEYS WITH MULTIPLE RENAL VESSELS.**

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To study the renal Transplantation outcomes in the patients, that received kidney from kidney donor with multiple renal vessels the recipient were followed for 16 years. In a 16 years period (1989-2005), 1000 renal transplantation was carried out at our center. In 28 cases the transplanted kidney had multiple renal vessels. The patients had been followed up for average of 8 years. Serum creatinine level, vascular complications, graft survival and patient survival had been studied. In 3 cases grafted kidneys had 3 arteries and one vein, 3 cases had 2 arteries and 2 veins, one case had 2 arteries, one vein and 2 ureters and finally 21 cases had 2 arteries and one vein. The mean cold ischemic time was 78 minutes (50-143). The surgical technique employed, Included: 1- Anastomosis of graft arteries and veins followed by anastomosis of common trunk to recipient iliac artery and vein.2- Anastomosis of graft arteries or veins separately to recipient iliac vessels. No venous or arterial thrombosis occurred. 4 cases developed acute rejection managed successfully with Antithymocyte Globulin (ATG). No graft loss was seen. Mean creatinine level was 1.4 mg/dl. 2 patients were expired due to sepsis and myocardial infarction. The grafted kidneys functioned normally in both cases at the time of death. Multiple arteries or veins had no adverse effect on graft survival. Hence due to shortage of organ donors, Using kidneys with multiple vessels are justified.
This study was conducted to determine Parathyroid hormone abnormalities and its correlation with Valvular Heart Disorders (VHD) in End Stage Renal Disease Patients (ESRD) patients. Eighty ESRD patients (46 male, 34 female) aged 47 +/- 17 (Mean +/- SD) who referred to one of the main hemodialysis centers in Esfahan were studied. The blood level of parathyroid hormone (PTH) was tested. The records of seventy one of the patients were reviewed for blood level of Calcium (Ca) and Phosphorous (P). Ca and P level had been measured before and after hemodialysis during last six month. All of the patients underwent 2D, M mode and Colored Doppler Echocardiography during first 24 hours after hemodialysis. Different VHD were recorded and the VHD were divided into two groups: with and without VHD, according the results of echocardiography. PTH level of about 88.8 percent of the patients was normal. PTH level did not show significant differences in two groups. Hypercalcemia and hypocalcemia was found in, seven and twenty-four person respectively, sixty-two patients had hyperphosphatemia and the others were normal. There was weak correlation between PTH and P levels (r=0, P value <0.01). There was no correlation between blood level of Calcium (Ca) and Phosphorous (P). Ca and P level had been measured before and after hemodialysis. Blood Ca and P levels tested before and after hemodialysis. Ca*p and PTH level were not different in two groups. The results of this study could not show any correlation between Ca,P and parathyroid hormone (PTH) disorders with VHD, but they show the high frequency of PTH disturbance, hyperphosphatemia and hypocalcemia in ESRD patients in our study. These results confirm the necessity of planning for prevention, diagnosis and control of hyperparathyroidism in our ESRD patients.

This study conducted to determine the frequency of Valvular Heart Disorders (VHD) in End Stage Renal Disease (ESRD) patients in a referral hemodialysis center in Esfahan. This cross sectional study was performed in order to determine the frequency of VHD in ESRD patients aged 47 +/- 17 (Mean +/- SD) in a referral hemodialysis center in Esfahan during 1997. Ninety nine patients (58 male and 42 female) under went two dimensional, M mode and colored Doppler echocardiography during first 24 hours after hemodialysis. The patients had been hemodialysed 3-12 hours per week for about 77(4+745) weeks before the study. Sixty point one percent of the patients had at least one type of VHD. Valvular heart disorders consisted of functional disorders, calcification or thickening of the valves rings. Valvular regurgitations were the most findings. Mitral and Tricuspid regurgitation (MR and TR) in 4 percent, TR, MR and Aortic Insufficiency (AI) together in 3 percent. AI and MR together in 2 percent and TR in one percent of cases were detected. Only one of the patients had valvular stenosis that was aortic stenosis (AS). Anatomical valvular changes as thickening, calcification or both without any functional abnormality were diagnosed in 8.1 percent of the patients. There were no pulmonary valve abnormalities and tricuspid and mitral stenosis. The results of this study show high frequency of VHD in ESRD patients in our study. These results suggest appropriate planning for prevention, early detection and treatment of VHD is ESRD patients.

This study was designed to determine the value of heart auscultation and physical examinations in detection of Valvular Heart Disorders (VHD) in End Stage Renal Disease (ESRD) patients. Ninety-seven patients from a central hemodialysis department in Esfahan were studied for determining the diagnostic value of routine physical examination (RPE) and heart auscultation (HA) in detection of VHD. Patients underwent RPE and HA. RPE included precordial and abdominal examinations. Two dimensional (2D) and M mode colored Doppler echocardiography was performed in all the patients as gold standard for detection of the VHD in this study. Valvular Heart Disorders was cathegorised as Aortic, Mitral, Tricuspid and Pulmonary artery stenosis, regorrtiation or insufficiency. Each person was examined by a cardiologist and then was tested by other cardiologist for echocardiography, the results of RPE and HA was compared with the results of echocardiography. The sensitivity and specifity of RPE in detection of VHD was 50 and 92 percent respectively. Only one patient had aortic stenosis (AS) in echocardiography that was correctly diagnosed by RPE. The specificity of RPE in diagnosis of AS was about 98 percent. The sensitivity of RPE in diagnosis of aortic insufficiency (AI) was about 11 percent and its specifity was 92 percent. Large number of patients without any murmur or with functional murmur had VHD in the echocardiography. None of the patients had tricuspid or mitral stenosis and pulmonary valve disorders. There was a significant difference between diagnosis by RPE and echocardiography (p value<0.01). According to results of this study we conclude that detection of VHD in ESRD patients can-
not be made only by RPE and HA and echocardiography is necessary. Routine echocardiography in regular intervals is recommended for detecting Valvular Heart Disorders in ESRD patients.

357 PHYSICAL ACTIVITY AND EXERCISE IN KIDNEY TRANSPLANTED PATIENTS

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Physical activity in patients after kidney transplantation has been reported as an important component of their quality of life. This study was carried out to explain different aspects of physical activity and exercise in renal transplanted patients. An extensive Medline search was carried out covering the period from 1989 to January 2006. Medline was searched through Medical Subject Heading database. Physical Activity, Motor Activity and Kidney Transplantation had been selected as main keywords. This search was covering human subjects and articles in all languages. A total of 21 articles selected for study. These articles study the physical activity status; exercise capacity and their importance in kidney transplanted patients. They also study the factors that influence exercise capacity in these patients and reveal some recommendations for exercise prescription in KT patients. These studies showed that KT patients have disturbance in tolerance to exercise and physical activity that may be due to pre KT status, post KT obesity or muscle damage due to glucocortycoid therapy. These articles also reveal that physical activity may reduce bone loss and may improve oxygen consumption, peak heart rate, maximum ventilation rate, blood concencentration, muscle strength and may correct the hyperlipidemia in KT patients. Total hemoglobin has been reported as main factor that influences positively exercise capacity in KT patients. Risk of hypertensive changes during exercise, especially in the patients who receive vasopressor medications such as Cilosporin and patients with cardiovascular risk factors has been reported as considerable factor. In conclusion these articles suggest programmed exercise for KT patients specially sub maximal aerobic activities. Strenuous physical activity should be undertaken with caution.

P 358 PLEURAL EFFUSION IN LONG-TERM HEMODIALYSIS PATIENTS

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We retrospectively analyzed the medical records of 250 patients who had received long-term hemodialysis between 1990 and 2006 at the Hospital of Baskent University Faculty of Medicine to better understand the incidence, causes, and clinical features of pleural effusions in this population. The incidence of pleural effusion in hospitalized patients receiving long-term hemodialysis was 20.2% (n = 52; mean age, 55.83 ± 16.56 years; male-to-female ratio, approximately 3:2). Pleural effusion resulted from hypervolemia in 61.5% and was bilateral in 68.8% of patients. Unilateral effusion was present in 25 of 52 (48%) patients. The most frequent causes of unilateral effusion were hypervolemia (n = 9), and parapneumonic effusion (n = 5). Thoracenteses were performed in 14 of the 52 patients in the study group. Of thoracenteses performed, 64.3% of the patients had transudative pleural effusion and 35.7% had exudative effusion. Transudative pleural effusion resulted from hypervolemia in 66.7% and heart failure in 22.2%. Of the patients with transudative effusion, 85.7% were bilateral. The most frequent cause of exudative pleural effusion was uremic pleuritis, which occurred in 40% of the patients. The most common symptom was dyspnea, which occurred in 53.8% of patients. In conclusion, pleural effusions are common in patients receiving chronic hemodialysis. Thoracentesis may be performed in patients with unilateral pleural effusion. Since hypervolemia was the most common cause of pleuraleffusion, this complication should not be considered an obstacle in renal transplant recipients.

P 359 COMPARATIVE STUDY OF UROLOGICAL COMPLICATIONS BETWEEN TWO KINDS OF SUTURE MATERIALS IN URETERAL ANASTOMOSIS OF RENAL TRANSPLANTATION

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In this study we evaluated complications of ureteral anastomosis of kidney transplantation with two kinds of suture materials, Catgut chronic or fine prolene. In our study ureteral anastomosis was performed with 4-0 Catgut chromic sutures in 115 patients (group 1) and 5-0 fine prolene in 105 patients (group 2). All of the ureteral anastomosis was performed with modified lich technique. All the patients were followed for 18 months (2-28). Urologic complications were assessed included stone formation in the site of the anastomosis, stricture, urinary leakage and urinary tracts infections (UTI). No stone formation was detected on the site of the anastomosis in both groups. 18.1% of patients in group 1 and 19.8% patients of group 2 experienced one episode of UTI (P>0.05). Three patients had urinary leakage and one patient had ureteral stricture in G1 and there was not any leakge or stricture in G2. Some collections were detected in 24.3% of G1 and 18.1% of G2 (P>0.05). In our study urologic complications in G2 was not more than G1 and prolene can be used safely in ureteral anastomosis of renal transplantation.
P 360
SHOULD KIDNEY GRAFT BE PLACED IN THE CONTRALATERAL ILIAC FOSSA?

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We compared the results of kidney transplantation in the same side or the contralateral side. Between 1992 and 2005, 2112 consecutive renal transplants were performed in our hospitals. Mean patients age was 36.9 years (8-68) and male to female ratio was 2.41.1458 grafts were transplanted in the contralateral iliac fossa (standard method), left kidney was placed in the right iliac fossa and vice versa, (Group 1) and 654 grafts were transplanted in the same iliac fossa, left kidney was placed in the left iliac fossa and right kidney in the right iliac fossa. (Group 2) Follow-up period was between 10 and 160 months (mean 96.7). Surgical complications were compared between 2 groups. Surgical complications in G1 and G2 were 3.82% and 3.97% respectively. Surgical complications were evaluated in both groups included vascular complications (8 in G2 and 18 in G1), ureteral complications (6 in G2, 16 in G1), lymphocele (6 in G2, 13 in G1) and wound complications (5 in G2, 11 in G1). There was no statistical significance difference between 2 groups. All ureteral complications were managed with endourological procedures. There was no significant difference between surgical complications of kidney transplantation in the same side or the contralateral side. Urological complications were management without any difficulty. Therefore we recommend placing any graft on the right iliac fossa and if the left iliac fossa should be used, left kidney is the best choice.

P 361
LAPAROSCOPIC NEPHRECTOMY: THE BEST CHOICE FOR DONORS

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We reviewed the experiences and follow up of the first 40 laparoscopic donor nephrectomy at our institution. Charts of the patients who underwent laparoscopic donor nephrectomy from January 2004 to February 2006 were reviewed. We performed 40 procedures at that time. Mean age was 23 years, 35 males and 5 females. All of the nephrectomies were on the left side. Patients weight was between 50 to 75 Kg. Operating time and warm ischemia time were recorded. Complications and convalescence were followed postoperatively. Mean follow up was 13 months (2-24). In the beginning, operating time was about 4 hours but after 5 cases it reached to about 2 to 2 1/2 hours. Mean warm ischemia time was 8 minutes (4-10). All of the grafts have a very good function and we did not have any ATN (acute tubular necrosis). Seven patients complained of left shoulder pain following operation. One patient opened due to bleeding 12 hours following operation. Patients discharged from the hospital 2 to 3 days following operations. Analgesic consumption was lower than open nephrectomy. Donor nephrectomy can be performed routinely, safely and with minimal morbidity using a laparoscopic approach and we strongly recommend it for all renal transplant surgeons. Laparoscopic donor nephrectomy is the gold standard for donor nephrectomy.

P 362
RESULTS OF LIVING-UNRELATED DONOR KIDNEY TRANSPLANTATION BETWEEN SPOUSES; SINGLE CENTER EXPERIENCE

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Shortage of cadaver kidneys is an ever-growing problem in Turkey, despite the intensive efforts that have been made toward a solution. Living related donors have become the primary source of kidneys in developing countries. When a first-degree relative of the patient is not available, second-degree relatives or genetically unrelated but emotionally related donors, such as spouses become alternatives. From November 1985 to June 2006, 81 living unrelated kidney transplantation between spouses were performed at our hospital. Seventy one of the donors were female, remaining 10 were male. Mean age of the donors and patients were 33.9±8.5 years, and 38.5±8.8 years respectively. The 1-, 3-, and 5-year patient survival rates were 93%, 90%, and 83% respectively; corresponding graft survival rates were 83%, 78%, and 76%. Seven patients died in the post-transplant period, the reasons were sepsis in 3, gastrointestinal hemorrhage in 1, cardiac failure and myocardial infarction in 2, and pancreatitis in 1. Three of these patients died with functioning grafts, 7 other grafts were lost due to chronic rejection.

In conclusion, we do not accept living-unrelated donor candidates other than the spouses for prohibiting an underground organ trade in our transplant center. Inter-spouse kidney transplantation is an important option with good clinical results. It not only provides the couple with better quality of life, also enables them to share the joy of giving and receiving the
Post Transplant Erythrocytosis (PTE) is a well known complication of renal transplantation. It is a persistently elevated hematocrit (Hct.) equal to or above 51 % and or hemoglobin (Hb.) equal to or above 16 g/L in the absence of other causes. We retrospectively studied this complication in our renal transplant recipients at Jeddah Kidney Centre from January 1991 till December 2005. Out of 1655 renal transplant recipients, 159 patient (9.6 %) developed PTE. There were 154 males and 5 females. The mean age of patients with PTE was 42 +/- 9 years. The mean follow up period was 96 +/- 4 months. Immunosuppressive medications included prednisolone, cyclosporine and azathioprine in most of the patients. In a group of patients MMF and Tacrolimus replaced azathioprine and cyclosporine. PTE appeared 3 - 40 months with a mean time of 8.2 +/- 5 months post transplantation and lasted for 7 - 35 months with a mean time of 10.3 +/- 3 months. Twenty four patients (15 %) were treated with phlebotomies, while 29 patients (18.2 %) were given ACE-I. Ninety two patients (57.9 %) were given ACE-I. PTE has no adverse effect on renal graft function.

Tuberous Sclerosis Complex (TSC) is a multisystem disorder. Renal involvement in the form of angiomyolipoma or cyst is usually asymptomatic but can result in significant morbidity and End Stage Renal Failure (ESRF). Renal transplantation has been performed successfully in individuals with TSC. We present an adult case of TSC with bilateral angiomyolipoma, who underwent renal transplantation successfully. Herein we describe a 22 years old man with ESRF secondary to TSC and bilateral angiomyolipoma. He was on maintenance hemodialysis for 4 years before he received cadaveric donor renal transplantation. His immunosuppressive medications included steroids, azathioprine, tacrolimus and a short course of ATG. His graft functioned immediately with normalization of renal parameters within 48 hours postoperatively. Six months later he underwent an uneventful elective bilateral native kidneys nephrectomy. We concluded that renal transplantation is an effective form of Renal Replacement Theapy (RRT) in cases of TSC. Nephrectomy should be considered early in post renal transplant patients with angiomyolipoma. Laboratory data, radiological imaging and histopathological findings of this case will be discussed.

Inserting JJ in allograft ureter and Foley catheter in urethra is routine in the end of Kidney Transplantation. Usually the urethral catheter is removed between 5 to 7 days post operation and JJ removed between 3 to 5 weeks post operation. Here is presentation effect of double voiding in patient with JJ. Group one, thirty five kidney recipients (25 males, 10 female) between age of 15 to 50 years, kidney donors were living unrelated (between age of 25 to 35, 30 males 5 females), ureter anastomosed as lich procedure. 6 days post operation before removing urethral catheter it clamped for 2hours and under sterile condition mid urine sampling trans catheter was taken for urine culture. All recipients were taken co-trimexazol (prophylactic). At time removing JJ, urine and stent sent for culture Group two in thirty renal recipients (25 males 5 females between age of 20 to 55 years) with live unrelated donor (all male and age between 25 to 37 years) managed like group one except after removing urethral catheter, advised to do double voiding (five minutes after finishing micturation again to do voiding) and recorded volume of urine in second voiding. Post transplant management was same in two groups. In group one, 14 samples during urethral catheter removing (40%) were positive (E-coli, Pseudomonas, staphylococcus, acinobacter, Entrobacteria.spp), and twelve urine samples and JJ (during JJ removing) were positive. In group two 20to 50 cc urine voided in every second time voiding and only one urine and one JJ sample during removing JJ was positive.

More than 40% of kidney recipient had positive urine culture during removing urethral Foley catheter that it is a very important risk factor for APN(acute pyelonephritis).in patient with JJ which predispose to reflux a well known etiology for APN. Double voiding reduces risk of APN in patient with JJ in allograft ureter.
**P 366**

**NEW TECHNIQUE FOR ALLOGRAFT URERTERAL URETERONEOCYSTOMY TO MAKE POSSIBLE TRANSVESICAL ENDOSCOPIC HANDLING ALLOGRAFT UROLOGIC COMPLICATION**

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Despite improvement in prevention, diagnosis, and treatment as well as the use of new immunosuppressive therapies in kidney transplantation the incidence of urological complication after kidney transplantation varies from 3% to 14%, with a probable loss of the graft in 10% to 15% of cases and a mortality rate of up to 15%. Ureteral complication represents a one of significant source of morbidity. They consist of ureteral junction obstruction, leakage, ureteral necrosis and ureteral stricture. Due to position of neoureteral orifice, endoscope examination and transvesical treatment is not possible and always percutaneous approach recommended which is more invasive than transvesical. Here is a technique representing in which transvesical approach to allograft ureter is possible. In thirty kidney recipients after vessel anastomosing ureter is tailored for Dom and lateral of bladder (as much as possible near to dome of bladder and deep in lateral of it) mucosa to mucosa anastomosed. In all of them DJ has been inserted. They followed for one year and the result compared with another thirty cases that in them we conventional ureteroneocystostomy performed. At the time of removing DJ the ureter was investigated for inserting ureteral catheter and ureteroscopy, that it easily done, and compared with thirty case control that in all of them transvesical approach was difficult and impossible. This technique contains: short ureter (so less complication with ureter), ureter to mucosa (normal appearing orifice of allograft ureter in the bladder) lateral ureter (retrograde approach possible). They followed at least for one year with ultrasound and laboratory examination, there was not any abnormality (hydroureter) and ureteral complication. This technique is safe and with this method retrograde handling of allograft ureter is possible and it seems that it associated with less ureteral complication.

**P 367**

**ABILITY TO PREDICT DGF WITH MEASUREMENT OF HYPOXANTINE AND XANTINE CONCENTRATION IN TRANSPLANTED KIDNEY BLOOD VEIN**

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Ability to predict DFG with measurement of hypoxantine and xantine concentration in transplanted kidney blood vein. End stage renal failure has many causes. DGF is one of numerous complication of kidney transplantation. In this study we try to assess the ability to predict DFG with measurement of hypoxantine and xantine in the transplanted kidney blood veins. From March 2004 to September 2005 renal blood sampling during transplantation in 47 patients after measurement of purine metabolite with HPLC in blood sample, the metabolite rise or not with respect to baseline level were evaluated. All patients were followed for the next five days and assigned in one of the metabolite increase or not, then relationship between purine metabolite rise with DFG and the other related factors were assessed with Fisher’s test. 30 male and 17 female patients with mean age 34.8 year were studied. In 17 patients the purine metabolite raised and in 30 patients no changes were noticed. This change were significant only about hypoxantine (mean increase 1.28 mg/l + 1.57 mg/l in the raised group comparison with -0.32 mg/l in no change group, P<0.001). In the raise group 5 patients and in non-raised group 3 developed DFG but in analytical assessment no relationship was found between two variable (P=0.118). Among the factors in development of the DFG only anastomosis time had significant relationship with increase metabolite levels. (Mean time 40 min+-7.81 in raised group in comparison with 35 min+-7.37b in the other group). Although cold ischemia for short period during kidney transplantation can increased serum hypoxantine levels this increment is not a marker of sever ischemia. In this study we could not give a precise conclusion about the significant of change in serum xantine levels after reperfusion during ischemia of short duration.

**P 368**

**DECEASED DONOR QUALITIES THAT AFFECT RENAL TRANSPLANTATION OUTCOME**

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The aim of the study is to evaluate the qualities of the deceased donor that may affect outcome of renal transplantation. This study was retrospectively conducted from the year 2003-2005. The donor qualities includes the age, gender, causes of death, the duration from admission to retrieval of organs, serum creatinine (Scr) and plasma sodium level at admission and at harvesting and the cold ischemia time, correlated to the recipients conditions that includes length of stay in hospital post transplant, delayed graft function, episode of acute rejection and the patient and graft survival. A total of 253 renal transplantation from 133 deceased donors were performed. The mean age was 31 years with the Scr mean of 101.1µmol/L at admission and 150µmol/L at harvesting. The mean follow up period for recipients was 13 months with an active graft of 85.4% (216 cases), delayed graft function in 34.4% and 19.4% had an episode of acute rejection. The graft survival at one, two and three years was 89%, 78% and 68% respectively, while the patient survival at 3 years was 95%. The age, causes of donors death, the Scr and plasma sodium at harvesting and the cold ischemia time has significant effects on the recipients Scr post transplant, delayed graft function and the episode of acute rejection when compared. Deceased donors characteristics related to age, causes of death and medical complications affect significantly the renal transplantation outcomes.
Cytomegalovirus (CMV) infection is a risk factor for atherosclerosis in renal transplant recipients (RTRs). Our aim was to investigate the effects of CMV infection on atherosclerotic events (AEs) in RTRs. We included 200 renal transplant recipients (52 female, 148 male; aged, 36.18 ± 10.23 years). Following data were retrospectively analyzed as possible risk factors for AE: Demographic features, dialysis duration, presence of diabetes mellitus, blood pressure, body mass index, lipid profile, and medications used. CMV infection was determined in 23% of RTRs who were treated with ganciclovir during the first 2 years after transplantation, and these patients were followed for 4 years. All patients were accepted as having AE as evidenced by previous myocardial infarction, angina, revascularization procedures, intermittent claudication, stroke, or transient ischemic attack. In 13% of RTRs, AEs occurred during follow-up, and CMV infection was more frequent in these patients compared with patients without AE (21% versus 9%). Mean age and CMV infection were found to be independent risk factors for AEs (P = .02, OR = 5.6, CI = 1.3–24.6; and P = .01, OR = 1.3, CI = 1.3–12.3, respectively). This study demonstrates that presence of CMV infection can be triggering factor for AEs in RTRs.

Infectious complications after renal transplantation are associated with significant morbidity and mortality. We evaluated the post-transplant complications resulting from infections and their correlations with graft function, immunosuppressive drugs and mortality. In a 2-year period (2002–2004), 179 renal transplantations were performed in our center. 142 of these were studied and followed for 1 year. Immunosuppressive regimen contained cyclosporin A, mycophenolate mofetil and prednisolone. Each patient was assessed on regular visits according to the ward protocol then results of the investigations (Infections and their correlations with age, sex, donor type, creatinine level, acute rejection, immunosuppressive drugs, graft and patient survival) were registered. Overall incidence of infections was 54%. The most common sites of infections were lower urinary tract (42%) and respiratory tract (6%). The most frequent causes of infections were Klebsiella (24%) and Cytomegalovirus (18%). Wound infection occurred in 5% patients. Overall mortality was 7.7%. Infection-related mortality was 3.5% with developing sepsis. Graft loss was seen in 16 (11%) cases, of whom 2 had developed Cytomegalovirus infection, 2 experienced urinary tract infection (UTI) and 5 developed sepsis (expired). Gender had no impact on UTI incidence. Mycobacterial and hepatitis C infections were noticeably low, compared with other studies. This study identifies infections as the cause of morbidity and mortality in post-transplant period. Patients having higher creatinine level and receiving high dosage of drugs at the discharge time are considered as risky cases and should be evaluated more obsessively.
Urologic complications are one of the most common complications after renal transplantation. Early diagnosis and suitable treatment can preserve function of transplanted kidney. In this study incidence of urologic complications, surgical techniques and results of treatment were evaluated. During 1989-2002, 700 renal transplantation have been performed in our center. 200 of them were followed for an average of 4 years (1-13 years). Urologic complications were considered at patients with creatinine level rising without signs of renal rejection. Follow-up evaluation methods were included: serum creatinine level, reno vesical ultrasonography, radioisotope scanning, Nephrostomogramre. From 200 cases, 14 cases had complications (7%). Mean age of patients were 29 y (11-48) and complications occurred between 12th and 950th days (mean 147 d) after transplantation. patients had received graft from: Living unrelated (9 cases), Living rebat (1 cases), Cadaver (4 cases). Ureteric stenosis (6 cases: 3%), ureteric obstruction (3 cases: 1.5%) and urinary leakage (5 cases: 2.5%) were most of complications. Of 9 cases with rise of creatinine which had ureteral obstruction or stenosis percutaneous nephrostomy were performed, 2 of them endoureologic Intervention Improved stenosis, seven of vthe 9 needed open surgery. Techniques of ureteral repair were Included: Boari flap (2 cases) Uretero ureterostomy or pyeloureterostomy to native ureter in 4 cases and ureteroneocysty to my in 1 case. At urinary leakage (5 cases), in 2 cases leakage were interrupted without surgery (by nephrostomy), in 3 cases surgical management (uretoureterostomy or pyeloureterotomy to native ureter, and Boari flap and anastomose to transplanted kidney calices) had done. In this study most diagnostic method of urologic Complications was sonography and best method to detect complications site was nephrostomogra phy. Surgical techniques were selected upon to site and severity of complications, results of operations were successful.

To determine the post transplant positive anti – HCV patients who were negative before transplantation. 2.Does graft and patient survival alter in whom became positive anti HCV? From 1989 –2003, 800 kidney transplantation were performed in our center. 62 anti HCV negative patients were included in this study. The mean age was 32 years (7- 69) (33.9% female and 66.1% male), and followed for 4 years. Liver function tests and viral markers measurements carried out every three months any. The results were analyzed by statistical package SPSS using Exact, chi square and ANOVA tests. Anti HCV positive was occurred in 8 patients (12.9%), all were confirmed with (RIBA 3) and HCV RNA polymerase reaction. All of them had history of pre-transplant transfusion, and 83 % of them were under hemodialysis for more than 30 months. We found no acute or chronic rejection in Anti HCV positive patients. Two patients (25%) had liver enzymes increase. One anti HCV positive patient expired due to acute hepatitis. No chronic hepatitis C were seen. Although, in our study the impact of post - transplant anti HCV positive on graft survival was not significant, but long term evaluation for better prejudice is mandatory, so, we highly recommend evaluation of anti HCV negative patients after kidney transplantation .
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IRANIAN MODEL OF CADAVERIC HEART BEATING DONOR (HBD) RENAL TRANSPLANTS.
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In order to assess the immediate renal function after HBD in our country, immediate diuresis was compared in HBD and live donor (LD) recipients. We reviewed the recipient records of 112 HBD and 45 LD between January 2001 and August 2005. A check list was prepared for each patient asking many variables that might be relevant. After harvesting kidneys, we start irrigation immediately and then transplant them, so the cold ischemic time was less than 60 minutes. 112 HBD and 45 LD recipients included. The cold ischemia time was less than 1 hour in our method (in comparison with CIT≥24 hours in other countries. Nearly 99 (88.5%) recipients from HBD had like live donor immediate diuresis shortly afterward(s) by irrigating kidney in harvested room and transplant them in the nearby room (Iranian Model). This results is approximately like live donor immediate diuresis and much better regard to western model of HBD kidney transplantation.

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USE OF INTRAVESICAL TEMPERATURE AS CORE BODY TEMPERATURE FOLLOWING KIDNEY TRANSPLANTATION AND COMPARISON WITH RECTAL, AXILLARY AND MEASUREMENT.
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Patients who undergo kidney transplantation take immunosuppressive drugs that make them susceptible to different infections. Since fever is one of prominent symptoms of infection, continuous measurement of temperature is very important. Patients who undergo kidney transplantation need urinary catheterization during and after surgical procedure, we can use temperature measurement catheters instead of general catheters in bladder, these intra vesical catheters can reestablish urinary drainage and measure temperature at time. The goal of this research is to find if there is any significant difference between intra vesical temperature, with, rectal and axillary temperature? In this study with statistically considerations 20 patients with kidney transplantation admitted in Kidney Transplantation center of Ghaem hospital, axillary, and intra vesical temperature were checked every 2 hours and rectal temperature was checked every 12 hours since the day after transplantation and analyzed until 4 days after transplantation and noted in a questionnaire. Analysis of data was done with SPSS, descriptive and analytic statistical methods. We used T-test, Pierson and ANOVA test in this research. According to ANOVA test it’s shown that because of P<0.001 there is a significant difference among these four methods of temperature measurement in first four days after surgery. But Pierson test shows that there is a linear and direct relation between intra vesical temperature and other three methods (Pierson number is +1 or very closes to +1). This research shows that despite significant statistical difference between intra vesical and other three methods, we can use intra vesical temperature as an appropriate criteria for body temperature measurement, because there is a linear and direct relation between this method and other three methods.

P 377
BLACK TEA IMPROVES ENDOTHELIAL DYSFUNCTION IN RENAL TRANSPLANT RECIPIENTS
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Endothelial function is impaired in renal allograft recipient. Immunological reaction, immunosuppressive therapy, hypercholesterolemia and hypertension by generating oxidative injury could destroy endothelial derived nitric oxide (NO). Antioxidant could reverse endothelial dysfunction and tea contains antioxidant flavonoid. Flow mediated vasodilatation (FMD) is an indirect way to estimate NO-dependent endothelial vasomotor function. To test this hypothesis that tea consumption could reverse endothelial dysfunction, we entered 15 (F 6/M 9, 24-50 years) stable renal transplant recipients (serum creatinin: 1.3+/-. 0.39 mg/dl). Whole blood cyclosporine levels and serum cholesterol levels were (244+/-.65 ng/ml) and (189+/-.43.3 mg/dl), all between 14-48 months after transplantation. Lipid lowering agent was stopped one week before the study. FMD of right brachial artery was measured by high resolution vascular ultrasound (7.5-MHZ linear-array transducer) at baseline and two hour after consumption of 10 gram black tea leaf, was brewed for 5 minutes with 0.5 liter water. All by one sonologist, after 8-12 hours fasting, in the morning. The day after basal FMD and two hour after consumption of 0.5 liter boiled water were measured again. Percentage of FMD increment in each condition was calculated. Brachial artery FMD improved from a base of 8.0+/-.3.8% (4.0+/-.0.49mm to 4.3+/-.0.47mm) to 14.0+/-.4.6% (4.0+/-.0.53mm to 4.6+/-.0.55mm) after tea consumption (P<0.05). FMD was not improved significantly after water consumption: basal FMD of 7.3+/-.3.8% (4.0+/-.0.49mm to 4.3+/-.0.44mm) increased to 7.6+/-.4.6% (4.0+/-.0.50mm to 4.3+/-.0.49mm), (P>0.05) Tea is a widely consumed beverage worldwide; this study demonstrates that short-term black tea consumption improves NO mediated endothelial dysfunction in renal transplant recipients. It could improve cardiovascular mortality and morbidity in these patients.
P 378
DENovo CROHN’S DISEASE IN A Renal Transplant ReciPient

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Prevalence of inflammatory bowel disease (IBD) post-renal transplant is affected by the immune tolerance and modality of immunosuppression used. Mycophenolate mofetil (MMF) may have a promoting effect in developing post transplant erosive enterocolitis and Crohn’s disease-like pattern of colitis. A 40 years old gentleman who developed end stage renal disease due to chronic glomerulonephritis and commenced on haemodialysis for two months till he received live unrelated renal transplant. He developed early post transplant diabetes mellitus and graft rejection which responded to methyl prednisolone pulse and OKT3 treatment. He was maintained on prednisolone, MMF and tacrolimus. Three years after transplant, he developed mild constitutional symptoms, mouth ulceration and chronic intermittent bloody diarrhea. Colonoscopy showed active segmental colitis with aphthous ulcers involving the proximal descending colon and the splenic flexure. Colonic biopsies showed distended and branched crypts in the ascending colon, moderate active chronic colitis with regenerative atypia, skipping appearance and ulceration in the splenic flexure and descending colon. Edematous crypts with ulceration in the sigmoid colon and rectum. Features were highly suggestive of Crohn’s disease. He was treated successfully with high dose steroids and 5-aminosalicylic acid. Subsequently, he developed chronic transplant glomerulopathy and restarted on haemodialysis. Denovo Crohn’s disease can develop in renal transplant recipients in spite of immunosuppressive therapy especially when MMF is used.

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DENovo Post-Renal Transplant InflammatOry BOWel Disease Successfully treated while on Mycophenolate Mofetil

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Prevalence of inflammatory bowel disease (IBD) post-transplant is affected by the immune tolerance and modality of immunosuppression used. Mycophenolate mofetil (MMF) may have a promoting effect in developing post-transplant IBD, Crohn’s disease-like pattern, in spite that MMF is reported to be a reasonable alternative in treating Crohn’s disease for patients who do not tolerate azathioprine. A 39 years old Omani gentleman had chronic renal failure due to advanced nephrosclerosis. He was on hemodialysis for 9 months till he received live unrelated renal transplant. He was on prednisolone, MMF and tacrolimus which is changed to sirolimus when he developed diabetes mellitus two months post-transplant. Five months post-transplant, he devel-
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**P 381**

**ASSESSMENT OF SEXUAL FUNCTION (LIBIDO, POTENCY, FERTILITY) IN PATIENTS BEFORE AND AFTER RENAL TRANSPLANTATION**

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Chronic renal failure may culminate into sexually disability, oligospermia, gerninal cells dysphasia, and delayed sexual maturity. After a renal transplant, improvement in these patients’ libido, potency, and orgasm are observed. This article attempts to evaluate libido, potency, and fertility in these patients. 100 male patients at Imam Reza Hospital in the renal transplant unit, who had or were going to undergo kidney transplant, were selected. The minimum age was 18 and the maximum was 61 with the mean ago of 38.6 years. Of these, 98% had been undergoing hemodialysis before the renal transplant and 2% peritoneal dialysis. 90 cases had received kidneys from unrelated living donors and 10 cases received kidneys from related living donors. After the transplantation 36 cases received double drug therapy and 64 had triple drug therapy. Out of 100 patients: 16 were single and 84 were married. Before the transplant the libido was good in 22 cases. 52 were moderate, and 26 poor. Potency was good in 31 cases, moderately good in 48, and poor in 21 cases. After the transplant the libido improved, 76 cases were good, moderately in 16 and poor in 4 cases. Fertility improved and in 27 cases conception culminated into a live birth. Prior to the transplant 15 patients had no children. Kidney transplants not only improve and increases the quality of life and health of patients with chronic renal failure which compromises the libido, potency and fertility but also improves libido, potency, and fertility and this may bring more satisfaction couples

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**PERCUTANEOUS NEPHROLITHOTOMY IN TRANSPLANTED KIDNEY STONE**

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Renal stone in transplanted kidney is uncommon. Renal stone is seen in less than 1% of transplanted kidneys. In our hospital there were 400 renal transplantation in 9 years, of whom, 3 (3%) developed renal stone in transplanted kidney 3.2.5 and 1.5 years after transplantation. The stone was passed in first patient spontaneously. The renal stone of second patient was treated with ESWL. In third patient two sessions of ESWL was unsuccessful and the stone was treated with PNL. Stone in transplanted kidney can produce severe hydrourter and anuria in some cases. It may be few clinical symptom initially. We recommended non invasive procedures (hydration and ESWL) in stones of transplanted kidney. PNL and open surgery are reserved for refratory cases.

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**PROTRACTED FEBRILE MYALGIA SYNDROME IN A RENAL TRANSPLANT RECIPIENT WITH FAMILIAL MEDITERRANEAN FEVER**

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Drug induced toxic myopathy is repeatedly reported in familial Mediterranean fever (FMF) patients receiving cyclosporine (CsA) and colchicine combination. Protracted febrile myalgia syndrome (PFMS) is a severe form of FMF which may need aggressive treatment including high dose of steroids. A 34 years old male who is known to have FMF for more than 15 years. He developed renal failure due to secondary amyloidosis. He was on hemodialysis for 6 months till he received live unrelated renal transplant which is functioning normally. There were no acute attacks of FMF for 3 years before transplantation. He was on 0.5 mg colchicine once daily which was continued after transplantation. His immunosuppressive regime was antithymocyte globulin as induction and prednisolone, mycophenolate mofetil and CsA as maintenance therapy. After 2 months he presented with severe myopathy and muscle biopsy showed evidence of toxic myopathy most likely due to cyclosporine when it was initiated in addition to colchicine. CsA was changed to sirolimus and colchicine was stopped. He was gradually improving apart from residual chronic myalgia requiring analgesics. Prednisolone dose was reduced gradually to 5 mg daily. Eight months posttransplant he was readmitted with severe arthralgia, prolonged fever, pleuritic pain, diffuse abdominal pain, macroscopic hematuria, proteinuria and diarrhea. All investigations for infections, internal malignancy, hyperparathyroidism and rheumatic diseases were negative other than high C-reactive protein (192mg/l) and erythrocyte sedimentation rate (120mm/hour). The clinical diagnosis was acute attack of FMF presenting as PFMS as he was not receiving colchicine for 6 months. In spite of the history of toxic myopathy 6 months earlier he was challenged with colchicine as 0.5mg twice daily which was well tolerated. There was significant improvement of most of his symptoms within days and graft function continued to be normal. FMF may reactivate after renal transplantation if colchicine is discontinued and present as PFMS which responded to restarting colchicine in our case in spite of the history of toxic myopathy.
To study the effect of PTHb on the outcome of KT in 149 renal transplant patients done in our hospital between December 1998 and November 2004 with a follow-up of 1 year. Patients were divided in 2 groups: Group A (80 patients) with a PTHb below 10 and Group B (69 patients) with a PTHb of 10 or above. The 2 groups were similar regarding donor age, recipient gender and blood group, HLA AB/DR and CMV status compatibility between donors and recipients. However, there were more living related and female donors in Group A and older recipients with longer pretransplant dialysis duration in Group B. Maintenance immuno-suppression was comparable between the 2 groups but more patients in Group B received induction therapy due to more unrelated donors. Post-transplant transfusion needs, rate of acute rejection, rate and type of infections, creatinine blood levels at 1, 3 and 6 months, rate of slow and delayed graft function as well as the rate of post-transplant surgical complications and the 1-year graft and patient survival were comparable between the 2 groups. However, the length of hospital stay and the creatinine blood level at 1 year were higher in group B. The PTHb has no effect on the outcome of KT except for the creatinine blood level at 1 year. More follow-up is needed to evaluate its effect on long term.

To study the effect of Receiver Age (RA) on the outcome of Kidney Transplantation (KT) in 149 renal transplant patients done in our hospital between December 1998 and November 2004 with a follow-up of 1 year. Patients were divided in 3 groups: Group A (115 patients) with a RA below 50 years, Group B (21 patients) with a RA between 50 and 60 years and Group C (13 patients) with a RA of 60 years or above. All demographic, epidemiological, immunological, medical, and surgical data in this retrospective study were compiled and analyzed by SPSS11.0. Induction therapy and maintenance immunsuppression were comparable between the 3 groups. However, there were more diabetic patients in Group B. The RA seems not to be a major predictive value in our study. Good selection and pretransplant preparation of renal transplant patients are important factors for a better outcome.
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TRANSPANTATION OF ENBLOC CADAVERIC PEDIATRIC KIDNEY TO ADULT

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The shortage of cadaveric donors for renal transplantation has prompted to expand the criteria used for donor selection like cadaveric pediatric kidney. In addition there are some challenges to use pediatric kidneys because of technical complications, injuries due to hyperfiltration syndrome and survival rate. In this study we determined our results in transplantation of Enbloc pediatric kidneys to adults. From May 2001 to May 2005, 245 cadaveric kidney transplants have been performed in our hospitals. Seven enbloc kidneys were procured from marginal pediatric donors (age <5 years, donor weight <15 kg, high creatinine clearance and or kidney length <8 cm) which transplanted to adult recipients. Then patients followed for 3 to 24 months. Follow up included serum creatinine measurement, ultrasonography, DTPA scan, and MRI. One year graft and patient survival was 86%. Serum creatinine ranged between 0.8-1.9 mg/dl from 3 to 24 months postoperatively. Complications included ARF in 1 (managed by conservative therapy and dialysis for 2 weeks), renal vein thrombosis in 1 (treated by anticoagulation) and subcutaneous hematoma in 1 patient. There were no urologic complications like ureteral stenosis, ureteral leakage and lymphocele. Ultrasonography and MRI revealed significant growth in grafts during 3 to 12 month postoperatively. Pediatric enbloc kidney transplantation is a safe and suitable alternative graft for adult recipients. One year graft and patient survival are acceptable and complications rate is low.

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SALVAGE OF RENAL ALLOGRAFTS AFFECTED BY RENAL VEIN THROMBOSIS

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Allograft renal vein thrombosis is an uncommon but serious complication of renal transplantation. It usually occurs early after surgery but still it can occur at any time. *Mechanical factors (compression by haematoma, lymphocele, abscess -extension of isplateral dvt-kinking or angulation of renal vein) remain the most common aetiological factors. severe early rejection (especially vascular rejection), haemostatic defects are well known factors, rare causes like cyclosporine, ischaemic injury of venous wall are also reported. *the symptoms are non specific: Haematuria, proteinuria, sudden drop of uop, rise of s.creatinine, diagnosis is often delayed because of the non specific features and usg, renogram findings may resemble acute rejection or atrn. *early diagnosis and subsequent intervention gives the only hope to salvage these allografts. Materials, methods: The files of 680 recipients transplanted from 1993 in organ transplant center in kuwait were revised, seven incidents of r.v.t were recorded (biopsy-proven). Three were due to compoession by haematoma and one due to rejection and no obvious cause could be found in the remaining. Four allografts were removed and three could be salvaged by early surgical intervention, two of these fortunate patients are still dialysis free so far (4 years, 6 months). The incidence of rvt in our series is 1% we could salvage three cases of r.v.t by alert monitoring, early effective intervention. In the first case the patient was found to have a serious decline of uop in the day of operation after initial good dieuresis. Urgent renogram showed almost no perfusion of the allograft. Within 2 hours he was explored, perigraft haematoma evacuated, vasc. Anastomosis undone allograft reperfused, retransplanted, currently his s.creat. Stabilised around 350, with lower polar infarction since 2002. The second patient developed haematuria, oliguria on the 5th p.o day. Renogram showed no perfusion, exploration revealed r.v.t, the kidney was revascularised with implantation of a vein graft. the kidney was reperfused, biopsy showed rejection, she remained in atrn for 3 months and we had to remove this kidney. In the 3rd patient, the incident was in the 2nd p.o day when he developed haematuria, oliguria, renogram showed a delayed perfusion most probably 2ry to rvt, within 2 hours he was explored, no abnormality could be found except that the kidney was swollen, dusky, picked up soon after opening the wound. He’s dialysis free for 6 months so far, with s. creat. 500 biopsy showed atrn. conclusion: r.v.t is a grave complication of r.t.x., early diagnosis, intervention are the secrets of salvage. Mechanical causes are the most vulnerable to surgical correction. Early severe vascular rejection is a serious complication that my lead to r.v.t.

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LAPAROSCOPIC TREATMENT OF ADNEXAL MASS IN FEMALE KIDNEY TRANSPLANT PATIENTS

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Post-transplant sonograms in female recipients sometimes reveals unsuspected adnexal masses. Sonographically, these masses are difficult to distinguish from other post-transplant fluid collections, such as lymphocele, urinomas or abscesses and, consequently, further diagnostic evaluations such as transvaginal sonography is required. We had ten female kidney transplant patients with complain of adnexal mass. On further follow up four of them proved to be lymphocele, three resolved by contraceptive pill, 3 were excised surgically: 1 was hemorrhagic ovarian cysts, 1 was a follicular ovarian cyst and 1 was a paraovarian cyst. Laparoscopic surgery provides better evaluation and ideal surgical treatment. A coexisting gynecologic mass should be included in the differential diagnosis of a perinephric mass in female transplant recipients. Pre-transplant sonograms to identify or exclude occult pelvic masses in women may be of benefit in simplifying...
Nowadays, renal transplantation is the choice treatment in patients with renal failure. Cadaveric patients are the good candidates for these patients. In Mashhad, the first cadaveric renal transplantation was done in 2001 and before that year renal transplantation was done with alive related or unrelated donors. In this study we evaluate the results of graft and patient survival in these 3 groups. This is a descriptive study in Imam Reza Hospital from 2001 until 2003. 302 patients between 6-68 years old (164 male and 138 female) are divided into 3 groups (less than 18 years old, between 18-45 years old, more than 45 years old). 190 patients receive the kidney from unrelated donor, 46 from related and 66 from cadaver. 278 patients receive the kidney for the first time, 23 patients for the second and 1 for the third time. In this study, whatever is effective in graft and patient survival, is the age of patients and the first or second time of renal transplantation. Other factors such as gender, the history of diseases, and the kind of renal transplant (alive or cadaver) is not important in graft and patient survival. This study in 1 and 3 years results of renal transplantation has tended to show that there is no difference between the patients who receive the kidney from related, unrelated or cadaver. In brief, cadaveric patients in our country is a good resource of renal transplantation.

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RECURRENT MULTIPLE MYELOMA FOLLOWING RENAL TRANSPLANTATION

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Renal transplantation is generally not considered in patients with multiple myeloma (M.M.) because of their extremely poor prognosis but for patients in remission, it offers an alternative to dialysis. There are few reports of M.M. recurrence in kidney transplant recipients. We report a 57 year old white man with ESRD and Known multiple myeloma in remission who underwent Kidney transplantation. 18 months after transplantation in routine follow up; he was found to have elevated creatinin with no evidence of recurrence of myeloma in bone marrow aspiration. Renal biopsy was done; light microscopy and Immunoflorescence showed chronic scarring of the kidney due to cast nephropathy consistent with recurrence of multiple myeloma and repeat bone marrow aspiration after one week later confirmed this diagnosis. Review of the literature and prior studies suggest that it is reasonable to perform renal transplantation in patients with ESRD due to multiple myeloma in remission but large prospective studies would help to develop a strategy for prevention of multiple myeloma recurrence.

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DETERMINANTS AND CONSEQUENCES OF ELEVATED HOMOCYSTEINE LEVELS IN RENAL TRANSPLANT RECIPIENTS-A CROSS-SECTIONAL STUDY

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Hyperhomocysteinemia (HHcy) is considered as a risk factor for thrombosis and cardiovascular diseases. Its role in the prognosis of renal transplantation is not clear. In this cross-sectional retrospective and prospective study we evaluated (1) the prevalence of HHcy in renal transplant recipients (RTR), (2) its influence on thrombotic events and renal transplantation outcome, and (3) the determinants of HHcy. 382 Adult RTR on regular follow up (from June 2001 to June 2005) were selected irrespective of age, sex, donor, immunosuppression or duration after transplantation. After prior consent, fasting blood samples were collected for estimation of Hcy level and for various biochemical and hematological parameters. In addition, demographic details, important post-transplant events and outcome were collected retrospectively from hospital files and prospectively on follow up. HHcy was defined as Hcy level >15 μmol/L. Of 379 RTR with complete data, 253(65.5%) had HHcy. Age (p=0.001), cadaver donor (p=0.01), native kidney glomerulonephritis (p=0.002), low serum albumin (p=0.01), B12 (p=0.06), FA (p=0.05), and high serum creatinine (p=0.01) were associated with HHcy. Incidents of graft thrombosis (p=0.01), new episodes of CV events (p=0.02) and deep vein thrombosis (p=0.04) were significantly higher in RTR with HHcy. Subjects with HHcy also had lower five year patient survival (96% vs. 91%; p=0.10) and significantly poorer graft survival (94% vs. 78%; p=0.0004). When thrombotic events were included in a Cox proportional multivariate hazard ratio, the risk of death censored graft loss (HR 4.0, CI 1.8-9.0) and patient mortality (HR 4.1, CI 1.8-9.5) were significantly greater (p=0.001 and 0.001 respectively) in patients with HHcy. Prevalence of HHcy among RTR is 65%. HHcy is significantly associated with thrombotic events and poor outcome. High serum creatinine, low serum albumin, low B12 and folate levels were major determinants of HHcy.
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PERSONALITY ISSUES AND GENERAL HEALTH IN KIDNEY TRANSPLANTATION CANDIDATES
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The goal of this study was to evaluate personality issues and general health in kidney transplantation candidates. Of patients hospitalized in Baqiyatallah Hospital and Labbafinejad Hospital in 2002 waiting for kidney transplantation, 97 were selected by random sampling method. The data was collected using MMPI, GHQ-28 and a checklist of the patients’ demographic information, medical and psychiatric history. Considering MMPI validity standards, 80 patients were included in research, 43 of whom (53.7%) had at least one psychological disorder. According to the MMPI results, depression was the most frequent psychological disorder in patients. Based on GHQ, social functioning disorder was the most frequent symptom. The total score of abnormal GHQ was higher in women than in men (p<0.077) and also in those with a history of psychiatric advice seeking than those without this history. There was no meaningful relation between GHQ and age, marital status, education, positive kidney transplantation history and cigarette smoking (p>0.05). The results of this research suggest that paying attention to the psychological and general health in kidney transplantation candidates seems essential, especially in patients with depression and social function disorder. Also, patients have to be taken under more psychiatric surveillance when they are female, older, with a history of psychiatric advice seeking and with lower education.

P 394
THE EFFECT OF RENAL TRANSPLANTATION ON THE QUALITY OF LIFE OF THE HOMODIALYZED PATIENTS REFERRING TO URMIA CLIN/CLAL
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The study tries to investigate the effect of renal transplantation on the quality of life of dialyzed patients in Urmia. As prospective study needs a long time so the study was carried out case-controlled on 80 dialyzed and 80 transplanted patients randomly. The material of the study was a questionnaire including personal characteristics, type of disease and life quality in three different areas of physical, psychological and social relationships. The questionnaire was validated by doing α=0.9466 Cronbach. The questionnaire was filled by doing interview. From all the 152 patients, 9% reported their quality of life as bad, 44.9% as moderate and 46.2% as good. In the dialyzed group the percentage was as the following: 56.8% as bad, 40.5% as moderate and 2.7% as good. The mean of transplanted patients was 3.47 by 0.736 standard deviation. It was 2.23 by the standard deviation of 0.489 for the dialyzed group. The difference between the two was significant (p<0.0005). It is concluded that by doing transplantation, the life quality of dialyzed patients would improve. So it is strongly suggested that by doing cultural programs, the people should be persuaded to present their kidneys in case of serious brain damage. The spiritual and humanitarian sides of thee presenting a kidney must be emphasized too. In that case it is not necessary for dialyzed patients, to wait long for transplantation. Kidney transplantation will increase Quality of Life in these patients.

P 395
HYPERTENSION AFTER KIDNEY TRANSPLANTATION
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Hypertension is one of the common complication after kidney transplantation due to various etiology. Hypertension causes a accelerated atherosclerosis after transplantation and is a major factor for cardiovascular morbidity and mortality and chronic allograft failure. The aim of this study is evaluation of prevalence and effect of common risk factor before and after transplantation on post transplant hypertension. All of the patients had visited one or two monthly in first year after transplantation and history and physical examination and necessary laboratory measurements were done. Blood pressure equal or more than or every degree of blood pressure with concomitant use of antihypertensive drug was the definition of hypertension. Correlation of risk factors include age and gender of donor and recipients, recipient weight, hypertensive kidney transplantation candidates seems essential, especially in patients with depression and social function disorder. Also, patients have to be taken under more psychiatric surveillance when they are female, older, with a history of psychiatric advice seeking and with lower education.

Department Of Kidney Transplantation, University Of Medical Sciences, IRAN.

The study tries to investigate the effect of renal transplantation on the quality of life of dialyzed patients in Urmia. As prospective study needs a long time so the study was carried out case-controlled on 80 dialyzed and 80 transplanted patients randomly. The material of the study was a questionnaire including personal characteristics, type of disease and life quality in three different areas of physical, psychological and social relationships. The questionnaire was validated by doing interview. From all the 152 patients, 9% reported their quality of life as bad, 44.9% as moderate and 46.2% as good. In the dialyzed group the percentage was as the following: 56.8% as bad, 40.5% as moderate and 2.7% as good. The mean of transplanted patients was 3.47 by 0.736 standard deviation. It was 2.23 by the standard deviation of 0.489 for the dialyzed group. The difference between the two was significant (p<0.0005). It is concluded that by doing transplantation, the life quality of dialyzed patients would improve. So it is strongly suggested that by doing cultural programs, the people should be persuaded to present their kidneys in case of serious brain damage. The spiritual and humanitarian sides of thee presenting a kidney must be emphasized too. In that case it is not necessary for dialyzed patients, to wait long for transplantation. Kidney transplantation will increase Quality of Life in these patients.
P 396
STUDY OF CHANGES IN HYPOXANTHINE AND XANTHINE CONCENTRATION IN RENAL VEIN BLOOD AFTER VASCULAR ANASTOMOSIS IN KIDNEY TRANSPLANTATION AS A PREDICTOR OF DGF

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End stage renal failure has many causes and the best treatment for this condition is kidney transplantation. DGF is one of the numerous complications of kidney transplantation. Many etiopathogenic exis-
es have been presumed that the effect of ischemia and reperfusion is one of them. In this study we try to assess the ability to predict DGF with measurement of hypoxanthine and xanthine concentration in transplanted kidney blood vein. From march 2004 to September 2005; we carried out renal vein blood sampling during transplantation in 47 patient. After measurement of purine metabo-
lites with HPLC in blood samples, the metabolite rise or not with respect to baseline level was evaluated. All patients were fol-
lowed for the next 5 days. Each patient was then assigned in one of the metabolite increased or not increased group and then the relationship between purine metabolite rise with DGF and other related factors (recipient and donor age, operation time, anasto-
mosis time, vascular reclamping) was assessed with fisher’s exact test. 30 male (%63) and 17 female (%37) patients with mean age 34/8 year were studied. In 17 patients the purine metabolite raised and in other 30 patients no change were noticed. These changes were significant only about hypoxanthine (Mean increase 1/28mg/l ± 1/57mg/l in the rised group in comparison with –0/32mg/l ± 4 in no change group, P=0.001). In the rised group, 5 persons (%29/4) and in not rised group 3 persons (%10) developed DGF but in analytical assessment no relationship was found between two variable (P= 0/118) Among the other effective factors in development of DGF, only the anastomosis time had sig-
ificant relationship with increase in metabolite level. (Mean time 40 min ± 7/37 in the other group, P=0/035).Although cold ischemia for short period during kidney transplantation can increase serum hypoxanthine level; this increment is not a marker of sever ischemia. In this study we could not give a precise conclusion about the sign-
ificance of duration because this condition was not observed in our study. This might be due to several factors. For predicting DGF con-
sidering factors like reclampling of renal vessels during transpla-
tation and urine flow after vascular anastomosis are better indicators.

P 397
TB AFTER KIDNEY TRANSPLANTATION

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Infections after kidney transplantation, especially TB increase mortality and morbidity. The aim of this study is evaluation of prevalence of TB after kidney transplantation in Ghaem hospital of Mashad (IRAN). In a prospective study 508 patients from 1986 to 2003 were included for evaluation of TB after kidney transplantation. In the fever or pulmonary symptoms and etc... complete investigation including sputum smear, chest x ray and etc... were performed. Then relation between sex, age, kind of dialysis and time of diagnosis of TB were investigated. From 508 patients 58 patients (11.4%) before operation had positive PPD test (more than 10 mm) and from these patients only 1 patients developed TB and in 450 patients with neg-
ative PPD test 8 patients (1.77%) developed TB which had no sig-
nificant relation (p>0.05). 432 patients (85%) were on HD and 76 patients (15%) were on PD and all of our TB cases were seen in HD patients. 9 patients developed TB after transplantation (1.75%) which in 5 cases were in pulmonary and in 2 cases in pleural cavity and in 1 case in lymph node and in 1 case in native kidney. 55% of TB cases were seen in first year of transplantation and 33% in second year. In 33% of TB cases before TB presentation we had episodes of acute rejection and in other hand 22% of TB cases after beginning of anti-TB treatment had rejection episodes. 1 patient died because of severity of pulmonary disease with no response to treatment. TB after transplantation increase mortality and morbidity.

P 398
OUTCOME OF KIDNEY TRANSPLANTATION IN THE SEROPOSITIVE HTLV1 RECIPIENTS

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To evaluate the safety and complication of kidney transplantation in seropositive HTLV1 recipients. From December 1998 to September 2005, 536 recipients underwent kidney transplantation in our center. 340 patients were male and 196 female. 510 patients received their graft from living donor and 26 from cadav-
er. Four recipients (0.74%) were seropositive HTLV1 that entered the study. In 3 patients it was for the first time and in 1 patient for the second time such procedure was done. Patients were 35-53 years old (mean 42 years). Two patients (50%) were male and 2 were female (50%). Follow-up was done for 5-76 months (mean 30 m.). Blood group in 3 patients was A+ and in one B -. Immuno-suppression therapy consist of cyclosporine, mycophenolate mofetil, prednisolon and cyclosporine, aza-
thioperine and prednisolon were used in 3 and 1 respectively. Any of patients developed ATL after surgery and none of patients had graft dysfunction, graft loss or other complication associated with HTLV1. In one patient (25%) large lymphocele developed that managed by opening a window into the peritoneum with open surgery. Kidney transplantation is safe in HTLV1 seropositive recip-
ients despite relatively long term immunosuppression therapy.
According to important role of post transplant DM (PTDM) and its complications and in prognosis of kidney transplantation, we tried to study the incidence of this problem and to determine its risk factors. The study included 50 patients of renal transplant candidates population between October 2004 and October 2005. Diabetes cases excluded. Pretransplant glucose tolerance test (GTT1) were performed and was repeated 2 months after transplantation (GTT2). Also existence of the following factors were evaluated: Body mass index hypertension, hyperlipidemia, history of DM in first degree relative and the form and duration of pretransplant dialysis. All patients received CSA and esteroid and MMF or Immuran after transplantation. 13 of 50 patients demonstrated hidden DM (26%) that were discovered by GTT1.6 patients developed new onset DM after transplant (16%). All of these had abnormal glucose tolerance before transplant. Statistical analysis revealed significant relation between age and glucose tolerance test impairment (P=0.009). Also this problem was more prevalent in patients with longer duration of disease, history of DM in relative, hyperlipidemia and over or under-weight, but statistical values were not significant. GTT is more sensitive than FBS in renal transplant candidate as a screen test. Many factors such as age, malnutrition, hyperlipidemia, history of DM in relative and obesity increase the risk of PTDM.

Preoperative evaluation of pulmonary functions is necessary in renal transplantation candidates. Exercise capacity determined by peak oxygen uptake (peak VO2) is a predictor of perioperative mortality and survival. The aim of this study was to determine the factors associated with peak VO2 in renal transplantation candidates undergoing hemodialysis. Thirty chronic renal failure patients undergoing hemodialysis, waiting for renal transplantation (age, 40.2 ± 10.3 years; female/male, 14/16; dialysis vintage, 133.1 ± 63.3 months), were included in the study. None of the patients had signs or symptoms of active infection and inflammation. Each patient underwent pulmonary function and symptom-limited cardiopulmonary exercise tests. Despite the absence of clinically evident inflammation, to assess comorbidity and risk of atherosclerosis, a malnutrition inflammation score was performed for each patient by same physician. Demographic and laboratory parameters were obtained from hospital records. Peak VO2 was positively correlated with serum triglyceride level (r: +0.543, P = .07) and negatively correlated with serum ferritin level (r: -0.452, P = .03) and malnutrition inflammation score (r: -0.455, P = .029). In conclusion, peak VO2 is associated with markers of nutrition and malnutrition inflammation score. We suggest that chronic malnutrition and silent inflammation may be responsible for the preoperative decreased exercise capacity in renal transplantation candidates undergoing hemodialysis.

The growing shortage of cadaver kidneys available for transplantation (Tx) compared to the increasing demand has led to an increase in the acceptance of living unrelated donors by the transplantation community. This is a retrospective study of the results of renal transplantation from live unrelated donors (LURD). Between November 1993 and May 2006, 678 kidney transplantation procedures were performed, of these 227 (33.5%) grafts were obtained from live unrelated donors [185 altruistic and 42 emotionally related]. Recipients were 170 males (75%) and 54 females (25%), aged 22 to 56 years. Altruistic donors were interviewed by, and satisfied, a special committee with their motives. Induction therapy was with ATG or simulect. The medical records of all LURTx recipients were retrospectively reviewed. LURDs were followed up regularly, with no mortality or significant morbidity. All of them enjoy normal kidney function, are fully rehabilitated, and back to work. In recipients, 63 instances of surgical complication (27.7%) were detected, and were in the form of 35 pere-graft collection (lymphocele or haematoma), 20 wound related, 7 urological problems, and one vascular thrombosis. PostTx malignancy was diagnosed in four recipient (three PTLD and one rhabdomyosarcoma of urinary bladder). Nine recipients died with functioning graft at 5 days to 13 months after Tx, with one and ten years actuarial recipient survival of 97% and 96% respectively. Another six grafts were lost at 7 days to 48 months giving actuarial graft survival of 95% and 93% at one and ten years respectively. These results are comparable to those obtained in living related transplantation and superior to those in cadaveric transplantation. Providing guaranteed altruism and absence of commercialization, LURD represent a viable and important source of kidneys for Tx, in view of; (1) the excellent recipient and graft survival rates, and (2) the negligible donor mortality and morbidity.
Vascular complications are common after renal transplantation. In this study, correlation between Doppler sonographic indexes and transplant kidney function was evaluated. In our renal transplant unit, 244 renal transplanted patients’ data were reviewed. Doppler sonographic evaluation was done after renal transplantation during the first week of hospitalization period, in all of the cases. Resistive index (RI), pulsatility index (PI) in interlobar arteries, thrombosis of renal and lower limbs veins were determined. Serum creatinine (Cr) and serum cyclosporine levels were evaluated frequently during hospitalization. The mean age of patients was 36.50±13.33 years (142 males and 102 females). Prevalence of renal artery stenosis was 9.5%. In the patients with transplanted renal artery stenosis mean serum Cr level (2.21±1.83 mg/dl) was significantly higher than in the patients with patent renovascular tributary (1.49±1.00 mg/dl; P=0.03). RI and PI also had significant liner correlation with serum Cr (P=0.05 and 0.001 respectively). There was no relationship between cyclosporine level and panel reactive antibody with RI and PI. Re-transplanted patients had higher RI than the first renal allograft recipients (0.72±0.16 vs. 0.63±0.11; P=0.006). Serum Cr level was higher in the renal allograft recipients with Doppler evidence of thrombosis of lower limbs veins (3.1±0.98 mg/dl) than the normal recipients (1.56±1.13 mg/dl; P=0.04). RI and PI are two valuable Doppler sonographic markers for determining of renal allograft function and related vascular.

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Cardiovascular disease is a leading cause of death after renal transplantation (RTx), and the incidence is considerably higher than in the general population. Analysis of atherosclerotic cardiovascular diseases (coronary artery disease, cerebral and peripheral vascular disease) and cardiovascular risk factors before and after transplantation in 500 renal transplant recipients between 1988 and 1992 (mean age at transplantation 45 ± 12 years, 58% male, 7% diabetics). Following RTx 11.7% developed atherosclerotic cardiovascular diseases, the majority coronary artery disease (9.8%). The comparison of risk factors before and after transplantation showed: The prevalence of systemic hypertension (from 67% to 86%), diabetes mellitus (from 7% to 16%) and obesity with a body mass index >25 kg/m2 (from 26% to 48%) had increased significantly whereas the number of smokers halved to 20%. The triglycerides decreased significantly (from 235 ± 144 mg/dl to 217 ± 122 mg/dl). The total and HDL cholesterol rose significantly (from 232 ± 65 mg/dl to 273 ± 62 mg/dl and from 47 ± 29 mg/dl to 56 ± 21 mg/dl, respectively). The LDL cholesterol increase was insignificant (from 180 ± 62 mg/dl to 189 ±53 mg/dl). In the univariate analysis, cardiovascular diseases were significantly associated with male gender, age over 50 years, diabetes mellitus (DM), smoking, total cholesterol >200 mg/dl, LDL cholesterol >180 mg/dl, HDL cholesterol <55 mg/dl, fibrinogen >350 mg/dl, body mass index >25 kg/m2, and more than 2 antihypertensive agents per day. The treatment of the risk factors must be effective and introduced early in the course of renal failure, further, they must be continued following transplantation.
Hypertension accelerates the deterioration of the function of transplanted kidney. Aggressive control of blood pressure is recommended in post-transplant period when maintenance levels of the immunosuppressive drugs are achieved. The aim of this study was to compare the transplanted kidney function in two groups of the hypertensive patients matched for age, sex, early post-transplant course, standard triple immunosuppression and hypotensive therapy during 3 years of follow-up. The mean through-levels of cyclosporine A in whole blood were similar in both groups and did not exceed 185 ng/ml. Group 1 consisted of 98 patients with satisfactory blood pressure (BP) control (arterial pressure below 160/90 mmHg) and group 2 consisted of 98 patients with unsatisfactory BP control. Slow but significant increase of the mean creatinine levels was observed in group 2 during 3 years of follow up, whereas in group 1 graft function remained stable. Cardiovascular events were observed only in group 2–stroke in one patient and death because of heart failure in one patient. Factors which correlated with development of post transplant hypertension were age, sex, duration of disease before transplant and underlying disease.

**P 406**  
**INFLUENCE OF PERIOPERATIONAL ACID-BASE BALANCE DISORDERS ON GRAFT EARLY FUNCTION IN KIDNEY TRANSPLANTATION**

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The study’s purpose was analysis of influence of acid-base balance disorders during 30 minutes of reperfusion and during 4 hours after operation on graft early function in patients after kidney transplantation. The examined group consisted of 44 recipients: 20 men, 24 women in average age 47±14 years. The blood sample for gas analysis was taken 9 times during operation using catheter placed in arteriovenous fistula 0, 1, 3, 5, 10, 15, 20, 25, 30 minutes after unclamping renal vessels. The evaluation of temporary acid-base balance state was made on the basis of common parameters: pH, pCO2, [HCO3–], BE. Examined patients were in general anesthesia with stable external conditions (O2 saturation, heart rate, blood pressure, temperature), also with constant tidal volume and rate. Parameters were recorded using Ohmeda and Dräger apparatus and Corning analyzers. Evaluation of graft function was based on amount and start of urine output as well as serum concentrations of creatinine, urea, uric acid and ions (Na, K). Parameters were analyzed during postoperative hospitalization and during 1-year observation period. Additional parameters like blood morphology, urinalysis, serum concentration of glucose, aminotransferases, ions (Cl, Ca, P) were also taken into consideration. The analysis showed increasing parameters of metabolic acidosis with compensatory blood pCO2 growth. Some alterations in vital parameters were observed, especially heart rate and blood pressure. Postoperative acid-base balance was also characterized by metabolic acidosis corresponding with initial state and course of reperfusion. Examination of graft condition and its function showed that dynamics of peroperative acid-balance disorders may play a role of delayed graft function risk factor. The amount of decreasing [HCO3–] may be the indicator of post-reperfusion kidney injury, which influence early and late graft function.

**P 407**  
**POST TRANSPALATION LYMPHOPROLIFERATIVE DISORDERS IN RENAL TRANSPLANT RECIPIENTS: REPORT OF OVER 20 YEARS OF EXPERIENCE**


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Renal Transplantation(RT) in patients with end-stage renal disease can improves survival rates and quality of life. Despite the benefits of immunosuppressive medications in improving graft survival, they may have adverse effects such as development of neoplasms in transplant recipients. Post Transplantation Lymphoproliferative Disorders (PTLD) however is not uncommon complication after renal transplantation; we conducted a study to evaluate patients with PTLD. We enrolled 2117 RT recipients from jun 1984 to Mar2004 in order to finding evidences of neoplasms in pathologic and clinical findings and data from patients with PTLD among them was reviewed illustratively. All exept two patient with PTLD were treated with cyclosporine. There was 46 RT recipients with different types of Neoplasms among those the most common types were skin neoplasms (24 cases; kaposi’s sarcoma 15 cases) and PTLD (14 cases, 30.4%). Mean (±SD) Age of PTLD patients at the time of transplantation was 37.86±9.67 years and 42.8 percent were females. Median and mean(±SD) time from RT to PTLD diagnosis were 38.5 and 50.35±41.7 months, respectively (from 1 to 146 months). Types of PTLD in these patients were: kidney (14.3%); GI (14.3%), Brain, Tonsils, palpate, Hodjkin’s, Large cell Lymphoma and All (each one 7.1%) and 28.6% undefined as unspecific type. The one, five and ten year patients survival after transplantation were 71.4, 51.4, 44.3 percent respectively. Despite discontinuiving immunosuppressive therapy of PTLD patients among survived patients over the time (6 of 14), in 5 survived patients, the graft was active up to mean time of 105±57.6 months after transplantation. Our findings showed that the prevalence of PTLD after RT is 0.66 percent, less than
other reports of western countries. The fact that there was sur-
vised grafts despite discontinuing the immunosuppressive thera-
py up to a considerable time is of importance to notify.

**P 408**

LACKING OF CORRELATION BETWEEN RENIN-ANGIOTENSIN SYSTEM POLYMORPHISMS AND PANEL-REACTIVE ANTIBODIES IN RENAL TRANSPLANT RECIPIENTS

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The present study evaluates correlation of renin-angiotensin system (RAS) polymorphisms with the level of panel-reactive antibodies (PRA) in renal transplant recipients. 108 renal transplant recipients including 42 (38.9%) females and 66 (61.1%) males were enrolled to the study. The current patients’ sera were screened by standard complement-dependent microlymphocytotoxicity technique. RAS polymorphisms composed of angiotensin-converting enzyme (ACE I/D), angiotensinogen (AGT M235T), and angiotensin II receptor type 1 (ATR1 A1166C) were determined by polymerase chain reaction. PRA<10, 10-29, 30-49, and ≥50 considered as negative, mild, moderate, and severe positive PRA, respectively. Statistical analysis was done by SPSS for windows 11.0. Values were expressed as mean±SD; P<0.05 was considered significance. Twelve (11.1%) patients had positive PRA, among of them 10 (83.3%) had mild and 2 (16.7%) of them had moderate PRA levels, we had not sever positive PRA. Ninety-six of cases (88.9%) were negative for PRA. There was no significant relationship with PRA and parameters including of age, gender, hemodialysis longevity, history of blood transfusion, causes of ESRD, pregnancy and blood groups (P>0.05). The frequencies of RAS polymorphisms were: 31.5% DD and 64.8% non-DD genotype for angiotensin-converting enzyme (ACE); 27.8% TT and 68.5% non-TT genotype for angiotensinogen (AGT); 5.6% CC and 90.7% non-CC for angiotensin receptor type 1 (ATR1). There was no significant correlation between discrete RAS polymorphisms (alone or together) and the degree of panel antibody reactivity (P>0.05). We suggest that none of the RAS polymorphisms could predict the positivity degree of PRA level.

**P 409**

PREVALENCE AND IMPACT OF HYPERURICEMIA ON THE OUTCOME OF RENAL TRANSPLANT RECIPIENTS


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Hyperuricemia and gout are common metabolic and rheumatologic disorders among renal transplant recipients which may affect the graft outcome. To determine the prevalence of hyperuricemia and gout and correlation with various predisposing factors. We retrospectively analyzed the data from the medical records of 455 patients who had undergone renal transplantation in our center between 1998 and 2004. Follow up period was at least two years and patients with serum creatinine level <200 umol/l were included. Related demographic features and risk factors were studied every almost 6 months. Equal number of patients with same demographic features and normal serum uric acid level were taken as control. There were 40 patients with persistent hyperuricemia (8.7%) which were mainly adults (92.5%) and males (75%). Most patients were on cyclosporine (90%) and mycophenolate mofetil (80%). The incidence of hypertetension was 92.5% and calcium channel blockers were the most frequently used anti-hypertensive (75%) which was significantly different than the control group (p 0.05%). Patients receiving diuretics were 12.5%. Patients treated with atorvastatin had significantly less hyperuricemia (p 0.007) compared with others treated with simvastatin. None of these patients had gouty arthropathy and only 2.5% required uricosuric drugs. Acute rejection was reported in 32.5% out of which 70% were steroid resistant while biopsy proven chronic allograft nephropathy was detected in 10% of these patients. There were significant correlation between hyperuricemia and obesity and graft dysfunction during long term follow up.

Hyperuricemia is a clinical problem in post renal transplant recipients which is strongly correlated to type of immunosuppression, hypertetration, obesity and certain drugs. It has an impact on the long-term outcome of the renal graft.

**P 410**

OSTEONECROSIS AFTER RENAL TRANSPLANTATION

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The avascular osteonecrosis (AVN) is a serious osseous complication after renal transplantation. Its prevalence clearly decreased from 20 to 4 % after introduction of the cyclosporine and the reduction of the steroid doses. The aim of our study is to evaluate the frequency of the AVN among our kidney transplant recipients and to determine the risk factors by comparing them with a population without AVN. Among the 326 kidney transplant recipients between June 1986 and December 2004, fifteen patients developed an AVN (group I) with mean age: 40.86 years, they were 11 men and 4 women. Fifteen kidney transplant recipients without AVN matched for age, gender and date of transplantation were selected (group II). Cases of symptomatic AVN were diagnosed by hip radiographs, radioisotope bone scan or magnetic resonance imaging. The AVN was diagnosed 3 years after transplantation (range: 6 months – 13 years). The main localisation of the AVN is the fem head in 12 cases and the fem condyle in 3 cases. We studied the following risk factors: The type of donor (cadaveric or living donor), the time between beginning of dialysis and transplantation, the cumulative steroid dose, the number of acute rejection episodes, and the post transplantation...
weight gain. The statistical analysis showed that the acute rejection episodes were higher in group I than group II (p=0.05) and the cumulative steroid dose was higher in group I (p=0.04). The prevalence of the AVN in our population is 4.6%; it is probably underestimated since they are asymptomatic cases. The reduction or early withdrawal of steroids remains the only efficient preventive treatment.

P 411
PREOPERATIVE AND POSTOPERATIVE CD30 FOR PREDICTION AND DIAGNOSIS OF ACUTE KIDNEY ALLOGRAFT REJECTION

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To evaluate serum levels of CD30 for prediction and diagnosis of acute kidney allograft rejection. Prospectively, we measured serum levels of CD30 before kidney transplantation (initial CD30), 3-5 days postoperatively (postoperative CD30), and at creatinine rise episodes. The predictive value of CD30 for diagnosis of AR within the 6 postoperative months was assessed in 203 patients. Serum levels of the initial and postoperative CD30s were 58.10 ± 52.55 mg/dL and 51.55 ± 49.65 mg/dL, respectively (P=.12). Twenty-three patients experienced biopsy-proven acute rejection, 28 had acute allograft dysfunction due to non-immunologic diseases, and the remaining 152 had normal creatinine levels. The initial CD30 was not different between patients with and without AR (P=.77). Multivariate analysis demonstrated that postoperative CD30 was associated with AR (86.46 ± 80.01 mg/dL in AR positives versus 47.10 ± 42.65 mg/dL in AR negatives; P=.03). The sensitivity and specificity of postoperative CD30 >41 mg/dL were 70% and 60%, retrospectively (area under the curve =0.68; 95% confidence interval =0.57-0.80). Although CD30 at creatinine rise was higher in patients with AR than those with other causes of creatinine rise, the reverse correlation of the time of creatinine rise with AR and CD30 precluded the evaluation of the CD30 measured at this time. Posttransplantation CD30 levels are higher in patients with acute rejection, but its clinical value requires further investigation. To elucidate the diagnostic value of CD30, we should better understand factors that influence this marker postoperatively.

P 412
KIDNEY TRANSPLANTATION IN LIBYA: A NORTH AFRICAN AND MIDDLE EASTERN PERSPECTIVE

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In August 2004, a national organ transplant program utilizing the latest policies, procedures, and protocols was begun in Libya. During the first year of the program, 50 kidney transplantations from living donors were performed. Forty-nine patients (aged 7 to 65 years) received kidneys from living-related donors (aged 19 to 54 years), and 1 husband received a kidney from his wife. Donor selection was based on human leukocyte antigen compatibility. Renal failure was due to chronic glomerulonephritis in most patients, diabetes in 5 adults, systemic lupus erythematosus in 2 adults, and congenital anomalies in 2 children. Sixteen patients matched the human leukocyte antigens of their donors, 28 matched 1 haplotype, and 6 did not match any haplotype. Immunosuppression was accomplished with methyl-prednisolone and basiliximab. Maintenance therapy was with mycophenolate mofetil, cyclosporine and prednisone. The latter was completely discontinued 1 month after transplantation. In patients with resistant hypertension, unilateral native nephrectomy was carried out during transplantation. Donor nephrectomy was performed through an open mini-incision using a Thompson retractor. 49 patients are alive and well, and 48 of them have had functioning kidneys for 10 to 22 months. Three patients had acute rejections that were successfully treated with methylprednisolone (n=1) or methylprednisone (n=2). All 46 patients and 2 pediatric recipients have excellent renal function and are living normal lives.

In terms of patient survival and quality of life, transplantation is superior to dialysis. Also, transplantation is less expensive than dialysis. In Libya, establishing an active and successful transplant program with early steroid withdrawal has brought many benefits to patients and their families and great savings to the government. Our program hopefully will provide a model for similar programs in Asia and Africa and encourage local governments to legalize organ procurement from cadaveric donors.

P 413
THE EFFECTS OF RENAL TRANSPLANTATION ON SERUM FREE AND TOTAL PSA LEVELS

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This study was undertaken to evaluate the effects of renal transplantation on serum level of free and total PSA. In this study we included 30 male patients with a mean age of 46 years (range 25 to 67) with ESRD undergoing renal transplantation at our department. None of the patients had any history of prostate cancer. All patients had immediate onset of renal function after transplantation, defined by a spontaneous decrease in serum creatinine on postoperative day 1 and a subsequent decrease daily during week 1. Renal transplantation included living related donors in all patients. Blood samples were obtained before and at sixth day after transplantation before removal of Foley catheter. Measurements of fPSA, total PSA were performed with immuno-fluorometric assays. Glomerular filtration rates were monitored by analyzing serum creatinine. The significance of changes with time was estimated by the Wilcoxon signed ranks test for paired observations with p <0.05 considered statistically significant.: The
mean free and total PSA levels before transplantation were 0.22 (range 0.00 to 0.4) and 1.5 ng/ml (range 0.1 to 2.9) respectively. There was significant decrease (30% of original levels) in serum fPSA at sixth day after transplantation (p <0.05) in all patients. There was no significant changes at sixth day after transplantation. These results verify the hypothesis that fPSA is eliminated from the blood circulation by glomerular filtration and severe renal failure influences its levels. So we should consider different cutoffs for free to total ratio before and after renal transplantation.

P 414
PELVIC NERVES NEUROPATHY FOLLOWING KIDNEY TRANSPLANTATION

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To study the prevalence of femoral and lateral cutaneous nerves sensory and/or motor disturbances after kidney transplantation, and the relation with different factors e.g; age, sex, diabetes, hypertension and graft function.

From April 2001-March 2002, 129 patients were undergone kidney transplantation in Kidney Transplantation Unit, Sina Medical Centre. 10 patients were excluded due to preoperative sensory disturbances. The prevalence of sensory and/or motor disturbances preoperatively by physical examination, and postoperatively by both physical and electromyography examination were evaluated. The clinical findings were correlated with the following risk factors; age, sex, preoperative dialysis duration, background diseases e.g; diabetes and hypertension, graft weight and nephron mass index, operation and retraction time and rejection episodes.

Among 119 patients, at 1-9 days postoperatively, 31 (26%) suffered from lateral cutaneous nerve of thigh neuropathy and 4 (3.3%) were suffered from femoral neuropathy. No meaningful relation between the neuropathy incidence and above risk factors was found. The probability of neuropathy was more in diabetics, hypertensive, female sex and those with graft rejection episodes. All of these complains were temporary.

Post kidney transplantation femoral and/or lateral cutaneous nerve neuropathy is a prevalent complication and is more evident in diabetic, hypertensive and female patients. Also neuropathy is more evident in graft rejection. More attention for like patients should be given.

P 415
MICROCHIMERISM AND RENAL TRANSPLANTATION: DOUBT STILL PERSISTS

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The Presence of donor leukocytes in recipients of organ allografts has been shown several years after transplantation. However, it remains unclear whether this donor cell microchimerism plays an effective role in allograft acceptance or is simply a consequence of immunosuppression condition in recipients. In this study we retrospectively evaluated the Peripheral Blood Microchimerism (PBM) after renal transplantation in 32 male-to-female recipients of living (unrelated) and cadaveric donor renal transplants. Using a nested Polymerase Chain Reaction (nested-PCR) amplification specific for SRY region of the Y chromosome microchimerism was detected with sensitivity up to 1:100000. According to the presence of PBM recipients were classified into microchimeric and nonmicrochimeric groups, and then acute and chronic rejection episodes, type of allotransplant (living or cadaveric donor), recipient and donor age at transplantation, previous male labor or blood transfusion, allograft function (serum creatinine level), post-transplant period duration, and body mass index were compared between two groups. Among 32 recipients 7 were positive for PBM in multiple testing at different post-transplantation times. All microchimeric recipients had been received kidney from living-unrelated donors. The mean age of microchimeric group was 36.3±10 year vs. 36.3±11.9 year in non-microchimeric group, the mean transplantation duration was 73±29 month vs. 48±23 month (P-value<0.02), the mean serum creatinine level was similar in both groups 1.07±0.4 mg/dl vs. 1.07±0.38 mg/dl, BMI was 24±5 kg/m2 vs. 23±3.8 kg/m2, 5(71%) of microchimeric patients had history of blood transfusion vs. 19(76%) patients among non-microchimeric group, the mean transplantation duration was 73±29 month vs. 48±23 month (P-value<0.02), the mean serum creatinine level was similar in both groups 1.07±0.4 mg/dl vs. 1.07±0.38 mg/dl, BMI was 24±5 kg/m2 vs. 23±3.8 kg/m2, 5(71%) of microchimeric patients had history of blood transfusion vs. 19(76%) patients among non-microchimeric group, the history of male labor was 6(85%) vs. 12(48%) P-value>0.05 respectively. Regarding to all parameters mentioned above significant difference was not observed. In addition, acute rejection rate in microchimeric group was 3 (42%) versus 4(16%) in nonmicrochimeric recipients (not significant).

Our results demonstrate better establishment of microchimerism after living donor kidney transplantation. But, concerning true effect of microchimerism after renal transplantation doubt still persists; and it seems that microchimerism alone has no major protective role in renal allograft survival.
P 416
POSTERIOR LEUKOENCEPHALOPATHY SYNDROME IN POST KIDNEY TRANSPLANT PATIENTS
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Posterior leukoencephalopathy syndrome (PLES) is an edematous brain lesion which predominantly affects the cerebral white matter. It can be drug induced and has been described as calcineurine inhibitors (CI) related neurotoxicity. Although the mechanism still undecr, but disruption of blood brain barrier and effect on vascular endothelium with release of potent vasoconstrictors may be a possible pathogenesis.

We retrospectively report four post kidney transplant patients treated with calcineurin inhibitors who developed PLES. Three of these patients were on tacrolimus and one was on cyclosporine A. Mean age was 28 years (range 16-36), 3 females and one male. Mean interval from transplantation to onset of the syndrome was 18 months (range 4-72 months). Apart from hypertension, no risk factors could be identified. Three patients had mild to moderate hypertension and one was severely hypertensive. The presenting neurological features were recurrent generalized tonic clonic seizures, altered mental status and visual disturbances. MRI changes were confined to white matter with subcortical edema mainly including parieto-occipital lobes. Clinical and investigational work up was done for exclusion of CNS infections, hypertensive encephalopathy, ischemic infarcts and progressive multifocal leukoencephalopathy. No significant correlation was detected with any of serum level neither of creatinine, sodium, calcium, cholesterol, nor with platelet counts, CI drug level or blood pressure at presentation. Complete clinical and neuroimaging recovery occurred with proper control of hypertension and either reduction of dose of CI (three patients) or discontinuation (one patient). Follow up of patients for 18 months showed neither recurrence nor other complications. PLES may develop in post kidney transplant patient treated with CI. Complete neurological recovery is the outcome with early recognition and management by proper control of hypertension and discontinuation or reduction of dose of CI.

P 417
IS PRE-EMPTIVE RENAL TRANSPLANTATION PREFERRED?
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Among several renal replacement therapies available for ESRD, renal transplantation is the best option. Patient usually undergo renal transplantation after a variable period of pretransplant dialysis (PTD). For eligible patients when organs are available, the dialysis stage could be bypassed, namely, pre-emptive transplantation (PTX). Graft and patient survival has been compared in PTX and PTD in multiple studies and comparable (or even better) outcome have been reported for PTX. PTX is more cost effective than PTD and therefore a better choice, especially in developing countries. Pre-emptive kidney transplantation was begun in our centers in 1992. In this study 600 patients who underwent kidney transplantation from living donors over the last 14 years, were surveyed retrospectively. Of these patient 300 received PTX (Preemptive renal transplantation), 170 male and 130 female, and 300 underwent renal transplantation after at least 4 months of hemodialysis (PTD), 172 male and 128 female. Of all acute rejection 7.2% in PTX and 3% in PTD were biopsy proven. All patients were included in this study (300 cases) compared with 300 subjects who underwent renal transplantation after a variable duration of hemodialysis, lasting at least 4 month. The Patients were follow up in a variable duration. (from 0.5 month till 96 month) from 300 cases 92% were active (Cr<2.5) in PTX groups and 92.1% in PTD groups over their following up. One, 2, 3- and 4 year graft survival were 94% (in 12.6 month), 89% (in 25month), 86% (in 39 month) and 81% (in 53 month) respectively in PTX and 95% (in 12.5 month), 94% (in 23.6 month), 92% (in 3606 month), 89% (in 54 month) in PTD groups. At the end of first, second, third and fourth year after transplantation, patient survival were; 98% (in 8 month), 97% (in 25 month), 95% (in33 month) in PTX groups and 97% (in 33 month), 94% (in73 month) in PTD groups. These differences for patient survival statistically were not significant (P=0.4, 0.62, 0.62, 0.8) and for graft survival (P=0.1, 0.3, 0.4, 0.4). The rejection episodes in both the groups were the same. The results of this study demonstrate that patient survival at 1, 2, 3, 4 years post transplant were similar in two groups. 1, 2, 3- and 4- graft survival rates had not significant differences. These finding are consistent with results of previous studies, but it differ erom results of our past study (3 years ago, with 313 patients, 127 PTX and 186 PTD groups) that showed better outcome in PTX groups (about 3-years graft survival although it was not significant). In summary, despite similar patient survival in the PTX and PTD groups, PTX eliminated hemodialysis and arterio venous fistula formation. Thus, we recommend PTX as a better choice for transplantation when impossible. We continue our study with further cases and over the longer follow up period.

P 418
TIME-DEPENDENT VARIATION IN THE URINE OUTPUT AFTER RENAL TRANSPLANTATION
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Diuresis soon begins after renal transplantation. Although controversial, early post kidney transplant urine volume may be correlated with a favourable short and long term graft survival. The aim of the present study was to figure out any possible correlation between the first month serum creatinine and the early and late urine outputs in the renal transplant recipients.: In a cross sectional and prospective study, daily urine volume was measured at 24 and 48 hours, and one month after renal transplantation as well as the mean first month serum creatinine in the patients with
The aim of the present study was to evaluate serum EPO concentration and its correlation with hematocrit (Hct) and hemoglobin (Hb) levels in dialysis patients and renal allograft recipients (RAR). In a comparative, cross sectional study, serum EPO level was measured by ELISA in 75 dialysis patients and RAR. Group 1 (n = 40): RAR who were on standard triple immunosuppressive therapy and had stable kidney function for at least 6 months after transplantation. Group 2 (n =35) included chronic hemodialysis patients divided based on their recombinant human (rHu) EPO supplementation into those received rHu EPO during dialysis (2A, n =15) and those who were not on rHu EPO (2B, n = 20). Data are presented in mean +/- SD. Statistical analysis was performed by SPSS version 11.0. Comparisons between groups were made by Chi-square and ANOVA. General linear model (GLM) was used to compensate the effects of age. Correlation was made by Pearson test. P value was set at 0.05. The mean age of patients was 45.5 +/- 12.3 years with a male to female ratio of ~ 1. 35.5 +/- 12.1, with a male to female ratio of ~ 1.3. The mean first month serum creatinine was 1.26 +/- 0.4 mg/dl. The mean urine output was 7.97 +/- 5.07, 5.45 +/- 3.05 and 3.44 +/- 1.25 L at 24 and 48 hours and one month after renal transplantation. Those patients who followed for six months post-transplantation were found to have a mean urine volume of 3.20 +/- 1.24 L at the end of this period. This trend shows that urine volume steadily decreases from 24 and 48 hours to one month after renal transplantation (P < 0.05). However, the urine volumes were rather comparable at one month and 6 months after transplantation (P > 0.05). A positive correlation was found between the first-month serum creatinine and the urine volume at one month (r = 0.302 and P = 0.035) but not at 24 and 48 hours and six months post-transplantation (P > 0.05). Urine volume was stabilized by one month after the renal transplantation where it is positively correlated with the first-month serum creatinine. Hence, one may conclude that in a stable renal allograft recipient, the final urine output is related to the early graft function.

P 419
SERUM ERYTHROPOIETIN LEVEL AND ITS CORRELATION WITH HEMATOPOIETIC SYSTEM IN THE RENAL ALLOGRAFT RECIPIENTS AND DIALYSIS PATIENTS

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The aim of the present study was to determine serum EPO concentration and its correlation with hematocrit (Hct) and hemoglobin (Hb) levels in dialysis patients and renal allograft recipients (RAR). In a comparative, cross sectional study, serum EPO level was measured by ELISA in 75 dialysis patients and RAR. Group 1 (n = 40): RAR who were on standard triple immunosuppressive therapy and had stable kidney function for at least 6 months after transplantation. Group 2 (n =35) included chronic hemodialysis patients divided based on their recombinant human (rHu) EPO supplementation into those received rHu EPO during dialysis (2A, n =15) and those who were not on rHu EPO (2B, n = 20). Data are presented in mean +/- SD. Statistical analysis was performed by SPSS version 11.0. Comparisons between groups were made by Chi-square and ANOVA. General linear model (GLM) was used to compensate the effects of age. Correlation was made by Pearson test. P value was set at 0.05. The mean age of patients was 45.5 +/- 12.3 years with a male to female ratio of ~ 1. Group 2B patients tended to be older than groups 1 and 2A (P = 0.014). The sex ratios were comparable between groups. Mean EPO level was 17.09 +/- 10.99 mIU/mL in RAR that was comparable to that of dialysis patients (18.54 +/- 26.18 mIU/mL, P=0.05). No significant correlation was found between the serum EPO and Hb and Hct in renal transplant recipients (P>0.05). However, HCT but not Hb was correlated with EPO level in dialysis patients (P = 0.046 and 0.056, respectively). When comparing three groups (1, 2A and 2B), in neither group, EPO, Hct and Hb were correlated. Hb and HCT was significantly high in dialysis patients who were not on rHu EPO therapy (P= 0.02). Age was not correlated with erythropoietin in either groups (P>0.05). GLM, with age as a covariate did not yeild in a significant difference between EPO levels of the studied groups (P = 0.36). Serum EPO levels are rather comparable between RAR and dialysis patients irrespective of their rHu EPO supplementation.

P 420
DO CAUSES OF REHOSPITALIZATION IN OLDER KIDNEY RECIPIENTS DIFFER FROM YOUNGER ONES?

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Although renal transplantation extends life expectation in older age groups, some studies reported high number of deaths with functioning grafts in elderly recipients. This maybe due to different complications in this group of patients. This study compares the causes of post renal transplantation re-hospitalizations in elderly and young patients. We randomly selected 567 records of re-hospitalization after kidney transplantation from 1994 to 2006 in a university-based referral center for kidney transplantation hospital, Tehran, Iran. According to the Age of Recipients at the Time of Transplantation (ARTT), hospitalizations were divided into Group I (ARTT≤50, n=185) and Group II (ARTT >50, n=382). The causes of re-hospitalization were categorized into infection, surgical complication, macrovascular disease, malignancy, renal dysfunction and nephrolithiasis. The frequency of re-hospitalization causes were compared in 2 groups. In comparison to younger patients, a higher rate of admissions due to infection (52.4% vs. 42.9%, p=0.033), surgical complications (9.7% vs. 4.7%, p=0.022), macrovascular diseases (3.8% vs. 1.0%, p=0.027), and a lower rate due to renal dysfunctions (33.5% vs.51.6%, p=0.00) were seen. No significant difference was found in the frequency of admissions because of malignancies (1.1% vs. 1.6%, p=0.05), or nephrolithiasis (1.1% vs. 3.7%, p=0.05) between the two groups. According to the results of this study, the causes of re-hospitalization after kidney transplantation are mainly different in older patients. This implies a specific attention to older age groups after transplantation and an age - specific follow up strategy. The health system also needs to be planned appropriately.
P 421
NEPHRITIC-NEPHROTIC SYNDROME AS A PRESENTATION OF BK VIRUS INFECTION

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A 12 Year old boy, a case of ESRD due to nephronphthisis, 6 months after starting hemodialysis received kidney graft from a 16 years old cadaver. He had an uneventful transplantation course, on triple immunosuppressive regimen (MMF, Cyclosporine and Prednisolone) for 18 months with normal renal function when he developed generalized edema, hypertension, nephrotic range proteinuria, hyperlipidemia, hypoalbuminemia, and rise in BUN and creatinine. He had an enlarged and tender graft with increased parenchymal echogenicity and resistive index. At first clinical diagnosis of de novo glomerulonephritis was made but kidney biopsy was in favor of focal glomerulosclerosis and BK virus infection. Reduction of immunosuppressive dose and IVIG administration was ineffective and he became dialysis dependent. Gradual loss of renal function is a usual manifestation of BK virus nephropathy, but the combination that was described is not seen in the literature.

P 422
DEEP VENOUS THROMBOSIS IN RENAL TRANSPLANT RECIPIENTS: INCIDENCE, RISK FACTORS AND MANAGEMENT

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Deep venous thrombosis (DVT) is a relatively common occurrence after renal transplantation. The incidence of it is 3-8.3% in other series and is highest (70%) in the first 6 months after transplantation. In this study the incidence and some risk factors of DVT and its management were evaluated. In a retrospective and cross sectional study 318 renal transplant patients (M/F = 202/116) were evaluated. The clinical records of all patients were reviewed. Several parameters were studied, including: sex, age, weight, height, BMI, transplant time, history of diabetes mellitus, history of DVT, time of post transplant DVT, site of DVT, pulmonary embolism diagnosis and management, serum creatinine, hemoglobin, immunosuppressive drugs. The incidence of DVT in our patients was 2.5% (8 patients), M/F = 7/1. The mean (±SD) of age, weight, Cr in these patients were 53.88±10.6 years, 80.62±15.28 kg, 1.28± 0.18 mg/dl, respectively. History of diabetes mellitus was positive in 75 % (6 patients). 50% of DVT were in the first 4 months after transplantation. There was significant difference between patients with DVT and other patients in parameters of age, weight, and diabetes mellitus. We did not have pulmonary embolism in our patients. There was one diabetic patient with recurrence of DVT after withdrawal of anticoagulant drug. The incidence of post transplant DVT in our patients is relatively lower than other reports. Risk factors of it are diabetes mellitus, obesity and older age. We recommend continuing treatment with anticoagulants in diabetic patients with DVT.

P 423
IMPACT OF OBESITY ON DEVELOPMENT OF CHRONIC RENAL ALLOGRAFT DYSFUNCTION (CRAD) IN 3 YEAR POST TRANSPLANT PERIOD

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Renal transplant recipients with elevated body mass index (BMI, Kg/m2) have been shown to have inferior survival as compared to patients with lower BMI. However, previous studies could not establish a link between increased BMI and graft survival. Obesity in nontransplant patients has been associated with hypertension, hyperlipidemia, diabetes and proteinuria. Given this evidence it’s possible that renal transplant recipients with an elevated BMI may have worse long term graft survival. This prospective study included 92 patients transplanted in Nemazee Hospital of Shiraz University between April 1999 and July 2000. Weight (Wt) and height of the patients were recorded prior to transplantation and two weeks, one, two and three years post transplantation. The patients’ time on dialysis before transplantation and drug history was recorded. BUN, Creatinine (Cr) and blood pressure were checked at 1 month intervals and TG, Cholesterol, HDL and LDL at 6-month intervals till 3 years after the transplantation. Graft dysfunction was defined as serum Cr >1.8 mg/dl. Results were analyzed using spss-10 software. While BMI and Wt of the patients before transplantation didn’t show any significant correlation with CRAD (P>0.05), patients with higher Wt and BMI two weeks after transplantation showed an increased risk of developing CRAD in the three year post transplant period, independent of other risk factors checked. (P<0.05) Patients with greater Wt loss in the first two weeks after transplantation showed a decreased risk of developing CRAD in the 3 year post transplant period. (P<0.001) It’s important to note that high Wt and BMI two weeks after transplantation, when transplanted kidney has started it’s function is significantly associated with worse graft survival 3 years after the transplantation.
Renal Transplantations (RT) are carried out more than 1700 cases annually in Iran. Mostly of them designed to compute the burden of RT as a criterion for a health problem or condition to be considered as public health issue in Iran in 2004. WHO’s practical guide of national burden of disease studies had been used for conducting the study. Five steps had been performed, diagramming natural history & dynamic modeling of the diseases, data gathering from Management Center for transplantation of Ministry of Health, computing the local disability weight of RT, data analyzing with DISMOD II and computing the Disability Adjusted Life Year (DALY). Years Life Lost (YLL), Years Lived with Disability (YLD), and DALY was 717.9, 6217.6, and 6935.5 years, respectively. DALY per case and per 100,000 populations was 4 and 10.4 years respectively. Over 69.5% and 68.1% of DALY of RT were seen in male and female with 20-44 years old respectively. However, this burden in this age group needs to be confirmed by cohort or case controlled studies. The DALY per 100,000 male populations was higher compare to female population (12.5 years versus 8.3 years). It is recommended to design and conduct studies to define the causes or factors associated with low incidence cases of RT in females. Since, RT meets the criteria for a public health issue in Iran; primary prevention, early detection and screening of CKD’s initiation factors such as diabetes, and hypertension are recommended for health policy makers. Is Living Unrelated Donor Transplantation (LURD).

Renal transplantation is the choice of treatment for chronic renal failure. Applying of suitable ureterovesical anastomosis technique can prevent most of risks for kidney graft. Extravesical ureteroneocystostomy is becoming popular in renal transplantation because of the low complication rate and technical ease. This decrease in complication was due to limited bladder dissection and the need for a shorter ureteral segment from the donor. Our study presents an acceptable incidence of urologic complications by using Barry-Tagochi ureteroneocystostomy in 114 cases of renal transplantation. We recorded all urological complications after preformed extravesical Barry-Tagochi (new technique) ureteroneocystostomy in the recipient kidney that developed from Sep 2004 to Sep 2005 (mean follow up 12 mouths). The urological complications included complicated hematuria, urinary fistula, ureteral stenosis, VUR and operative time. All patients underwent baseline VCUG and ultrasonography within 3-6 month of The incidence of urological complications was 6(5.25%) patients that included one urinary leakage (0.86%) and four ureteral stenosis (3.5%) which the ureters required reimplantation, with one of complicated hematuria (0.86%) and with any symptomatic VUR, range of operative time was 4-15 minute (mean 8.15). Mild reflux was noted in 2 patients in VCUG and none required reoperation. Extravesical Barry-Tagochi (new technique) ureteroneocystostomy is simple and rapid technique with acceptable urologic complications so this technique is first choice of our center.

Anemia, a potentially correctable cardiovascular risk factor, continues to be a major problem in kidney-transplant patients. Erythropoietin levels increase rapidly after successful kidney transplantation, and by 3 months, most patients achieve hemoglobin levels greater than 12 g/dL. The transplant patient with chronic kidney disease (CKD) frequently develops anemia. Posttransplantation anemia (PTA) has received comparatively less attention in the literature, and the prevalence and predictors of PTA vary between different studies. Transplanted from feb. 2004 to mar. 2005, excluding those who had history of minor thalassemia. 111 cases were male and 76 female. Posttransplant anemia (PTA) was defined as having Hb level below 12 mg/dl for men and below 11 mg/dl for women. 47% of men had anemia in the first month, 29% in third month and 11% in the 6th month while 52% of women were anemic in the first month, 21% in the third month and only 2% in the 6th month. Rise in Hb level was associated with decrease in creatinine level and better renal function in the first month (p=.018) till 6th month (p=.00). Anemia recovered before the first month in women and before the second month of transplantation in men. Age and sex of the donor was not related to recipient anemia production or recovery. We concluded that anemia, one of the complications of CKD recover as one of the first parameters posttransplantation. Although it is more common in women at the beginning, recovers earlier than men.
The incidence of acute rejection and early graft failure has declined dramatically as a result of new immunosuppressive medication. Unfortunately, some of these drugs have specific drug-related adverse effects that may negatively influence long-term outcome. The purpose of this study was to compare patients survival and to evaluate certain adverse effect between patients receiving and those not receiving IL-2 Receptor Blockers for induction therapy. Seventy-six patients undergoing renal transplantation from living donor were randomized into a prospective controlled trial. The cases were divided into two groups: D+ including 38 cases (20 men, 18 women, mean age 27.4 +/- 14.6 years) received prednisolone, cyclosporine, mycophenolate mofetil, plus daclizumab, and D- including 38 cases (23 men, 15 women, mean age 28.1 +/- 13.9 years) received all the above drugs except for daclizumab. All patients were followed up for 2 years. Graft survival at 2 years was higher with daclizumab (97.4%) as compared with no induction (94.7%). Patient survival, the incidence of major infection and malignancies was not different between the groups. Both the creatinine clearance (74.5 +/- 6.2 versus 66.9 +/- 13.2 ml/min) and serum creatinine (1.06 +/- 0.35 versus 1.26 +/- 0.4 mg/ml) were significantly better in D+ treated patients at 2 year. These patients had lower systolic BP (132.4 +/- 22.6 versus 120.2 +/- 13 mmHg) with a more favorable lipid profile. This study indicates that IL-2 Receptor Blockers is an effective immunosuppressive agent and when added to an immunosuppressive regimen, results in improved graft function, and better control of hypertension and hyperlipidemia.

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**EFFECT OF DACLIZUMAB ON PREVENTION OF ACUTE REJECTION IN LIVE DONOR RENAL TRANSPLANTATION**

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In the early post-transplantation period, acute rejection is the major cause of graft failure. It is also one of the most important predictors for long-term graft survival following renal transplantation. This study was aimed to compare the rate of acute rejection (AR) between patients receiving and those not receiving IL-2 Receptor Blockers for induction therapy. Eighty-four patients undergoing renal transplantation from living donor were randomized into a prospective controlled trial. The patients were divided into two groups: D+ including 47 cases (26 men, 21 women and mean age 27.8 +/- 15.2 years) received prednisolone, cyclosporine, mycophenolate mofetil, plus daclizumab and D- including 47 cases (28 men, 19 women, mean age 28.4 +/- 12.8 years) received all above drugs except for daclizumab. They were matched for age of recipients and donors, recipient-donor relationship, underlying diseases, length of hemodialysis and panel reactivity test status. D+ patients had less AR as compared with D-treated patients (17.02% vs. 8.51%, ). Graft survival at 6 months was higher with daclizumab (100%) as compared with no induction (97.4%). Patient death or malignancies did not occur in any group. The acute tolerability for daclizumab injection was good without evidence of cytokine-release syndrome. The incidence of serious infection was not significantly different between two groups. Our study demonstrates that induction with daclizumab when combined with CSA/MMF/steroid results in significant reduction of early renal allograft rejection. The therapy with anti-IL-2R antibody is simple and is well tolerated.
Thrombotic microangiopathy (TMA) remains a serious and worrying event after transplantation. We report a case of occurrence of TMA in the immediate postoperative period after a living related renal transplantation. A distinguished feature of the case was a major and early involvement of the retina with marked decreased visual acuity and vision loss. The syndrome was completely reversible with plasma exchanges and conversion from tacrolimus to sirolimus. The patient's renal functions are excellent 11 months after transplantation. Decreased visual acuity and cotton wool exudates can be the first manifestation of TMA.

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P 431
IMPACT OF HEPATITIS C VIRUS INFECTION ON SHORT-TERM OUTCOME IN RENAL TRANSPLANTATION : A SINGLE-CENTER STUDY

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Patients with hepatitis C infection who are candidates for renal transplantation, could do transplantation if hepatitis C are inactive and don't have liver cirrhosis. After renal transplantation due to immunosuppression, hepatitis C virus could again reactive and cause progression of liver disease and also cause kidney transplant involvement (glomerulonephritis, rejection). The purpose of this study was evaluation of results of renal transplantation in patients with past history of hepatitis C involvement, which had done kidney transplantation in Razi hospital belongs to gilan university of medical sciences. This is a cross-sectional study of 14 patients with past history of hepatitis C involvement among 60 patients who, all had passed one year after kidney transplantation, since 1998 up to 2001. 10 among 14 patients had done liver biopsy before transplantation, but one year post-transplantation they didn't agree to repeat it. HCV-RNA was negative in patients at the time of transplantation and after that. Immunosuppressive drugs protocol consisted of: prednisolone; ciclosporin; azathioprine; mycophenolate mofetile. These 14 patients were compared with the rest of the recipient (46 persons) (HCV-negative), for patient survival, graft function, and liver function tests, at one year post kidney transplantation. Cryoglobuline was negative in patients with past history of hepatitis C. Data were analyzed by spss-10. One year after transplantation no detrimental effects were seen in those patients with past history of hepatitis C on liver and transplanted kidney. Patient and graft survival was good. One year after transplantation HCV-RNA was negative. Rejection were seen in 4 out of 14 patients with hepatitis C. No glomerulonephritis were seen posttransplantation. The mean plasma creatinine was 1.18 mg/dl. Immunosuppressive drugs side-effect were not seen on liver of these 14 patients. Only two among 14 patients died because of cardiovascular problems and cytomegalovirus infection.

This study showed that short term consequences in our patients with past history of hepatitis C infection in comparison with those who are not infected with hepatitis C, one year post-transplantation, is generally good. Although this study was done in a short time after transplantation, but in order to know precisely the impact of hepatitis C on recipient of kidney transplantation the evaluation needs to be continue in the future.

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CALCIUM-PHOSPHORUS AND PARATHYROID AXIS IN RENAL ALLOGRAFT RECIPIENTS

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The issue of calcium metabolism is under-addressed amongst the kidney transplant recipients. The aim of the present study was to delineate the status of calcium-phosphorus-parathyroid hormone axis in these patients. In a descriptive, cross sectional study, 20 renal transplant recipients were evaluated. Age, gender, the time after transplantation and body weight were recorded for each patient. The inclusion criteria were age >14 years, good allograft function defined as serum creatinine <1.5 mg/dl for at least 6 months after transplantation. All the patients were on triple immunosuppressive therapy (cyclosporine A, mycophenolate mofetile and prednisolone). 24-hour urine Ca, phosphorus (P), crea-
Posters

**P 434**  
RENAI TRANSPLANTATION, 1ST EXPERIENCE IN YEMEN  

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To present the first experience of renal transplantation in Yemen. Between May 1998 and June 2006, a total of 31 patients (21 males and 10 females) received a renal allograft from live-related donors. The cold ischemia time was 48-68 minutes. The immunosuppressive protocol was double therapy in the first eight cases (steroids and MMF) then triple therapy (steroids, cyclosporine and MMF) afterwards. Episodes of acute rejection were treated with high doses of steroids and antithymocytes globulin (ATG) in cases of vascular or steroid resistant rejections. The primary graft function was achieved in 29 (93.5%) recipients. The post transplant complications either surgical or medical were comparable to that reported in the literature. The kidney transplantation program started sporadically in Yemen since 1998. However, the well-established program is now running regularly since the beginning of 2005.

**P 435**  
KIDNEY TRANSPLANTATION IN A RECIPIENT WITH SEVERE MENTAL RETARDATION – CASE REPORT  

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Currently there are scanty data in the literature on outcome of kidney transplantation in mentally retarded patients. In subjects with significant mental retardation, co-operative patient supervised by a reliable long term caregiver with long life expectancy and able to take medication under supervision, are only selected for transplantation till today. A 30yr old male known to have cerebral palsy with severe mental retardation [I Q < 30] and on antiepileptic drugs since the age of 8 months underwent renal transplantation with ATG induction and triple drug maintenance immunosuppression. Native kidney disease was bilateral multicystic kidneys and was on hemodialysis for few weeks prior to renal transplant. Patient was restless and non compliant to dialysis. There was immediate diuresis post transplant with excellent graft function and patient received standard fluid management during and after surgery. He was sedated and restrained during initial post operative days for better care and management. Later he was off sedation and compliance to immunosuppressive and other supportive treatment was excellent. Renal transplantation is a viable treatment in ESRD patients with mental retardation provided a supportive long term care giver is available.

**P 436**  
POST RENAL TRANSPLANT CASTLEMAN’S DISEASE RESOLVED AFTER GRAFT NEPHRECTOMY  

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Castleman’s disease (Angiofollicular Lymphoid Hyperplasia) is a lymphoproliferative process thought to be mediated by IL-6 over-expression. Castleman’s disease has 2 variants: hyaline –vascular type and plasma cell variant. (Multicentric castlemans disease). Hyaline vascular type tend to be localized while plasma cell variant has more systematic signs and carriers worse clinical prognosis. Castlemans disease is associated with B-Cell lymphoma & KS. Also HHV8 & EB. Castlems disease have been described thrice post kidney tx. In this report, we document the course of renal tx recipient who developed the plasma cell variant of castlems disease 16 months after failure of his allograft & return to dialysis. He who had clinical resolutjion of this complication often tx nephrectomy. To our knowledge this is the first case where the disease manifestations disappered after graft removal. Our patient had a chronic renal allograft rejection this could have driven all the systematic manifestations of MCD and possibly reactivated a latent HHV-8 infection. In this case the immunohistochemical testing for HHV-8 is not available to prove a role for this agent.
LONG-TERM OUTCOME OF MULTIVISCERAL TRANSPLANTATION WITH SPECIAL REFERENCE TO THE IMMUNOPROTECTIVE EFFECT OF THE CONTAINED LIVER

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To assess the long-term outcome after combined liver-intestinal and multivisceral transplantation and the impact of the contained liver on rejection and survival. Between May 1990 and July 2005 a total of 353 transplants were given to 325 consecutive patients; 54% adults and 46% children. The liver was part of 189 visceral grafts (Group I); 124 liver-intestine and 85 multivisceral. The remaining 144 allografts were intestine-only (Group II). The most common indication for hepatic replacement was TPN associated liver failure in the combined liver-intestinal recipients and visceral vascular thrombosis in the multivisceral patients. With 15 years of experience, the actuarial patient survival was 82% (1-year), 58% (5-years), 34% (10-years) and 31% (15-years) with 75%, 48%, 32% and 26% functioning graft survival, respectively. The composite grafts that contained liver has best long-term survival with significantly (p=0.001) higher 15-year conditional survival (50%) compared to intestine-alone. The survival difference was due to cumulative graft loss due to early acute refractory and late chronic rejection. Immune-modulation did not improve survival but reduced risk of rejection particularly among Group II. With recipient pretreatment, the one year (92%) and four year (77%) survival has significantly (p=0.0001) improved in both groups with reduction in hospital stay (median-27 days), spaced doses of tacrolimus (62%) and improved quality of life. These survival rates were favorably comparable with the national one-year liver allograft survival and historic four-year TPN-dependent patient survival. The liver contained intestinal allograft has best long-term survival with reduced risk of rejection.

RIGHT HEPATIC LOBE DONATION: IMPACT ON DONOR QUALITY OF LIFE

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The aim of this study was to assess the impact of the living-donor liver transplantation (LDLtx) on the donor’s quality of life. From October 2003–June 2006, 48 LDLtx were performed at our hospital, 46 were followed for more than 4 months (mean 16.5±8 months), 27 men and 19 women with a mean age of 37.4 years. In April 2006, these donors participated in a survey that included medical and psychosocial outcomes. Seven complications occurred in 4 of 46 donors (8.6%). These were 2 biliary leaks, 2 wound infections, 1 incisional hernia, 1 portal vein thrombosis, and 1 instance of deep venous thrombosis. For the donor with portal vein thrombosis, the vein was recanalized, and she recovered without treatment, a bile leak from the liver cut surface and an incisonal hernia were also developed in the same donor. The biliary leak was treated with percutaneous drainage, and the incisonal hernia was repaired surgically. 15 of the donors were housewives and 31 worked outside the home and 94% returned to their work. A change in body image was reported in 4.3% of the donors. None reported impairment in sexual function. Complete recovery occurred in 86% of donors, 94% of the donors said that they would donate again if necessary, and 97% believe that they had benefited from the donation experience. Almost all donors had been able to return to their prior job within a few months of surgery and most donors were satisfied with the donation procedure.
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**COSTS OF RE-HOSPITALIZATION AFTER KIDNEY TRANSPLANTATION IN DIABETICS AND NON-DIABETICS: AN ECONOMIC PERSPECTIVE**

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Diabetic and non-diabetic subjects are not affected by similar complications after kidney transplantation. Although different patterns of hospitalization have been reported in diabetics and non-diabetics, differences in costs have not been well considered. The aim of this study was to compare diabetic and non-diabetic kidney recipients with respect to the costs of re-hospitalization. Study design was a retrospective review of all patients who had undergone renal transplantation in Baqiyatallah Hospital between the years 2001 and 2005. Subjects consisted of 68 diabetic and 302 non-diabetic patients. Costs were categorized into the following groups: inpatient rooming, medical-surgical-supply, para-clinic, drug, radiology-nuclear, operating, special services, and miscellaneous costs. Figures were recorded as US dollars (9000 Iranian Rials = 1 US dollar). Costs were compared between the two groups of patients. Compared with non-diabetic subjects, diabetics had significantly higher charges of total costs ($1385±1371 vs 239±124), inpatient rooming ($268±318 vs 122±260), medical-surgical-supply ($93±106 vs 57±82), paraclinic ($90±73 vs 59±164) and special services ($83±73 vs 20±30) (p<0.05). Other costs, including drug ($50±69 vs 34±56), radiology-nuclear ($65±83 vs 49±83), operating ($79±63 vs 121±240), and miscellaneous costs ($23±33 vs 19±29), were not significantly different between the two groups (p>0.05). Among renal transplant recipients, diabetics impose higher costs of inpatient services on the health system. In countries with large proportions of diabetic kidney recipients, health care systems should expect higher amounts of inpatient re-hospitalization expenses in the post-transplantation phase.

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**SOMATIC COMORBIDITIES IN RENAL TRANSPLANT RECIPIENTS**

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Little attention has been paid in the literatures to the prevalence of somatic comorbidity in kidney transplant recipients. The aim of this study was to assess the prevalence of somatic Comorbidities after kidney transplantation. In this cross-sectional study, 119 kidney transplant recipients were assessed for comorbidities by using Ifudu comorbidity index. This numerical index is used to evaluate comorbidities in patients undergoing maintenance hemodialysis. This index evaluates the presence of 13 chronic illnesses. Correlation of Ifudu score with demographic and clinical data was also assessed. Of these patients, 90.4% had at least one somatic comorbidity. The mean (SD) comorbidity score was 5.17 ± 4.50. The most frequent comorbidities were: non-ischemic heart diseases, including hypertension, (n=75, 63%); visual disturbances (n=42, 35.2%); low-back pain, spine and joints disorders (n=30, 25.21%) and musculoskeletal disorders (n=28, 23.5%). Higher comorbidity score was significantly correlated with lower economic status (p<0.05), but not with age, sex, marital status, educational level, cause and duration of ESRD. The prevalence of somatic comorbidities in kidney transplant patients seems to be high. Treatment of comorbidities may improve the quality of life following kidney transplantation. Regarding the high prevalence of non-ischemic heart diseases, visual disturbances and spine and joints disorders, they deserve a special attention.

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**HIGH-COST HOSPITALIZATIONS IN KIDNEY TRANSPLANT RECIPIENTS**

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Post-transplant hospitalizations of kidney transplant recipients, especially if of long duration, impose extra costs on health system by occupying hospital beds and using human resources. We designed a study to identify the leading high-cost hospitalizations of these subjects and compare the duration of hospital stay for each etiology. In a retrospective review in Baqiyatallah Hospital from 2000 to 2005, from 342 hospitalizations of kidney recipients after transplantation, five most expensive causes of hospitalization were identified were studied. Mean costs (in US dollars) and duration of hospital stay were determined and compared among five high-cost causes. The five most high-cost etiologies of hospitalization in decreasing order were as follows: ischemic heart disease, IHD, ($1175±989), cerebrovascular accident, CVA, ($1153±1266), nephrolithiasis ($653±776), existing diabetes mellitus ($647±561) and cholestasis ($636±568). Mean hospital stays for these etiologies in decreasing order were as follows: 14±8 days for diabetes, 11±9 days for CVA, 8±5 days for cholestasis, 7±4 days for IHD and 7±6 days for nephrolithiasis. Among five high-cost causes of hospitalization during post-transplantation phase, uncontrolled diabetes and CVA account for more occupation of hospital beds and use of human resources. Most of the costs of IHD, biliary stone and cholestasis are associated with interventional procedures and not hospital stay.
Middle-East is the biggest host of refugees in the world. The total number of refugees in this region is estimated to be more than 4 billions in the year 2006. Most of these people are from low socioeconomic classes. Economical and social barriers are the major obstacles for accessing the healthcare facilities in the hosting countries. So it would not be surprising to find that refugees have problems accessing to one of the most sophisticated and expensive medical procedures in the world, the kidney transplantation. There is no precise data available on kidney transplantation in refugees, neither regional, nor worldwide. This is while the refugees are mainly involved in kidney transplantation. As the recipients, socio-economic problems make kidney transplantation an unreachable procedure for them. As the donor; there are always middle-men and human traffic mafia out there for such poor and unsupported groups. So, it’s the hosting countries’ responsibility to protect this population against such problems. The type of protection needs to be defined locally, but it could be predicted from previous experiences. Allowing the refugees to receive a transplant is the most primitive kind of support. Financial supports come after that. Providing good follow-up facilities make the precious graft last longer. The law must also protect them from being organ reservoir for black market. To date, there are data available from few MESOT countries on their kidney transplantation regulations: Iran, Saudi Arabia, Pakistan and Turkey. Despite their shortcomings, it’s a step forward toward supporting refugees for kidney transplantation. Other countries in the region must design such models, based on their own local conditions and the experience of other models. Having an international committee on this specific issue would be of utmost usefulness.

All these endeavors, not only have provided equitable access for everyone regardless of his/her gender and economic circumstances, but also have drastically reduced the cost of transplantation by obviating waiting lists and middle-men. The Iran Model consists of renal grafts from genetically unrelated living donors. Legislation on cadaveric transplantation after brain death was introduced in Iran in the year 2000. In the years 2001, 2002, and 2003; 145, 250 and 166 cadaveric kidney transplantsations were performed, respectively. The rate of cadaveric kidney donation in Iran in 2003 was 2.5 per million population (pmp), which is higher than the 0.0 pmp rate in Pakistan. In many countries, however, this rate in the same period was higher than that in Iran, e.g. 49.2 pmp in Spain. Since 2000, less than one percent of total kidney transplantsations in Iran have been cadaveric ones. However, this proportion has been increased up to 10% annually now. Indeed, this low-rate of cadaver donation is the most important challenge with which the Iran Model is faced. It is noteworthy that the incidence of trauma-induced brain death in a relatively young age-group (40 or less) is as high as 65% in Iran. More efforts are required in the fields of public education, and governmental supervision to enhance cadaveric kidney transplantation.

The prevalence of psychiatric comorbidities such as depression and anxiety are somewhat high after kidney transplantation. Nonetheless, few studies have assessed the impact of depression and anxiety on morbidity in kidney transplant recipients. The aim of this study was to investigate the effects of depression and anxiety on post-transplant morbidity.In a cross sectional study in Baqiyatallah Hospital between the years 2005 and 2006, 88 kidney transplant recipients were evaluated for the presence of depression and anxiety according to HADS (Hospital Anxiety Depression Scale), and patients were divided to Group Ia (with anxiety, n=24) and Group IIa (without anxiety, n=64). According to the depression scores of HADS, patients were also categorized into Group Id (depressed, n=20) and Group IId (non-depressed, n=68). In order to measure morbidity of each patient, scales of quality of life (Short Form-36), marital adjustment (Revised Marital Adjustment Scale), sexual relationship (Relationship and Sexuality Scale) and quality of sleep (Pittsburgh Sleep Quality Index) were used. Different morbidity measures were compared in groups of anxious versus non-anxious and also depressed versus non-depressed. Comparing group Ia with group IIa, presence of anxiety was correlated with a poorer mental health (44.45±7.80 vs 48.80±7.14, p=0.01), general health (42.91±16.67 vs 49.36±12.77, p=0.05), marital adjustment (48.35±16.62 vs 55.13±8.01, p=0.04) and more sleep disturbances (1.66±0.63 vs 1.36±0.62, p=0.05). Depressed subjects, compared with non-depressed ones, reported more fatigue (46.84±8.85 vs 39.79±8.30, p=0.002) and poorer sexual relationship (19.00±5.92 vs 21.29±3.85, p=0.001), and lower quality of sleep (1.36±1.54 vs 2.30±2.74, p=0.04).
Restlessness and psychomotor agitation are among the causes of morbidity and mortality in different diseases. They are known problems in ESRD patients but no study has ever evaluated their presence and effects in kidney recipients. This study aimed to explore the presence of restlessness and psychomotor agitation and their relation with morbidity of patients after renal transplantation. Sixty-one subjects were randomly selected from kidney transplant recipients being followed in Baqiyatallah Hospital, Tehran, Iran. Restlessness and psychomotor agitation were determined by Hospital Anxiety Depression Scale (HADS). The correlation of these scores with demographic data, clinical data, sexual function, marital adjustment, quality of life, sleep quality and comorbidity of patients was evaluated. Restlessness and psychomotor agitation were presented in 60 (98.36%) of patients. Their scores were significantly correlated with age at transplantation (r=-0.269, p=0.04 and r=0.324, p=0.01 respectively), total score of comorbidity (r=-0.273, p=0.02 and r=0.257, p=0.04 respectively), role limitation due to emotional problems (r=-0.26, p=0.03 and r=-0.25, p=0.04 respectively) and mental health (r=-0.277, p=0.02 and r=-0.252, p=0.04 respectively). There was no correlation between these symptoms and gender, marital status, and sexual relationship score of patients (p>0.05). Restlessness and psychomotor agitation are frequent and can impose high degrees of morbidity on renal transplant recipients. Proper management of these problems seems to improve different aspects of quality of life in these patients.

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THE COST OF KIDNEY TRANSPLANTATION IN IRAN

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Kidney transplantation has gained widespread popularity by improving the outcome of ESRD patients. However, this is a highly complicated and expensive procedure. So it puts a great burden on health system of developing countries. We report the costs in Iran model of kidney transplantation. We reviewed the regulations for kidney transplantation using the Dialysis and Transplant Patients Association (DATPA) information, 2005. All data regarding the cost of transplantation were extracted and categorized into personnel, drugs, paraclinics, hospital bed and other expenses. In order to more comprehensive results, all costs converted to US dollar (1 USD = 9000 Rials). The expenses related to donor nephrectomy (% total expense) were as follows; personnel: 221.9 (10.8%), drugs: 39 (1.9%), paraclinics: 23 (1.1%), hospital bed: 107 (5.2%) and other: 22 (1.1%) USD. Total expense for donor was 374 USD (18.3%). These values for kidney recipient were: personnel: 703 (34.3%), drugs: 366 (17.9%), paraclinics: 277 (13.6%), hospital bed: 474 (23.1%) and other: 217 (10.6%) dollars. Total expense for kidney recipient was 1673 USD (81.7%). Total cost of LURD kidney transplantation was 2047 USD. Compared to other countries, the kidney transplantation cost is low in Iran. The health system also pays for all the expenses. These, along with full medical insurance coverage of kidney recipients, make kidney transplantation available for every patient, regardless of the socio-economic status. As a result of low cost, it will be expected that a higher number of transplantation candidates with low socioeconomic status select the transplantation.

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SENSITIVITY, SPECIFICITY, AND PREDICTIVE VALUE OF LOGISTIC REGRESSION MODEL APPLIED TO QUALITY OF LIFE IN KIDNEY RECIPIENTS

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Quality of Life (QOL) has gained an increasing concern in today’s patient management practice. However prediction models for QOL in many populations have been provided previously, the sensitivity and specificity analysis of such models are rarely reported. In this study we aimed at determining the sensitivity and specificity of a logistic regression model that predicts QOL in kidney recipients. In a cross sectional study, we evaluated the QOL of 129 kidney transplant patients, Iran, 2006, by using the SF-36. Employing the binary logistic regression, the related factors of QOL were identified and then, stepwise multiple logistic regression applied to develop a statistical model for prediction of QOL. After defining the model, its sensitivity, specificity, and predictive values were calculated. Sensitivity, specificity, positive predictive value, negative predictive value and accuracy of the model were 50%, 86%, 68%, 74% and 79% respectively. This study reported a high specificity of post-kidney transplantation QOL prediction model, with an acceptable sensitivity. This indicates that some important measures such as QOL are predictable with a high accuracy by simple variables and some statistical methods.
HEALTH CARE UTILIZATION AND CHRONIC PAIN: ASSOCIATED FACTORS AFTER KIDNEY TRANSPLANTATION

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Although frequency of chronic pain decreases by performing transplantation in end-stage renal disease (ESRD) patients, it is still reported as a cause of morbidity in kidney transplant recipients. It is known that chronic pain makes people seek health care more frequently. This effect of chronic pain, however, has not been previously studied in kidney transplant recipients. The aim of this study was to assess the association between pain and health care utilization in these subjects. In this longitudinal study, 122 Iranian kidney recipients who had undergone kidney transplantation in Baqiyatallah hospital between 2003 and 2006, were assessed. According to the severity of chronic pain, patients were categorized into Group I (no pain), Group II (mild to moderate pain) and Group III (severe to very severe pain). Health care utilization was followed for the 12 months, in the means of 1) outpatient physician visit, 2) hospital admission, 3) emergency department visit, and 4) home nurse use. Each of the parts of health care utilization was compared in the groups.

A stepwise increase in hospital admission was seen with increase of pain severity (39.6%, 61.5%, 67.4%, p=0.017) and emergency department visit (22.6%, 34.6%, 53.5%, p=0.007), in the three groups. Mean numbers of hospitalizations (10.42±7.545, 15.40±15.679, 22.67±14.275, p=0.009) showed a similar trend in the study groups. Outpatient physician visit and home nurse care were not significantly different in the groups (p>0.05). Chronic pain is a major cause of higher healthcare use after kidney transplantation. Diagnosis and management of pain in renal transplant recipients should be regarded as a means of lowering healthcare costs, particularly, in developing countries.

ANXIETY AND DEPRESSION: COMPARISON OF RENAL TRANSPLANT AND HEMODIALYSIS PATIENTS

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Anxiety and depression, which are known causes of morbidity are beenig reported both in hemodialysis (HD) and kidney transplanted (Tx) patients. It’s controversial whether HD or Tx have a lower severe anxiety or depression. We designed this study to evaluate these symptoms in HD and Tx patients. In a cross-sectional study in Baqiyatallah hospital, Tehran, Iran, 2006; we randomly selected 32 Tx and 39 HD patients. The two groups were matched for sex, age, marital status, educational level and comorbidities. Inclusion criteria for Tx were a stable condition with a functioning kidney, and transplantation, at least 6 months, before the study. Symptoms of anxiety and depression were assessed by using Hospital Anxiety Depression Scale (HADS). Demographic and clinical data were assessed too. We compared the severity of anxiety and depression between the two groups. Anxiety score was significantly lower in Tx versus HD patients (8.61±3.09 vs. 10.41±2.77, P=0.01). There was no significant difference between two groups in the score of depression (P>0.05). In Tx patients, the severity of anxiety was higher in patients with a history of graft rejection and those with age at transplantation under 35. The severity of depressive symptoms was higher in those with lower educational level. The finding that the severity of anxiety decreases after transplantation is a promising finding, however the depression seems not to change after transplantation. This study also represents the history of rejection, younger age at transplantation and the low education as risk factors for a poorer mental health, after transplantation.
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**ARE ALL DOMAINS OF QUALITY OF LIFE POORER AMONG ELDERLY KIDNEY RECIPIENTS?**

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Although somatic problems increase by age, some studies have reported better quality of life in some sub-domains of the elderly. Impact of age on the quality of life after kidney transplantation is also controversial. This study aimed to examine the hypothesis of having a poorer quality of life (QOL) among older transplant recipients, in all sub-domains. This cross-sectional study was performed on 165 kidney recipients in Baqiyatallah hospital in 2006. Patients were categorized into three different age groups: Group I (age<40, n=85), Group II (age 40-49, n=55), and Group III (age≥50, n=22). All patients were matched for marital status, educational level, history of graft rejection and dialysis after transplantation. Sub-domains of SF-36 including physical health, social function, limitation due to physical health, bodily pain, general mental health, role limitations due to emotional problems, vitality, and general health perceptions were compared in the study groups. Group III, in comparison to other groups, reported a significantly poorer physical health (48.58±12.99, 57.98±12.33, 57.31±11.46, p=0.01), role limitations due to emotional problems (49.12±23.22, 63.03±26.33, 64.36±26.54, p=0.05), physical function (49.84±27.41, 72.69±25.54, 72.14±22.79, p=0.001), and SF-36 total scores (46.79±10.52, 54.77±10.66, 54.09±9.35, p=0.01), but a significantly better general health perception (52.36±9.18, 48.71±12.01, 43.50±14.81, p=0.020). Other QOL sub-domains were not significantly different among groups. This study represents that, older subjects not only have not a poorer quality of life in all sub-domains, but also report a better general health perception. The higher general health perception of older recipients is perhaps due to their better adjustment to chronic diseases. This is against the exclusion of old patients from the list of transplantation, only because of their age.

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**MARITAL SATISFICATION IN KIDNEY RECIPIENTS; EASY TO PREDICT, HARD TO NEGLECT**

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Familial relationship after kidney transplantation has an important role in graft and patient’s survival by affecting the recipient’s compliance to treatment. It would be helpful to study the contributing factors to familial relationship and marital satisfaction in this population. The aim of this study was to identify the predictors of poor post-renal transplant marital satisfaction. We conducted a cross-sectional study on 125 married kidney transplanted patients in Iran, 2006. Marital satisfaction was evaluated using the Marital Adjustment Scale (MAS). We considered the poor marital satisfaction as a score below the forth quartile of age and sex matched healthy controls’ MAS score. Patients were then grouped into “normal” and “poor” marital states. We used multiple logistic regression analysis to evaluate the predictors of poor marital satisfaction. The mean time interval between assessment of marital satisfaction and transplantation was 43±15 months. Post-renal transplant marital satisfaction could be predicted by kidney recipients’ sex (M/F) (OR, 0.31; 95%CI, 0.11-0.90; P=0.031), age at transplantation (OR, 0.93; 95%CI, 0.89-0.98; P=0.005), educational level (OR, 0.67; 95%CI, 0.44-1.03; P=0.067) and total family income (OR, 2.20; 95%CI, 1.09-4.44; P=0.028). This study presented a prediction model for post-renal transplant marital satisfaction, using simple demographic variables. Because all these variables are easy to measure, even before transplantation, it would be possible to detect the high risk patients and apply family therapy modalities for prevention of poor marital satisfaction. This may decrease the risk of noncompliance in kidney recipients and improve their outcomes.

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**IXTH MESOT CONGRESS: QUALITY OF THE ABSTRACTS**

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We assessed abstracts of the IXth Congress of the Middle East Society for Organ Transplantation (MESOT) (December 6-10, 2004, Ankara, Turkey). Assessment was done with a valid and reliable 19-items quality assessment checklist which was developed by Timmer et al (2003) with a good inter-rater agreement (intra class coefficient 0.61-0.81). From the total 396 Congress abstracts, cluster random sampling was applied to select abstracts from and poster presentations. We assessed 109 abstracts, by recording presentation type, study type, country of study, number of authors and transplantation type, and we also assessed study, design and final quality score for each sample. Evaluation of the abstracts was performed by a single methodologist investigator. The mean (SD) quality score of all abstracts was 0.60±0.11 (range: 0.33-0.81), and more than 98% had a score above 0.50. Human observational studies had higher scores compared to human and basic interventional studies (P=0.001). Other variables had no association with quality scores. The strongest parts of abstracts were appropriateness of subjects and sufficient description of study objects, with a mean score of 0.97 and 0.91, respectively. For common items, characteristic of subjects (average score 0.45), method of their selection (average score 0.46) and sufficient detail of results (average score 0.55) were the weakest parts of abstracts. Overall, the quality of the abstracts presented in IXth MESOT congress was acceptable. However, according to our study, a better description of subjects, method of subject selection and detailed report of the results are certain aspects which could be taken into consideration.
Sleep disorder has a known role in morbidity and mortality after kidney transplantation. Despite this, the quality of sleep and its association with other morbidities in kidney recipients are not fully assessed yet. The aim of this study is to evaluate these problems in a group of kidney transplanted patients. In a cross-sectional study, we employed self-administered questionnaires to evaluate the quality of sleep (PSQI), quality of life (SF-36), comorbidity (Ifudu comorbidity index), caregiver burden (CBS), anxiety and depression (HADS) and marital relationship (Marital Adjustment Scale) in a group of 125 Iranian kidney transplanted patients. Patients with PSQI score of >5 were considered as ‘poor sleeper’. T-test was used to compare the results between the two groups. Seventy-eight (62%) patients found to be ‘poor sleepers’. This group showed higher total comorbidity score (p=0.009), more days using a home nurse in the past year (p=0.04), and higher bodily pain (p=0.02). ‘Poor sleeping’ was significantly associated with a poorer sexual function, poorer general mental health, and more severe depressive symptoms (p=0.05), but not significant association with quality of life, marital status, and caregiver burden. Poor quality of sleep is common after kidney transplantation. This problem is related with various organic and emotional morbidities such as depression, sexual dysfunction and somatic comorbidities. Therefore, more attention should be paid to evaluation of sleep quality in this patient population.

P 456
FACTORS AFFECTING THE HOSPITALIZATION PERIOD OF KIDNEY TRANSPLANTATION RECIPIENTS

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Nowadays as many of the problems confronting kidney transplantation have been solved, the number of operations has increased dramatically. So, resource utilization and financial issues have been cited as a new problem for transplantation centers. In this study, our intention was to find and assess the factors which can reduce the hospitalization period while this factor claims the biggest share of the total cost of the treatment process. In this research we studied retrospectively the medical history of 120 kidney transplantation recipients and donors whose operations were performed between 2000 and 2002. Collected information of recipient’s characteristics include gender, age, reason for kidney failure, weight, height, blood group, dialysis period, transplantation history, immunosuppressive regimes, complications after operation and hospitalization after the first discharge due to transplantation operation complications, and for the donors, age, sex and blood group of the donor and the type of donor (cadaver or living) and the relationship between the recipients and the donors. The following pre-transplant variables were found to be independently significant in predicting increased hospitalization period and consequently charges: length of dialysis before transplantation and the relationship between donors and recipients. Therefore, by reducing the waiting time and performing more operations on relative donors and recipients, we can significantly decrease hospitalization period and as a result the cost of treatment. Escalating number of the transplantation operations makes it necessary to analyse financial and clinical databases to find more factors correlating with the length of the hospitalization and charges.

P 457
FACTORS INFLUENCING OBTAINED CONSENT RATE FROM THE DECEASED DONOR FAMILIES: AN EXPERIENCE IN SOUTHERN IRAN

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Donor shortage is still major problem of transplantation programs. Even in a country with a system or an organization for transplantation, the rates of gained consents in different areas are not the same. We undertook this study to evaluate factors influencing consent rate from the deceased donor families. Between 1988 and 2006, 1555 kidney and 253 liver transplantations were performed in our center. During this period, 243 consents were obtained from the deceased donor families. Data of age, sex, residential place, number of family members, marital status, education, cause of brain death, and religious beliefs was collected. Statistical analysis performed by student T and Chi square tests. Informed consent was obtained from 243 deceased donors (158 males, 85 females), with a mean age of 29.4 years. 175 (72%) of cases had less than 30 years. 167 (68.7%) were single. 56 (23%) were younger than 15 years. 17 cases (6.9%) were older than 50. Cause of brain death in 209 cases (86%) was vehicle accident. Families of 8 (88%) brain death cases of 9, issued consent in private hospitals. All families of donors with suicide attempts issued consent. 183 brain death cases were from rural or suburb areas, from whom 168 (92 %) consents was obtained. 63% of cases had not academic education. Less consent was obtained from crowded families than small ones (40% versus 60%, P=0.05).Accepted consents from singles, young cases, suicidal victims, patients admitting private hospitals, those with small families, or live in rural areas were higher than consents obtained from donors of large cities, married or those admitted in charity hospitals.

P 455
SLEEP DISTURBANCES IN RENAL TRANSPLANT PATIENTS

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In this study, we evaluated the sleep quality in a group of kidney transplant recipients. Since sleep disorders have a known role in morbidity and mortality after kidney transplantation, the present study was aimed at evaluating sleep quality in this patient population. We used the Pittsburgh Sleep Quality Index (PSQI), a standardized and validated questionnaire that assesses sleep duration, subjective sleep quality, sleep-onset latency, sleep interruptions, sleep efficiency, use of sleeping medication, and daytime dysfunction. The study population consisted of 120 kidney transplant recipients who were newly admitted to our center. The mean±SD age of the participants was 44±11 years. The mean±SD PSQI score of the participants was 6.0±2.6, which was higher than the normal PSQI score (5±1). The PSQI score was significantly different between the recipients and donors. The following pre-transplant variables were found to be independently significant in predicting increased hospitalization period and consequently charges: length of dialysis before transplantation and the relationship between donors and recipients. Therefore, by reducing the waiting time and performing more operations on relative donors and recipients, we can significantly decrease hospitalization period and as a result the cost of treatment. Escalating number of the transplantation operations makes it necessary to analyse financial and clinical databases to find more factors correlating with the length of the hospitalization and charges.
P 458
KIDNEY TRANSPLANTATION IN THE ELDERLY, KUWAIT EXPERIENCE

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The number of elderly patients accepted in renal replacement programmes is increasing. There is a general agreement that age per se does not constitute a contraindication to transplantation. Yet many centres are still reluctant to accept patients >60 years old, as they are frail, have more comorbid conditions and their overall life expectancy is lower. The aim of this study was to investigate whether or not transplantation provides any survival benefit in this group of patients. This study is a retrospective case control analysis study in elderly patients (GrI; >60 years). Data were collected from 11/1993 till 5/2003.Data were compared to those obtained in patients (GrII) who were matched for HLA mismatches and time of follow up but not with recipients' age(20-50). Primary end points are Graft loss and/or patient death, while secondary end point are Cerebro-cardiovascular events,malignancies or rejection. Thirty-two patients with mean age (±SD) 63.4 (±3.2), ranged from 60 to 73 years old (11 females and 21 males) were compared with 32 patients with mean age (±SD) 33.5 (±7.46) ranged from 21 to 50 (11 females and 21 males). There is no statistically significant difference between the 2 groups in the result of mean s.creatinine after 1 year while mean s.creatinine after 3 years in GrII is significantly higher than GrI (p<0.003) and prevalence of malignancy was similar in both groups (one patient in each group). Seven graft were lost in GrI (6 due to patient deaths and 1 from trauma) while only 1 was lost in GrII (due to renal vein thrombosis) (p<0.01). Elderly age was associated with lower number of graft losses due to rejection, while they had higher death rate result in significantly worse overall renal transplant survival.

P 459
ATTITUDE OF IRANIAN NEPHROLOGISTS TOWARDS LIVE UNRELATED KIDNEY DONATION

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Live unrelated kidney donation (LUKD) is increasing world wide due to shortage of cadaveric kidneys. In our country a controlled LUKD program has been practiced since 1988. This study was conducted to evaluate the attitude of Iranian nephrologists towards different aspects of this program. Questioners including 20 questions were sent to the nephrologists by email, fax or direct delivery. From 100 nephrologists randomly selected, 50 filled and returned the questionnaires. 46 (98%) and 45 (90%) believed that LUKD has potential minor short-term and long term complications, respectively. 42% assumed renal failure as a potential complication. 92% used to inform the donors about the complications. 34% and 72% assumed inhalational opium addiction and heroin addiction as contraindica-

tions to LUKD, respectively. 80% assumed the donors as people in great need of money and obliged to donate kidney. 28% and 68% believed that the amount of recipients' gift and governmental award to the donor are not enough, respectively. 32% believed that all of the financial compensation should be done by the government or an official foundation. 66% believed that donors should be given social advantages and 26% believed that they should not, in-order to prevent persuasion of non-altruistic donation. 88% claimed that donor follow-up is not regularly done in our country and should be organized. Finally, 30 agreed and 19 disagreed with LUKD (1 didn't reply).

We conclude that despite the success of our LUKD program in elimination of transplant waiting list, most Iranian nephrologists believe that there should be some changes in medical, financial and ethical aspects of this program. Providing information about potential complications may not be enough to help the donors, who are generally in great need of money, in making a correct decision. We should reconsider the method and amount of financial compensation and organize a regular follow-up program

P 460
POOR QUALITY OF SLEEP IN HYPERTENSIVE KIDNEY RECIPIENTS: AN ADDITIONAL RISK

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Sleep disorder is a cause of morbidity and mortality in kidney recipients. Hypertension could be the cause or effect of sleep disorder. While hypertension is a leading cause of ESRD, there is no data available on sleep disorder in hypertensive kidney recipients. We designed this study to investigate this issue.In a cross-sectional study, 2004-2005, Tehran, Iran, 210 kidney recipients were divided into Group I (ESRD due to hypertension, n=82) and Group II (ESRD due to other causes n=128). There were no significant differences in sex, marital status, education status, income, living place, insurance status, transplantation source, rejection history, and history of previous transplantation between the two groups (p>0.05). Demographic, clinical and socioeconomic data as well as sleep quality by using Pittsburgh Sleep Questionnaire Scale (PSQI; higher score indicates poorer quality of sleep) were assessed in all patients. We compared the 2 groups for the measured variables. The Mean (SD) of total PSQI score was significantly higher in Group I compared to the Group II (7.4±2.36, vs. 6.60±3.07 p=0.042). Similar result was observed for Score of sleep duration in the groups (1.22±1.12, vs. 0.86±1.12 p=0.026). Other sleep components were not significantly different between the two groups. We observed that sleep quality and sleep duration is poorer in those recipients with hypertension as the cause of ESRD. Regarding sleep disturbance as a major cause of morbidity and mortality, the results of this study showed that hypertensive kidney recipients have an additional risk factor for poor outcome.
Bodily pain is prevalent in hemodialysis (HD) patients. Whether or not the kidney transplantation (Tx) could change it, is not clear. Moreover, the effect of the chronic bodily pain on patients’ quality of life (QOL) after Tx is not fully addressed, yet. We designed this study to find an answer to these questions. In a cross-sectional study in Iran, 2003 to 2006, we studied 205 Tx and 69 HD patients, who were matched for age and sex. All patients were evaluated for the presence and severity of chronic pain in the past 6 months, and those with moderate to severe pain considered as having significant chronic bodily pain. QOL was measured by SF-36. The correlation between SF-36 subscores and chronic bodily pain was assessed by using the Pearson test. The relative frequency of chronic bodily pain in Tx patients was significantly lower than HD patients (30.2% vs. 57.7%, p<0.05). The severity of bodily pain was negatively correlated with scores of SF-36 total (r=-0.329, p<0.001), mental Health (r=-0.190, p=0.007), physical health (r=-0.275, p=0.001), physical function (r=-0.339, p=0.001), role limitation due to physical problems (r=-0.478, p=0.001), and role limitation due to emotional problems (r=-0.326, p=0.001). There was no significant correlation between severity of bodily pain and social function score (p>0.05). However pain is less prevalent in kidney transplanted recipients in comparison to those on chronic hemodialysis, it’s prevalence is still considerable. This finding becomes more important by putting more emphasis on the effect of pain on the quality of life. Diagnosing the causes of the chronic pain and proper treatment may improve the quality of life after kidney transplantation.

P 462
RENAL TRANSPLANTATION FROM LIVING RELATED VS. UNRELATED KIDNEY DONORS

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Our study population consisted of 402 Living Related Donors (LRD)-of which 344 pairs shared 1 haplotype (Group A) and of 209 Living Unrelated Donors (LURD) (Group B): 175 between spouse pairs (Group C) – 132 from wife to husband (Group C1) and 43 from husband to wife (Group C2) as well as 32 between relatives in law (Group D). 199 pairs showed 3-6 HLA A B Dr missmatches (MM) with the donor and in 10 cases 0-2 MM. Donor and recipient mean age was 49±13.4 and 29±10.3 in Group A and respectively 46±11.2 and 48±9.6 in Group B. The post-transplant immunosuppression therapy was based on Cyclosporin A (CsA). C2 test was used to assess statistical signficance. Donor mortality was 0%; perioperative morbidity was 15.2%. Graft function immediately started after surgery. The actuarial 1yr, 5yrs, 10yrs and 15yrs graft survival was in Group A: 94%, 86%, 84%, 75% vs. Group B: 89%, 78%, 71%, 70% (NS), Group C1: 90%, 75%, 67%, 69% vs. Group C2: 81%, 74%, 72%, 62% (NS) and Group C: 88%, 78%, 66%, 60% vs. Group D: 91%, 80%, 71%, 61% (NS). There was no statistically significant difference between LURD and LRD as far as graft survival. In conclusion, we certainly agree with the guidelines issued by the International Congress on Ethics in Organ Transplantation (Munich, December 10-13, 2002); kidney transplantation from living donors is a safe and effective procedure and should not be discouraged.
P 464
PHARMACOKINETICS, EFFICACY AND SAFETY OF IMIN® COMPAIRED TO NE® IN HEALTHY VOLUNTEERS AND RENAL TRANSPLANT RECIPIENTS

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The aims of this study were to evaluate: (1) bioequivalence between Imin® (test) and Ne® (reference) in healthy volunteers, (2) efficacy, safety and need for dose adjustments by converting renal transplant recipients from Ne to Imin. At first step, 18 healthy volunteers (25±5 years, 71.2±8 kg) after an overnight fast of 12 hours received assigned treatment (test or reference, 200 mg single dose) in a cross over fashion with a washout period of 14 days. The blood samples were drawn at different times after drug administration. Cyclosporine blood concentration was measured by HPLC using UV detector. With the rational behind the safety of usage of the drug, renal transplant patients with established transplant programs who were taking stable doses of Ne, selected from 2 renal transplant center in Iran, randomly in an open-label manner. They were converted from Ne to Imin based on a 1:1 dosing equivalency. Cyclosporine trough levels and changes in serum creatinine, lipid profile, electrolytes and uric acid were measured before and periodically after conversion for 6 months. 90% confidence interval on the ratio of test/reference was within the acceptable limits of 0.8-1.25. Relative bioavailability of Imin in healthy subjects was 99.0%. 41 patients were included in data analysis. There was no statistically significant difference in cyclosporine concentration and serum creatinine following conversion to Imin in renal transplant patients. There were no reports of major toxicity, graft rejection and no need for dosage adjustment related to Imin. Single doses of Ne and Imin are bioequivalent in healthy subjects. Renal transplant recipients maintained on Ne can be safely and effectively converted to Imin on a 1:1conversion ratio.

P 466
EFFECT OF ANTI-LFA-1 MONOCLONAL VS. ATG POLYCLONAL ANTIBODY ON POST-ISCHEMIC INJURY IN ISOLATED KIDNEY REPERFUSION

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Ischemia-reperfusion and leukocyte adhesion plays an important role in delayed graft function (DGF). A monoclonal antibody (moAb) against the adhesion molecule LFA-1 (odulimomab) in comparison to a polyclonal Ab ATG(F) was tested in a primate model of kidney transplantation using human blood and ex-vivo hemoperfusion, wether the rate of DGF could be reduced. Cynomolgus monkeys (n=14) were unilaterally nephrectomized, the right kidney pedicle was clamped for 45 min. (warm ischemia), kidneys were flushed with Eurocollins solution and stored at 4°C for 24 hours. Concordant reperfusion followed with 500 ml heparinized ABO-compatible human blood following cross-check in n=4 kidneys without (control group I), n=5 kidneys with odulimomab in concentration of 2 mg/l (group II) and ATG with 20 mg/l (group III, n=5). Measurement of resistance as well as blood and urine samples were collected to determine electrolyte balance, albumine loss, alpha and pi-GST, LDH and TNF-alpha. After 3 hrs. reperfusion, specimens underwent routine histology (H.E.) and transmission electron microscopy. Control group showed higher resistance (median 12,5 vs. 8,15 and 7,95 mmHG/min x ml at 5 min.) compared to II and III with increasing difference. Urine alpha-GST1 was 8,85 times higher in group I at 60 min (vs. II and III). Superior structural integrity of tubular epithelial cells and less leukocyte adhesion was visible in II and III. Effective kidney protection after warm and cold ischemia can be reached with antiadhesive therapy via monoclonal as well as polyclonal Ab´s. Further studies will clarify the mechanism.
Reperfusion of ischemic liver results in the generation of oxygen radicals. In this study, we analyzed the antioxidants such as superoxide dismutase (SOD) and catalase mRNA and protein expressions after reperfusion liver injury and analyzed the hydrogen peroxide production. Ischemia (I) was induced by clamping the common hepatic artery and portal vein of rats for 40 min and then reperfused (R) for 90 min. Blood samples collected prior to I and after R were analyzed for hydrogen peroxide, aspartate transference (AST), and alanine transferase (ALT). Liver tissues were used to analyze the SOD and catalase mRNA and protein expressions by real time polymerase chain reaction and Western blot. The results showed that this protocol resulted in elevation of the blood AST and ALT levels (p<0.01), however, hydrogen peroxide decreased (p<0.05). mRNA and protein expressions of SOD and catalase were all increased (p<0.05). Pretreatment of N-acetyl cysteine (NAC) attenuated the liver injury. These results indicate that reperfusion of the ischemic liver induced antioxidant enzymes expressions so that oxygen radicals are scavenged. Oxygen radicals scavenger (NAC) could further attenuates the ischemia/ reperfusion-induced liver injury.

To evaluate the cardiovascular injury induced by ischemia and reperfusion of the liver by measuring changes in blood levels of cardiac troponin I (cTNI), an index of cardiovascular injury, as well as the levels of selected indicators of an inflammatory response. Ischemia was induced in rat liver by clamping off the common hepatic artery and portal vein for 40 min, after which flow was restored, and the liver was reperfused for 90 min. Blood samples were collected prior to ischemia and after reperfusion, and white cell counts as well as levels of cTNI, tumor necrotic factor (TNF), malondialdehyde (MDA) hydroxyl radical and nitric oxide were measured. Also measured were blood levels of SGOT, SGPT and LDH, which served as indexes of liver injury. Mean arterial blood pressure was monitored throughout the experiment. Ischemia/ reperfusion of the liver induced 4- to 5-fold increases in SGOT, SGPT and LDH (p<0.001). Increased cTNI levels (p<0.01), indicative of cardiovascular injury, were associated with the such inflammatory responses as elevated white cell counts (p < 0.05) and elevated levels of TNF (p<0.05), MDA (p<0.05), methyl guanidine - a hydroxyl radical reaction product (p<0.01) - and nitric oxide (p<0.05). Ischemia/reperfusion-induced liver injury is associated with cardiovascular injury, perhaps resulting from inflammatory responses triggered by elevated levels of such reactive oxygen species as nitric oxide, superoxide and peroxynitrite.

In the present study we investigated whether ischemia/ reperfusion (I/R) of the intestine can induce translocation of bacteria, endotoxin, and pancreatic juice into the blood. The levels of amylase and lipase in the blood were measured to reflect the dislocation of the pancreatic juice. Plasma endotoxin levels were measured with the Limulus amebocyte lysate assay. Levels of E. coli DNA, as measured by polymerase chain reaction (PCR), reflected bacterial translocation. Reperfusion of the intestine induced a significant increase in the levels of endotoxin and pancreatic juice in the blood. However, there was no bacterial translocation into the blood. Organ injury parameters, such as the blood concentrations of ALT, LDH, CKMB, and Cr, and the lung weight/body weight ratio (LW/BW) were all increased significantly after ischemia/reperfusion (I/R) challenge. Inflammatory parameters such as WBC count and hydroxyl radical, nitric oxide, and tumor necrosis factor levels were also increased significantly. After administration of enzymes inhibitor, FOY (10mg/kg) the liver injury was significantly attenuated. These findings suggest that I/R of the intestine induce multiple organ injuries that appears to be more dependent on the translocation of pancreatic enzymes.
P 471
DETECTION OF ACTIVE BLEEDING IN RENAL AND LIVER TRANSPLANT PATIENT BY USING MDCT-ANGIOGRAPHY

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Aim of this study was to evaluate the effectivity of MDCT-A in the detecting of active bleeding in transplant patients. Between 1999-2006 532 patients underwent renal or liver transplantation. MDCT-A was done to the recipients who had decrease in hemoglobine level and/or who were detected to have hematoma during abdominal ultrasound imaging. The MDCT-A was done with 16-detector (Siemens, Sensation) computed tomography (CT) device. 0.75 mm slices in thickness were maintained after injection of non-ionic contrast media at the rate of 4 ml in a second. Multiple Intensity Projection (MIP) technique was used to maintain angiography images in axial and coronal planes. MDCT-A detected active bleeding in 23 posttransplant patients. In these patients 10 were with arterial origin whereas 13 were venous, which were proved either by angiography or during operation. 11 patients underwent angiographic imaging. In 8 of these 11 patients an arterial origin was embolized during angiography. In 3 patients angiographic evaluation was not helpful in finding the bleeding point. 5 of 12 patients who did not undergo angiographic evaluation were followed by clinical and ultrasonographic findings. 7 patients were reoperated. Management of the patients who are suspected to have active bleeding after renal or liver transplantation is very important for the transplant surveys. MDCT-A is a very valuable screening modality in determining active bleeding as it is an accurate and feasible technique.

P 472
BASELINE HDL IS A GOOD PREDICTOR OF PROGRESSION OF ATHEROSCLEROSIS AFTER KIDNEY TRANSPLANTATION

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Kidney transplant recipients are at higher risk of atherosclerosis. The definite role of different factors have not been well studied yet. We studied the effect of several of these factors on progression of atherosclerosis after kidney transplantation. In a group of kidney recipients, the carotid intimal-media thickness (CIMT) was measured using B-mode sonography. The baseline level of plasma lipids (TG, HDL, LDL) was as well as other. The mean ± sd of measured variables are as follows: age: 41.5 ± 11.1 years; CIMT: 0.83 ± 0.22 mm, TG: 127.7 ± 44 mg/dl, LDL: 100.15 ± 26 mg/dl, HDL: 54.2 ± 15.5 mg/dl, FBS: 84.4 ± 30.1, Hgb: 9.9 ± 2.4 mg/dl, systolic BP: 130.8 ± 13.2 mmHg and diastolic BP: 78.4 ± 6.2 mmHg. Our result showed that baseline HDL Is A Good Predictor Of Progression Of Atherosclerosis After Kidney Transplantation.

P 473
FOLIC ACID AUGMENTS THE LIPID PROFILE DISTURBANCE AFTER KIDNEY TRANSPLANTATION

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Some studies have found that the folic acid exerts a negative effect on lipid profile of ESRD patients, while others did not see any effect. We prospectively studied this effect in a population of renal transplanted patients. Patients with transplanted kidney who were under folic acid supplementation regimen were followed for a period of 4 months. The patients’ plasma levels of triglyceride (TG), LDL and HDL cholesterol were measured at baseline and then monthly after transplantation. We compared theses values using paired sample T-test. The mean ± sd for baseline measure of folic acid, TG, HDL and LDL were 5.4 ± 3.1, 125.2 ± 41.3, 101.8 ± 29.8 and 60.9 ± 20.9 respectively. After 4 months, the plasma level of TG increased significantly and reached to 188.4 ± 110 (p = 0.001). The baseline level of folic acid was significantly correlated with the change in plasma TG (r = 0.604, p = 0.001). Patients with baseline folic acid of more than 6 mg/dl had significant change in their level of plasma TG (p = 0.011). The trend in LDL and HDL were increasing and decreasing, respectively (p<0.05). Folic acid caused a significant rise in TG level. Also,
the trend in HDL and LDL level were towards the lipid profile disturbance. We conclude that with folic acid supplementation, probable late outcomes of lipid disturbance must be considered.

P 474
COMPARATIVE EVALUATION OF VOLUME RENDERING & MAXIMUM-INTENSITY PROJECTION TECHNIQUES IN MULTIDETECTOR COMPUTED TOMOGRAPHY ANGIOGRAPHY

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To compare the accuracy of volume rendering (VRT) and maximum-intensity projection (MIP) techniques in sixteen-row multidetector computed tomography angiography (MDCTA) and correlate with per operative findings. Sixteen-row MDCTA scans were performed in 85 renal and 15 hepatic transplant patients between 10th October, 2004 and 30th July, 2006. 80 – 100 cc of Injection Iohexol (300 mgI/mL) was injected for renal studies and in dose of 2ml/Kg. body weight for hepatic studies. Saline bolus chase was used in all the studies. Ultrathin 1.25 mm contiguous axial sections were acquired and submillimeter sections reconstructed with 50% overlap. Post-processing included VRT, MIP and multiplanar reconstruction techniques. The raw-data set was anonymized for the two blinded trained radiologists in all the patients and they performed VRT and MIP reconstructions independently, which were compared with surgical findings. Interobserver agreement between the two reviewers and between MDCTA post-processing techniques and surgical findings was quantified by using weighted K statistics. MDCTA scans were technically satisfactory in all the patients and showed clear delineation of the renal and hepatic arteries. Discordance between the two post-processing techniques was seen in 62% patients and especially for thin accessory arteries. Correlation between MIP and operative findings was excellent for renal and hepatic arteries (K = 0.843). Agreement between VRT and surgical findings was good (K = 0.710). MIP is superior to VRT in delineating the vascular anatomy accurately and should be the standard first post-processing technique in MDCTA study.

P 475
RADIOLOGIC INTERVENTION IN BILIARY STRICTURES AFTER ORTHOTOPIC LIVER TRANSPLANTATION

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The development of anastomotic strictures is one of the most common complications of orthotopic liver transplantation (OLT). Interventional radiology with balloon dilation and/or stent placement is an effective therapy. The aim of this study was to compare between outcome of radiologic intervention and surgical intervention in patients with post liver transplantation biliary stricture. We selected 12 patients who were admitted in Namazee hospital (the only liver transplantation center in Iran) due to biliary stricture after OLT and divided them into 2 groups (A, B). We applied radiologic intervention with balloon dilation for group A. Group B was managed with surgical intervention. At last the outcomes of these treatments were compared after 1 month. The mean age of group A was 28±1 and group B was 30.5±1. 3 patients of group A were improved completely (Total bilirubin and alkaline-phosphatase were dropped and their clinical problems such as itching were disappeared), while 5 patients of group B were improved that was not significant statistically (p>0.05). 2 patients with radiologic intervention did not improve and open surgery was done for them. Total bilirubin of the last patient in group A was dropped from 38 to 30 after intervention with balloon. Although radiologic intervention has been introduced as an effective management of biliary stricture after OLT in many recent researches, in this study we concluded that there is not any significant difference between the outcomes of this management and surgical intervention. It is clear that our cases were restricted and we suggest performing further studies with more cases.

P 476
CT VOLUMETRIC FOLLOW-UP OF GRAFT VOLUME IN LIVER RECIPIENTS

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Liver regeneration is a fascinating process that makes living related donor transplantation feasible for patients. In this study we evaluated the change in graft volumes in living related liver transplantation (LRLT) patients by computerized tomography (CT) assisted volumetry technique. 33 patients (17 adults, 16 children) who underwent liver transplantation were included in this study. Pediatric patients were referred as group A, adult patients were referred as group B. The initial graft weight measured during operation was used as the initial graft volume. All patients’ graft volumes were calculated by CT volumetry technique retrospectively. The data was compared with the initial graft volume in each patient. Paired Samples T-Test was used for statistical analyses. The graft volume increased 2.7-285.6% with the mean increase 89% in group A, and 10.5-150.8% with mean increase 89 % in group B. These changes were statistically significant (p<0.0001) in both groups. The liver regeneration of recipients grafts is more complicated than that of donors. There are a limited number of reports of complete volume recovery. We showed that volume regeneration is significant in liver grafts after transplantation and this can easily be followed by CT-assisted volumetry.
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EVALUATION OF HEPATIC VASCULAR ANATOMY IN LIVER TRANSPLANT DONORS, RECIPIENTS AND HEPATIC RESECTION CANDIDATES - SIXTEEN-ROW MULTIDETECTOR COMPUTED TOMOGRAPHY

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To assess the accuracy of sixteen-row multidetector computed tomography angiography (MDCTA) in preoperative evaluation of arterial, portal and hepatic venous anatomy. 52 liver donors, 12 liver recipients and 11 patients for hepatic resection underwent MDCTA with sixteen-row CT scanner during 11-month period. Thin axial images were acquired in arterial, portal and hepatic venous phases. Post-processing included multiplanar reconstructions, maximum-intensity projection and volume-rendering techniques. Findings were analyzed by two radiologists and compared with surgical findings in 23 patients. MDCTA examinations were technically satisfactory in all patients for arterial scan but for venous phases in only 47 (90.4%) donors, 5 (41.7%) recipients and 10 (90.9%) patients for hepatic resection. Arteries upto tertiary branches were identified in 73 (97.3%) patients. Segment IV artery was seen originating from right hepatic artery in 26 (34.7%) patients. 21 (28%) patients showed right hepatic artery arising from superior mesenteric artery while 13 (17.3%) had an accessory artery from superior mesenteric artery to segment IV. Thin accessory arteries measuring <3mm. In diameter were seen arising from aorta, celiac trunk/gastroepiploic artery in 8 (10.7%). 41 (66.1%) patients had accessory hepatic veins larger than 3mm. of which 7 (17.1%) drained into inferior vena cava. 35 (56.4%) patients showed common origin of the right/middle hepatic veins. Trifurcation of main portal vein was seen in 18 (29%) patients. There was one-to-one correlation between the MDCTA findings of the arterial anatomy and per-operative findings while small accessory hepatic veins draining segments VI and VIII were missed on MDCTA in 3 (0.05%) patients. Sixteen-row MDCTA provides precise information of hepatic vascular anatomy as well as vascular variations and is an indispensable tool for planning liver surgery.

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SIXTEEN-ROW MULTIDETECTOR COMPUTED TOMOGRAPHY IN PREOPERATIVE RENAL DONOR ASSESSMENT: COMPARISON WITH MAGNETIC RESONANCE ANGIOGRAPHY AND DIGITAL SUBTR

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To determine the accuracy of Sixteen-row Multidetector Computed Tomography angiography (MDCTA) in assessment of renal vasculature and upper urinary tract in living renal donors and correlate the findings with Magnetic Resonance Angiography (MRA), Digital subtraction angiography (DSA) or surgery. 350 prospective living renal donors were evaluated with MDCTA & MRA from 10th October,2004 till 30th June,2006. The findings were analyzed by two radiologists and compared with DSA or surgical findings. The number of vessels and pattern of early branching arteries was assessed. Interobserver agreement between MDCTA and DSA/surgical findings was quantified by using weighted Kappa statistics. MDCTA findings were compared with MRA taking surgical findings/DSA as the ‘gold standard’. Sensitivity and specificity of MDCTA in identifying accessory vessels and branching pattern was also evaluated. MDCTA showed clear delineation of the main renal arteries and veins in all the donors with detailed vessel morphology. Correlation between MDCTA and MRA findings was excellent for renal arteries (K = 0.821) and good for renal veins (K = 0.637). Agreement between MDCTA and surgical findings/DSA was excellent for renal arteries (K = 1.0) and veins (K = 0.889). The sensitivity and specificity of MDCTA was 100% for early branching arteries and accessory arteries/veins. The accessory renal vessels had an overall incidence of 26.7% with commonest distribution in the parahilar region. At urography, the upper urinary tract was well-opacified in all the patients.MDCTA is superior to MRA in detection of accessory vessels and should be the standard imaging method for living renal donors.

P 479
PERI-HILAR BRANCHING PATTERN OF THE RENAL ARTERY

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The peri-hilar branching pattern of the renal arteries is very important for surgeons to know before the kidney transplantation. The literatures on this topic are more often than not single case reports. To our knowledge, no series has yet been done to show this anatomy. The aim of this study was to identify the variations in the peri-hilar (extra-parenchymal) branching of the main renal artery. Eighty one kidneys of 65 potential renal transplant donors who had undergone pre-operative conventional renal angiography at our center were randomly recruited and examined. Renal shadow was marked on the film and the main renal artery traced from its origin medially up to their entrance into the renal parenchyma. Morphologically, we classified the peri-hilar branching pattern of the main and segmental arteries into ladder (with sequential branching points) and fork (with a common branching point) types. The latter was either duplicated or triplicated. The peri-hilar morphology of the main renal artery was then categorized according to its primary and secondary divisions and their patterns. If a single category encompassed more than or equal to the 5% of observed figures, it was recorded as a “cardinal” peri-hilar arterial morphology. Otherwise, it was counted within the category of ‘others’. At the level of main artery, fork pattern was observed in 93.8.1% (n = 76) (84.3% duplicated (n =64) and 15.7% triplicated (n = 12)) and ladder pattern in 6.2% (n = 5) of kidneys. Of 165 branches off the fork-type main artery, a sec-
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MULTIDETECTOR COMPUTED TOMOGRAPHIC ANGIOGRAPHY (MDCT-A) FINDINGS OF SPLENIC ARTERY STEAL SYNDROME IN LIVER TRANSPLANTATION

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Splenic artery steal syndrome (SASS) is common complication in liver transplantation and diagnosed by conventional angiography by enlarged splenic artery and dynamic findings. The aim of this study was to determine MDCT-A findings of splenic artery steal syndrome and develop some diagnostic criteria. 10 patients was diagnosed by celiac angiography as splenic artery steal syndrome in 136 liver transplant patients. In eight of them MDCT-A was performed. Axial and coronal MIP images were obtained in arterial and portal phase. We measured the diameter of celiac truncus, splenic, left gastric, common hepatic, superior mesenteric artery, and transplant hepatic artery. The size of spleen, the ratio of splenic artery to common hepatic artery, the ratio of splenic artery to transplant hepatic artery, the diameter of portal vein and superior mesenteric vein was noted. The control group consists of liver transplant patients with normal liver enzyme levels. We performed student t test for statistical examination. The diameter of splenic artery (p<0.05), the size of spleen (p<0.01), and the ratio of splenic artery to transplant hepatic artery (p<0.05) was statistically significant between two groups. The diameter of splenic artery was larger than 4 mm in all patients in study group. The conventional angiography was mandatory in diagnosis of SASS. In patients suspected for SASS as clinically MDCT-A can be used as first step imaging modality for early diagnosis.

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MANAGEMENT OF SENSITIZED PATIENTS AWAITING RENAL TRANSPLANTATION: DOES SEQUENTIAL THERAPY OF INTRAVENOUS IMMUNOGLOBULIN AND SIMVASTATIN MAKE A SOLUTION?

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The goal of this study was to assess the efficacy and the utility of Immunoglobulin (IVIG) and simvastatin as potential modalities for the treatment of sensitized transplant candidates. The study included 11 patients with end stage renal disease who were waiting for living related renal allotransplantation. All patients had persistently positive crossmatches with their living related donors and panel reactive antibody (PRA) titer ≥20%. All patients received IVIG in a dose of 500 mg/Kg/day, every other day, for a period of two weeks at a total of 6 doses. PRA titer and crossmatch testing were carried out after each dose and before each subsequent one. Two months later, non-responders received simvastatin in a dose of 20 mg/day, ly for a period of two months. PRA titer and crossmatch testing were carried out every two weeks.Four out of the 11 patients (36%) showed improvement in their PRA activity where the mean PRA titers before and after IVIG administration were 39±18% and 37±17% respectively, however this improvement did not rank to a statistical significance (p=0.36). Moreover, simvastatin resulted also in a non significant improvement of PRA in 5 out of the 11 patients (45%), mean PRA titers before and after simvastatin administration were 37±17% and 40±20% respectively (p=0.32).Repeated crossmatch testing showed that none of the patients could attain a negative crossmatch reaction. IVIG or simvastatin alone can not effectively inhibit preformed anti-HLA antibodies to allow successful renal transplantation. Further trials of the use of IVIG or simvastatin with other more powerful modalities of treatment to desensitize these patients may be warranted.

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IN VITRO EFFECT OF pATGS ON ADHESION MOLECULES OF LEUKOCYTES AND THROMBOCYTES: A KEY TO SIDE-EFFECTS?

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Immunosuppression with pATGs may influence the expression of adhesion molecules on thrombocytes, lymphocytes and neutrophils due to unspecific antibodies directed against myeloid and non-myeloid cells. The aim of our study was to assess the influence of pATGs upon the in vitro expression of adhesion molecules of lym-
phocytes, neutrophils and thrombocytes by means of flow-cytometry. Depletion, activation and expression of adhesion molecules of thrombocytes (CD41, CD42, CD62p, CD107a), neutrophils and lymphocytes (CD11, CD18, CD62L) were studied in vitro in whole blood of healthy volunteers by means of flow cytometry after incubation with standard and toxic doses of three polyclonal ATGs: ATG-Fresenius; Thymoglobulin and Tecelac. Our data show no ATG-mediated cytotoxicity activity against platelets. ATGs are able to activate platelets through increased expression of P-selectin and hLAMP-1. ATGs also reduce the expression of CD62L on lymphocytes and neutrophils. Furthermore, the effects of ATG on CD11/CD18 are dependent on the dosage and the ATG employed. Our data show that ATGs induce expression of adhesion molecules and activate unstimulated thrombocytes as well as reduce the expression of adhesion molecules on lymphocytes and neutrophils. Increased adhesion of thrombocytes may be responsible of side-effects observed in the clinical practice such as decreases of circulating thrombocytes and haemorrhages. Reduction of the expression of adhesion molecules of lymphocytes and neutrophils can increase the risk of infection.

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**TIME COURSE CHANGES OF SERUM IMMUNOGLOBULIN CONCENTRATION AFTER HUMAN SOLID ORGAN TRANSPLANTATION**


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It has been shown that immunosuppressive drugs are capable of impairing B cell function following solid organ transplantation. Immunoglobulin abnormalities in organ transplant recipients have been described in literature, but data on graft recipients are still rare. Investigative the pattern of immunoglobulin variation after human solid organ transplantation. This study includes 18 liver transplant patients and 14 renal transplant patients. Serum Immunoglobulin (IgG, IgA, IgM) were assayed by nephelometry before and at different periods after transplantation (one sample during 1-3 days and 2 samples during 1-4 mounts after transplantation). In liver transplant study: Serum immunoglobulin increase (IgG and IgA) was prominent in some patients before transplantation. A rapid drop in IgG and IgA was observed during the first days after transplantation. Serum immunoglobulin remained stable within normal limits during the following months after liver transplantation. In renal transplant study: Serum immunoglobulin (IgG, IgA, and IgM) remained within normal or near normal limits during the time after transplantation in 13 of 14 cases. Hypogammaglobulinemia (IgG) was present in one of our renal transplant recipients. The time course changes of serum immunoglobulin concentrations after solid organ transplantation may be interesting because: 1) Immunoglobulin levels after transplantation may predict the risk of hypogammaglobulinemia and/or infections by capsulated micro organisms. 2) Serum immunoglobulin increase is a feature of chronic liver diseases, so it may add an insight into the pathogenesis of hypergammaglobulinemia of liver diseases.

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**THE EFFECT OF PRETRANSPLANT BLOOD TRANSFUSIONS AND HLA-DR MATCHING ON THE OUTCOME OF KIDNEY TRANSPLANTATION**

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To study the effect of pretransplant blood transfusions (PTBT) and HLA-DR matching on the outcome of KT in 149 renal transplant patients done in our hospital between December 1998 and November 2004 with a follow-up of 1 year. Study Patients were divided in 4 groups: Group A (100 patients) with PTBT<2 units and 0 or 1 DR matching, Group B (26 patients) with PTBT=> 2 and 0 or 1 DR matching, Group C (19 patients) with PTB <2 and 2 DR matching and Group D (4 patients) with PTB => 2 and 2 DR matching. All demographic, epidemiological, immunological and medical data in this retrospective study were compiled and analyzed by SPSS11.0. The rate of acute rejection, rate of delayed graft function, length of hospital stay, creatinine blood level upon discharge and the 1-year graft and patient survival were comparable between the 4 groups. However, creatinine blood level at 1, 3, 6 and 12 months were the lowest in the Group B and the highest in Group D (p<0.05). The PTBT effect clearly does exist on the kidney graft function at 1 year without improving the patient or the graft survival. This beneficial effect does occur when 2 or more PTBT were administered (p <0.05 between Groups B and A, and p< 0.05 between Groups B and C) except in 2 DR matched transplant patients (p=NS between Groups B and D and p=NS between Groups D and C). We conclude that, even in this new era of immunosuppression protocols, PTBT should not be abandoned unless patients receive zero DR mismatched kidneys. Further follow-up is needed to evaluate the long term effect of PTBT and DR matching.

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**CYTOKINE GENE POLYMORPHISMS IN RENAL TRANSPLANT RECIPIENTS**


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Acute rejection remains an important cause of graft loss after renal transplantation. However, the influence of functional immune response gene polymorphism on transplant outcomes remains controversial. A total 100 first adult kidney recipients on cyclosporine-based immunosuppression were genotyped for IL-10 (-1082 G/A), TNFα (-308 G/A) and IFN-γ (+874 T/A) single nucleotide polymorphism by ARMS-PCR. An acute rejection episode was defined based
on clinical and histological findings (Banff criteria). Multivariate analysis showed no significant association between acute rejection and single nucleotide polymorphisms in IL-10, TNFα genes or dinucleotide repeat polymorphisms in IFNγ gene. Our results demonstrated that cytokine gene polymorphisms did not influence the early outcome of kidney transplantation.

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MALIGNANCIES AFTER RENAL TRANSPLANTATION: A SINGLE CENTER STUDY

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Renal transplant recipients are known to develop higher incidence of malignancies compared to expected cancers in age-matched control population. We examined risk factors for malignancies among 380 Tunisian patients who underwent kidney transplantation between 1970 and 2004. Univariate analysis comparing survival curves with Log Rank test was performed. There were 33 “de novo” cancers occurring in 31 patients. The overall prevalence in our centre was 8.15% with a mean follow-up of 93 months after transplantation. The mean age of recipients at the time of transplantation was 36 years. The mean age of transplanted patients who developed cancers at the time of diagnosis was 44 years with a sex-ratio of 1.6. The average time to appearance of tumors was 74 ± 10 months. Survival free of cancers in transplant ed patients with functioning allograft was 96% at 5 years, 89% at 10 years, 81.5% at 15 years and 81.5% at 20 years. The most common malignancies were skin cancers which occurred in 10 patients followed by Kaposi sarcoma which affected 9 patients and lymphomas in 8 patients. Four kidney recipients developed an adenocarcinoma and two patients had brain tumors. In univariate analysis, recipient age, donor source, ciclosporine based therapy, HLA-A and HLA-DR mismatching were significant risk factors for cancer incidence. Multivariate analysis with Cox regression found all these factors as independent risk factors for cancers after renal transplantation. Only ciclosporine based immunosuppression was excluded by multivariate analysis. In agreement with other studies, age is a strong predictor of malignancies after renal transplantation. The adjusted relative risk attributable to age at transplantation (compared to age <35 years) was 3 (p=0.02) and to cadaveric donor, 2.6 (p=0.04). The adjusted relative risk attributable to HLA-A mismatching for two antigens as compared with no mismatching or mismatching for one HLA-A antigen was 5 (p=0.007). HLA-DR mismatching was also a strong predictor for malignancies. The adjusted relative risk due to HLA-DR mismatching for two antigens was 5 (p=0.006). Effort to reduce immunosuppression, regular check-up particularly for patients ≥35 years of age at transplantation and optimal matching for HLA antigens between receiver and donor may help to reduce the risk of malignancies after kidney transplantation.

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CMV INFECTION AND ASSOCIATED RISK FACTORS IN RENAL TRANSPLANT RECIPIENTS

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Cytomegalovirus (CMV) disease is one of the leading causes of morbidity and mortality after kidney transplantation. Despite the growing number of kidney transplantation in Iran, there is few data available on risk factors of this disease. The aim of this study was to clarify this. We prospectively followed all the kidney recipients in Baqiyatallah Hospital, Tehran, Iran between 2002 and 2005 for the clinical evidences of CMV disease. Suspected patients were entered the study and assessed for the presence of pp65 in leukocytes, which confirms the diagnosis in suspected patients. Demographic data, cause of ESRD, history of graft rejection and past medical history were also assessed in all patients. During this period, 127 patients entered the study, of them, 30 patients were pp65 positive and diagnosed as having CMV disease (male: 21(70%), female: 9 (30%). Mean age at infection was 48.87 ± 15.37 years. Mean duration between transplantation and the diagnosis of CMV disease was 4.59 ± 11.56 months. Patients with CMV disease have significantly higher age at transplantation and a history of diabetes mellitus compared to other patients (p=0.01). This relationship was not seen in gender, educational level, socioeconomic status, history of graft rejection and blood transfusion (p>0.05). Our results showed that the patients with clinical findings similar to CMV disease with diabetes mellitus and older age at transplantation are at higher risk of CMV disease. Prophylaxis considerations, at least in high risk patients, should be emphasized for prevention of this disease.

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BENEFITS OF ISONIAZID CHEMOPROPHYLAXIS IN DEVELOPING COUNTRIES WITH HIGH PREVALENCE OF TUBERCULOSIS

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The incidence of post transplant tuberculosis is 15% in the developing world. The aim of this study was to evaluate effect of Isoniazid (INH) chemoprophylaxis on post transplant TB infection. Four hundred and two patients were randomized and 187 received INH prophylaxis at 300mg/day for one year and 215 without prophylaxis were taken as controls prior to transplantation. Primary disease and co-morbidities were similar in both groups. Immunosuppression was by triple drug. All patients were followed for 1 year. The exposure risk factors in treated group A and controls group B were, past TB 5.3% A vs 5.5% B, TB in close contacts 3.2% A vs 2.7% B, acute rejection 10.1% A vs 10.2% B, smoking 12.7% A vs 9.6% B. At one year follow-up 1 (0.62%) patient from group A and 10 (5.0%) from group B developed TB. Site of TB was pulmonary in 9, joint in 1 and lymph node in 1. The average duration of TB development was 32
weeks (range 11-64) The study has shown that INH prophylaxis reduces post transplant tuberculosis. Chemoprophylaxis may thus play an important role especially in developing centres where TB is endemic.

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**IMPACT OF CYTOMEGALOVIRUS (CMV) INFECTION ON RENAL ALLOGRAFT FUNCTION**

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Cytomegalovirus infection is the single most important infectious agent in kidney allograft recipients. The aim of our study was to look at the long term renal allograft function in patients who were diagnosed to have CMV infection. All patients transplanted between Sep 99 and June 2003 in whom CMV antigenemia was positive by pp 65 early antigenemia assay on suspicion of CMV disease were retrospectively reviewed. Significant graft dysfunction at the time of CMV infection was defined as creatinine of more than 2 mg/dl. One hundred nine out of 459 (23%) transplants performed during this period were reported positive for CMV early antigenemia. Mean age was 30.8±10.0 years with a male to female ratio of 156 Xth CONGRESS OF THE MIDDLE EAST SOCIETY FOR ORGAN TRANSPLANTATION

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**HYPERINFECTION STRONGYLOIDIASIS CAMPAIGN, AN ANTICIPATED OUTBREAK IN KIDNEY TRANSPLANT RECIPIENTS IN KUWAIT**


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Hyperinfection strongyloidiasis is a potentially fatal disease associated with conditions of depressed host cellular immunity. High degree of suspicion is required to pick up cases early and avoid fatal outcome. During the period from 29/09/2004 till 30/11/2004 we had 3 cadaveric kidney transplant recipients died from hyperinfection strongyloidiasis within a short time. All members of the transplant team, microbiology department and infection control office were involved in a campaign to localize the source of infection, identify and treat infected patients and provide adequate prophylaxis to other transplant recipients. Cadaver donors' files were reviewed. Screening for possible infected persons included 61 personnel (working for cleaning, food preparation and food handling), 27 hospital inpatients during the screening period and 87 patients transplanted in a year time before that event. The screening test was analysis of fresh stool samples on 3 consecutive days from each person. Albendazol (an anti-helminthic drug) was given to all patients under screening and they were followed up for possible development of the disease during the infectivity period. The first two recipients received their kidneys from one cadaver donor while the third one received it from a different donor. Both donors came from areas endemic for strongyloidiasis. The 3 recipients were on tacrolimus based immunosuppression. The couple of the third patient was on cyclosporine and she did not manifest a disease. All stool samples taken for screening were negative for the infective larvae. None of the other recipients developed the disease. Cadaveric donors were the possible source for this outbreak. Cyclosporine probably has a protective effect against strongyloides. Screening of cadaver donors for strongyloides is mandatory before accepting them for donation. Prophylaxis is required for all cadaver recipients.

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**CMV DISEASE AFTER KIDNEY TRANSPLANTATION; CLUES TO PROPER DIAGNOSIS.**

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The wide spectrum of clinical manifestations in cytomegalovirus (CMV) disease necessitates laboratory exams for confirmation of correct diagnosis. We tried to find the accuracy of correct diagnosis factors that enhance the proper diagnosis of patients of CMV disease in clinically suspected kidney recipients by nephrologists.

Between 2002 and 2005 in Baqiyatallah Hospital, Tehran, Iran, We retrospectively reviewed 127 cases with the clinical diagnosis of CMV disease and investigated the final diagnosis. Patients with positive pp65 considered as true CMV disease. the rate of proper diagnosis and correlated factors were assessed. The rate of proper diagnosis of CMV disease was 23.6%. Mean age at diagnosis was 48.87 ± 15.37 years. Mean duration between transplantation and the diagnosis was 4.59 ± 11.56 months. Proper diagnosis had correlation with higher age at transplantation and history of diabetes mellitus (p=0.01). This relationship was not seen for gender, educational level, socioeconomic status, history of graft rejection and blood transfusion (p>0. The results showed that more than 75% of clinically suspected of CMV disease actually don’t have the disease. The correct clinical diagnosis in kidney
transplanted patients with clinical evidence of CMV disease, attention to 2 simple factors including age at transplantation and history of diabetes mellitus could add to accuracy of correct diagnosis.

**P 492**  
ANTIBIOTIC PROPHYLAXIS AND RISK OF INFECTION IN CENTRAL VEIN CATHETER (CVC)  

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Dialysis with CVC (shaldown) is a temporary method for dialysis of chronic renal failure patients. It is used for 1.5 months in average and is suitable in patients without arteriovenous fistula (AVF) or in which their AVF needs almost 2 months for suitability. Infection is one of the common and dangerous complications in this method; this study was done to assume the role of prophylactic antibiotics in preventing this complication. This semi-experimental study was conducted in ESRD patients referred to 5-Azar hospital for shaldown. They were divided to two groups (cases and controls) randomly. Intravenous Keflin (1 gram) was administered to cases before the operation. Data against the time of cathetering, underlying disease and age was recorded. Patients were controlled about the infection (fever and discharge) in the next sessions. Relative risk (RR) was calculated and compared between the two groups. Data were entered into SPSS-12 software after coding and analyzed with ANOVA. In this study 54 patients in interventional group and 41 in control group were evaluated. Aggregative incidence in 45 days, in cases and controls were 15.2% and 27.1%, respectively. Relative risk of infection was 1.78 fold in controls against the cases, but it was not significant. [RR=1.78; CI=1.141, 2.421; P-value<0.05]. Although, relative risk of the infection was not significantly different in this study, but due to the importance of this complication we suggest studying of different antibiotics in this patients.

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LONG-TERM OUTCOME OF A COHORT OF RENAL TRANSPLANTED PATIENTS (RT) TREATED WITH INDUCTION THERAPY. NO NEED OF CMV PROPHYLAXIS.  

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Routine prophylaxis to prevent CMV disease has been widely advised. We evaluate standard care based upon regular clinical assessment with treatment of symptomatic CMV infection as an alternative to prophylaxis. We analyzed 355 consecutive RT (96% cadaveric donor) without prophylaxis for CMV. 61% males. Age: 46±12y. 4.6% were highly sensitized and 14% second RT. Pre-RT CMV serology: D-/R:-9.4%, D+/R:-13.7%, D-/R:+15.8%, D+/ R+: 61.1%. Induction treatment: Thymoglobulin: 13%, Atgam: 35%, Zenapax/Simulect: 21%, OKT3:32%; CyA:75%, FK:24.7% Aza: 5.6% MMF: 48% and steroids: 100%. Mean follow-up: 10.9±2.7y. Treated acute rejection: 18% of pats. CMV occurred in 67 pats (18.8%). 45 pats (66%) and 22 pats (34%) developed CMV infection and disease respectively. 21% were HCV+ vs 11.8% in those without CMV infection. CMV was treated with i.v.Ganciclovir during 15-21days. Opportunistic infections occurred in 13 (19%) CMV pats (3 Pneumocistis, 3 TBC, 2 Leishmania, 2 Legionella, 1 aspergillus, 2 other) and in 9 (3.1%) pats without CMV (p=0.002) Cancer occurred in 10.4% of pats with CMV and in 8.3% of pats without CMV (p=ns). CMV recurred in 3 pats that were successfully treated. No one of the 67 pats with CMV infection died. At 10.9y. patient and graft survival in CMV pats was 88% and 45% respectively, and 87.5% and 46% in no CMV pats. S.Cr and proteinuria in pats with CMV: 2.26±0.8 mg/dl, and 352±268 mg/d, and in those without CMV: 1.96±0.6 mg/dl (p=0.03) and 282±189 mg/day (p=ns) Despite the universal administration of induction therapy our CMV incidence is comparable to that reported in the literature in patients without induction treatment. CMV infection increased the risk of opportunistic infections but not the mortality. Long-term patient and graft survival and graft function were similar in patients with or without CMV. Standard care based upon regular clinical assessment with treatment of symptomatic CMV infection is safe and without deleterious consequences for the patient or the graft in the long term run.

**P 494**  
CANCER AFTER RENAL TRANSPLANTATION  

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A high incidence of cancer was reported following organ transplantation. This study explores the incidence, types and outcome of cancer in renal transplant (KTx) recipients the medical records of 1290 recipients who received grafts between May 1972 and December 2005 were retrospectively reviewed. Of these, 785 were males and 119 were under the age of 18 years. Donors were 1046 living and 244 cadaveric. 64 instances of cancer were diagnosed in 58 recipients at 4 to 288 months (m) [mean 85 m] after KTx, with a disease incidence of 4.9%. Recipients with cancer were 34 males and 24 females, aged 15 to 66 years at the time of KTx. Kidney grafts were obtained from 49 living donors and 9 cadaveric donors. Histopathological types were: 16 cases of post-transplantation lymphoproliferative disease (PTLD), 9 cases of Kaposi’s sarcoma, 7 cases of squamous cell carcinoma (SCC), 7 cases of breast carcinoma, and 25 less common lesions. We observed: (1) Incidence was not influenced by recipient age, gender or donor source, (2) PTLD was the commonest type, (3) mean time to appearance was 19 m in Kaposi’s sarcoma, 84 m in PTLD, and 148 m in SCC. Eighteen (31%) patients are alive with functioning graft, for 11 –
HCV and HBV infections occur frequently in ESRD patients. Concern has been raised as to whether these patients are at increased risks for mortality or allograft dysfunction after renal transplantation compared with HCV and HBV non-infected patients. To help answer this question, we analyzed data in our center. A total of 1200 patients who received renal allograft from 1990 to 2005 were analyzed. All patients received allograft from living donors, and were treated with cyclosporine, mycophenolate mofetil (or azathiopurine) and prednisolon. Outcome and survival were compared among four groups retrospectively. 14 patients were positive for both hepatitis B surface antigen (HBsAg) and HCV antibody (anti-HCV) (group 1), 23 were HBsAg-positive and anti-HCV-negative (group 2), 29 were HBsAg-negative and anti-HCV-positive (group 3) and 1134 were negative for both markers (group 4). The mean follow-up period was 11.6 +/- 3.6 years (range, 1-15 years) for all patients. In respect to mean of creatinine there was significant difference between G1 and G4 (p=0.001), and between G2 and G4 (p=0.028), and no significant difference between G3 and G4. In respect to graft survival there was significant difference between G2 and G4 (p=0.034), and between G3 and G4 (p=0.014). There was no significant difference for pts survival among groups. HBV or (and) HCV infections is not a contraindication to kidney transplantation in Iranian patients and has no effect on patient’s survival. However it should be noted that allograft outcome may be worse in HBV or HCV infected patients.
patients had stage 1 disease (T1,N0,M0), 1 patient had stage 3 disease (T2,N1, M0) and 1 patient had stage 4 disease (T1N1M1). Mean Fuhrman nuclear grade was 2.12. Since there is no urine formation in dialysis patients, dialysis patients with renal cell carcinoma are usually aseptic. Therefore screening is necessary for renal cell carcinoma in patients with ESRD who are on dialysis and awaiting renal transplantation, and also in patients with renal transplantation due to immunosuppressive drugs which may cause tendency to neoplastic growth.

**P 498**

**TRANPLANTATION OF A KIDNEY WITH A RENAL CELL CARCINOMA**

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Transmission of cancer from organ donor is considered as a serious risk following organ transplantation. We describe a case in which a kidney with renal cell carcinoma was transplanted after resection of tumor. A 12 years old female with end stage renal disease secondary to reflux nephropathy has been treated with peritoneal dialysis as considered for renal transplantation. The recipient’s mother 48 years old was evaluated for living related kidney donation. Preoperative evaluations didn’t show any contraindication for kidney donation, and imaging studies from donor’s kidneys were normal. The mother’s left kidney was removed uneventfully. During back-table preparation a 5x5 mm nodule found on the surface of the kidney and excised totally prior to transplantation and sent to routine histology. The mother’s kidney was transplanted uneventfully to the recipient. Primary graft function was normal in the recipient. Immunosuppressant consisted of cyclosporine A (CSA), mycophenolate mofetil (MMF) and prednisolone. In pathological examination renal cell carcinoma grade I in Furhman grading system was reported. The allograft remained in place. An acute rejection episode occurred on 14th day after transplantation with good response to methylprednisolone. The post operative course was uneventful and the patient discharged on 22nd day with plasma creatinine (Cr) 0.7 mg/dl. Post transplantation diabetes mellitus occurred in second month after transplantation which treated with insulin. After 14 months the mother is without any evidence of tumor recurrence. In the recipient, repeated ultrasounds and CT scans of the abdomen showed neither signs of local cancer recurrence nor metastases. Current immunosuppressive drugs consist of CSA, MMF and prednisolone. Plasma Cr is 0.8 mg/ml. So far, no rejection episodes have been observed. This experience indicates that donor kidneys with small, low grade RCC may be managed with excision and transplantation, without tumor recurrence in recipient.

**P 499**

**TUBERCULOSIS IN IRANIAN RENAL TRANSPLANT RECIPIENTS, A SINGLE CENTER EXPERIENCE**

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Renal transplantation (RT) recipients are at a high risk of developing tuberculosis (TB) following transplantation especially in developing countries, with high incidences of morbidity and mortality. In this study, we study the risk factors and impact of TB on the outcome of kidney transplantation. Of 1350 live-donor kidney transplantations (1989-2005), 52 (3.9%) patients developed post-transplant TB. Of these, 7 had had TB pre-transplantation and 40 were male. The mean age was 32.6 ± 10.5 years. Primary immunosuppression treatment for all patients was cyclosporine (CSA). The mean time interval between transplantation and TB diagnosis was 54.6 ± 50.34 (range 4-140) months. In 65.6% of patients, TB was diagnosed one year post-transplantation. Pleuropulmonary TB was the most common form (62%). All post-transplant TB patients received a quadruple anti-tuberculosis therapy (Pirazinamide, rifampicin, ethambutol and INH). Hepatotoxicity was seen in 16 patients, twelve were mild with normalization after temporary withdrawal of INH and rifampicin, and four cases were severe, but mortality was not attributable to hepatocellular failure. Twelve patients (23%) died. Chronic rejection occurred in 65% of the patients. More than 35% of TB patients lost their graft as a result. Pre-transplant tuberculosis patients had a comparable post-transplant course. TB is a common infection in renal transplant recipients with a peak incidence occurring one year post-transplant. Chronic rejection is a serious complication that had a negative impact on the graft survival. The post-transplantation outcome in the pre-transplant tuberculosis patients is no different from non-TB patients.

**P 500**

**PARVOVIRUS B19 INFECTION IN RENAL TRANSPLANT RECIPIENT (A CASE REPORT AND REVIEW OF LITERATURE)**

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Parvovirus B19 infection have been increasingly reported in the renal transplant literature and can cause a potential severe disease in transplant recipients. Chronic red cell aplasia can develop in renal transplant recipients infected with Parvovirus B19 (PVB19). Here, we report a case of Pure Red Cell Aplasia (PRCA) caused by PVB19 infection in arenal transplantation in whom the immunosuppressive regimen included prednisolone, mycophenolate mofetile (MMF) and tacrolimus. Red cell aplasia resolved with discontinuation of MMF and using high dose immunoglobulin. We concluded that PVB19 in renal transplant recipient can be a cause of significant morbidity, and high dose...
Opportunistic infections are leading cause of morbidity and mortality after renal transplantation. While Bacterial and viral infections are very common after transplantation protozoa infection are less commonly seen in these patients. Herein we report a case of cutaneous leishmaniasis that is a 15 years old girl transplanted in September 1997 from a 23 years old living unrelated donor (LURD). Immunosuppressive medications after transplantation consist of prednisolone and cyclosporin A with levels maintaining between 150 and 200 ng/ml. immediately after engraphment and Mycophenolate mofetil lateron when the infection was subsided. The graft is working perfectly with creatinine of around 1.1 mg/dl. Fifteen month after transplantation she developed a pustular lesion on her left middle finger progressing gradually to a large purulent and some crusted lesion up to her elbow with a disfiguring worrisome appearance. Treatment was started with Cryotherapy and injections of glucantim at the border of the lesion. The wound started to regress after about 6 month of therapy leaving a smooth surfaced scar. After 3 months of complete healing relapse of the lesion became evident in the centre of the scar with a volcanic appearance. Cryotherapy again was started with N2 with a slow regression of the lesion. There were multiple relapses and flare up of the lesion up to now but she is free of flare up of the lesion for two years now. Cutaneous leishmaniasis should be considered in differential diagnosis of skin diseases after kidney transplantation in endemic regions.

P 502
A REPORT OF RENAL TRANSPLANTATION IN A PATIENT WITH PULMONARY HYDATID CYST

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Infection is a major complication of renal transplantation, thus eradication of any active infection before transplantation is necessary. Cystic hydatidosis is a zoonosis and is a significant public health problem in different areas such as Middle East. The main treatment of hydatid cyst is surgical extraction of cyst but in a few situation chemotherapy is indicated. Immunosupression may allow proliferation of metacestod remnants or proliferation of previously apparent metastases. In literature review we did not find renal transplantation in hydatid disease. We present a case of end stage renal failure, with a large hydatid cyst in left lung and a small cyst in right lung. Surgical extraction of left lung cyst was performed and then patient was put on chemotherapy with albendazol 400 mg twice a day for two months. Control CT scan were performed, six and twelve months after surgery and no enlargement in cyst size was observed. After this, renal transplantation was performed. One year after transplantation follow up CT scan did not show any enlargement in cyst size or new cyst formation.

P 503
INFECTIOUS COMPLICATIONS IN KIDNEY TRANSPLANTATION

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Kidney transplantation (KT) has become a widely utilized, and successful treatment for end-stage renal disease. Microbial infections, however, are a frequent life-threatening complication of transplantation. It is to study the incidence of infections in 95 RT patients operated between December 1998 and November 2004 in our transplant unit with a follow-up of 1 year. All the patients received anti-infectious prophylaxis regimen after KT. Induction therapy was given to 81 patients (85%) and maintenance immunosuppression consisted mainly in Cyclosporin microemulsion in 62 patients (65%) or Tacrolimus in 33 patients (35%) associated to Mycophenolate mofetil and Prednisone. All demographic, epidemiological, medical, and surgical data in this retrospective study were compiled and analyzed by SPSS11.0.29 patients (30.5%) developed infections during their post-operative hospital stay. Bacterial infections were the most frequent (86%) mainly urinary followed by colitis, catheter and pulmonary infections. The most frequently isolated bacteria were E.coli followed by Klebsiella, Acinetobacter and Pseudomonas. All viral infections (11%) were CMV infections with only 1 case of candidiasis. Moreover, 17 patients developed infections up to one year after their hospital discharge. Among these, 12.8% were urinary tract infections mostly due to E.coli with 2 cases of CMV infection (70 and 210 days from discharge) and no fungal infection. To our knowledge, this is the first Lebanese study that deals with infections in transplant patients. It shows the importance of monitoring these patients and following up on them. Comparison with international data shows similar patterns.
Kidney transplant recipients are more predisposed to malignancy. Malignancies are the important causes of mortality in this group. Prevalence of malignancy in transplant patients is 100 times more common than general population. Genitourinary malignancies specially women genital tract are among the most prevalent after transplant. The purpose of this study is evaluation of cervical cancer prevalence in kidney recipient patients. All of the married female patient undergoing kidney transplant from 1988 to 2003 are accounted in this study. 81 patients were under triple immunosuppressive regimen and 4 were treated with two agents. With maintaining the necessary criteria, after taking history and GU tract physical examination, papsmear was prepared. Cytology results were reported according to bethesda system. 85 patients with mean age of 39 years and average of 5 years after transplant were accounted in this study. No tum lesion of vulvovaginal region was seen in physical examination. In 50 patients cervix was normal and there was not any low or high grade athrophy in 18, acute cervicitis in 5, polipoid lesion on exocervix of 32 and there was not any low or high grade intraepithelial lesion or malignancy. There is a significant difference of prevalence in cervical malignancy in this study according to others that may because of several reasons including fewer number of cases, shorter follow up, less general risk factors than general population and different enviromental, ethnics, genetic factors and viral carsinogens.

Organ transplant recipients are considered to be at greater risk for developing malignancy because of the prolonged immunosuppresion associated with organ grafting. In a prospective manner we revived the medical records of 210 patients who underwent liver transplantation between 1994 and 2005 in Shiraz organ transplant center. Among all patients, only 6 patients developed malignancy after liver transplantation. 2 of the patients developed post-transplant lymphoproliferative disorder (PTLD), 1 patient cholangiocarcinoma, 1 patient plasmacytoma, 1 patient papillary carcinoma of thyroid and 1 patient developed colorectal cancer. Development of the malignancies must take into consideration in the follow up of the patients after liver transplantation. In iranian recipients PTLD is the most common type of malignancy after liver transplantation.

To determine the causative agents of urinary tract infections (UTIs) among renal transplant recipients and to compare the antibiotic susceptibilities of Escherichia coli strains isolated from complicated community acquired UTIs and renal transplant recipients. We evaluated 75 episodes of 63 recipients with confirmed UTI. To compare the susceptibility rates of E. coli, 226 isolates from non-transplant patients with complicated community-acquired UTIs were also evaluated. Ten episodes (13.3%) occurred in the first month following the transplantation, 11 (14.7%) in the period of the second month to sixth month and 54 (72%) occurred six months after transplantation. Forty six (61.3%) of the 75 isolates were Escherichia coli. Among the E. coli isolates, ciprofloxacin resistance rates were 50% (2/4) in the first month after transplantation, 75% (6/8) in the period of the second month to sixth month, and 32.4% (11/34) 6 months after transplantation. The resistance rates of TMP-SMX in the same time periods were 100% (4/4), 87.5% (7/8), and 70.6% (24/34). E. coli is the most frequently isolated organism from UTI in renal transplant recipients. The rates of resistance to TMP-SMX, ampicillin, gentamicin among E. coli isolated from renal recipients are significantly higher than those in community-acquired complicated UTIs. The increased resistance of urinary pathogens to TMP-SMX is a major concern. Although high resistance rates of ciprofloxacin against E. coli strains were determined in this group, it was not found to be statistically significant.

Invasive fungal infections are common following orthotopic liver transplantation and are reported to occur in 6-47% of liver transplant recipients. The dominant fungal pathogens in liver transplant recipients are Candida spp., accounting for over 80% of IFIs in this group. The aim of this study is to evaluate the fungal infections and the etiologic agents in the liver recipients. A total of 91 liver transplantations were performed between the period 2001 and 2005 at Başkent University Faculty of Medicine. Medical records of these patients were evaluated retrospectively. Seventeen of ninety-one patients (18%) received antifungal therapy. Eight of these 17
patients received empirically and etiologic agents were recovered in nine patients. One Aspergillus spp., two C. albicans and six Candida spp. were recovered from four intraabdominal specimens, three respiratory specimens, one from urine and one from blood. Nine of the patients received amphotericin B, five received fluconazole and three received caspofungin. Four of eight Candida spp. were found to be resistant to fluconazole (>64 mg/L). Fungal infections are important complications of liver transplantation. Candida spp. are still the most commonly isolated fungal pathogens. The most striking finding is the high resistance rates against fluconazole, a commonly used drug for antifungal prophylaxis. Routine antifungal susceptibility testing of the fungal pathogens seems to be mandatory in this setting.

P 508
MUCORMYCOSIS AFTER KIDNEY TRANSPLANTATION: REPORT OF 7 CASES

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Mucormycosis is rare and highly lethal after organ transplantation. Kidney recipients are at higher risk of this infection because of some predisposing factors such as diabetes and tight immunosuppressive regimens. This is a report of 7 cases of mucormycosis infections, in patients who had been transplanted and admitted in the kidney transplant department of Baqiyatallah Hospital in Tehran, Iran. We retrospectively reviewed the hospital records of patients for demographic data, symptoms, ways of diagnosis and outcomes of 7 patients with final diagnosis of mucormycosis who admitted in our center in 2002-2005. Five patients were male and 2 patients were female. The mean (SD) age of patients was 49.5 ± 11.5. The time between transplantation and the onset of disease varied greatly, from 4 days to 4 years. Presenting symptoms were fever (100%), respiratory distress (57%) and severe headache (43%). Suspected patients were evaluated by CT scan, BAL and biopsy and diagnosis confirmed by culture. The final diagnosis was pulmonary mucormycosis in 4 cases (57.1%), rhinocerebral in 2 cases (28.5%) and both in 1 case (14.4%). Despite early and intensive treatment with amphotericine B in all patients and extensive debridement in one case, no patient survived the disease. Mucormycosis in a kidney recipient is a potentially lethal complication. It could occur very early or very late in post-transplant period. Despite the results of other studies, the most frequent site of infection in our patients was lungs other. It seems that mucormycosis has a poor outcome despite the early diagnosis and aggressive treatment.

P 509
POST KIDNEY TRANSPLANTATION MALIGNANCIES (PKTM) AND ITS RELATIONSHIP WITH HLA-ANTIGENS

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Renal Transplantation Recipients (RTRs) are in increased risk for the cancers, most frequently skin SCC and BCC. In contrast the other Countries, Sarcoma Kaposi (SK) and Non-Hodgkin Lymphoma (NHL) are particularly a problem in Eastern Asian Countries, that its cause is the prevalence of Antibody Against HPV-8 (Following Infection with HPV). Therefore it’s important to find Risk Factors for Development of Cancers, in RTRs. Genetic Factors (Particular HLA) are involved in the Development of Cancers. We performed a study, retrospectively, in Labbafinejad Hospital (IRAN); on 44 patients that had PKTM (Especially SK and NHL). From 1985–2002. We evaluated frequency of different HLA in these cases and compared them with Control Cases (RTRs without Malignancy). We tried to select the control cases as the same as Malignancy Cases. After our observations, below obtained: Patient divided in 2 groups, Malignancy Cases (MC) and Without MC (WMC). The mean age of MC was 43±5 years and WMC was 43 years. Of all patients in MC group, 15 cases were SK, 13 cases NHL and 6 cases SCC and 10 cases were different. The average interval between transplantation and Malignancy Incidence was 15.3 month. Our findings about HLA Antigen in RTRs, suggest HLA-CW4 is sensitive in SK (P value = 0.025, Chi-Square = 4.96). And about HLA-A9 and HLA-DQ1 in SK, HLA-A3 in NHL and HLA-A3, HLA-DR4, HLA-DR53 and HLA-DQ3 in SCC, we need to study more cases and perform the other studies.

P 510
PRIMARY CMV INFECTION IN RENAL TRANSPLANT RECIPIENT

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CMV infection is the most prevalent infection occurring in renal transplant recipients (RTR) and causes considerable morbidity and mortality. As most normal adults are CMV positive, CMV infection in RTR is generally due to reactivation where either recipient and donor are CMV positive, or recipient is positive while donor is negative. Primary CMV infection in RTR is rare. We describe primary CMV infection occurring in a 55 years old male patient with long history of DM and HTN. He developed ESRF in 2001 and was managed by HD. Eighteen months later he became HCV positive and was treated with interferon alpha for 9 months with adequate response. The patient was CMV negative for both IgG and IgM. He received live unrelated renal transplant abroad in 2003 with full recovery of renal functions. He was placed on cyclosporin, mycophenolate and prednisolone in addition to acyc-
clovir and septran prophylaxis. Six weeks following transplantation he presented with fever, malaise, anorexia and cellullaries of his right toe. The rest of the physical examination was normal. Laboratory evaluation showed leucopenia, normal renal functions and minimally impaired liver function tests. Septic work-up showed E.coli and pseudomonas aeruginosa from his toe. The patient received antibiotics for the toe infection but his fever persisted. He was retested for CMV IgM which came to be positive. Consequently, he developed dysphagia due to viral esophagitis. This was confirmed by upper gastrointestinal endscopy where the biopsy showed esophageal ulceration of viral origin (Herpes simplex and/or CMV). At this stage he was started on ganclovir for 3 weeks, following which he became afebrile, the dysphagia was resolved, liver function tests became normal and CMV IgG became positive. Renal transplantation in a setting of D+/R- and use of strong immunosuppressives like mycophenolate are two important risk factors for acute CMV infection in RTR. Intravenous ganclovir is highly effective treatment for the established CMV infection. In the D+/R- setting prophylactic therapy with ganclovir or valaganclovir is highly indicated.

P 511
OPINIONS OF AHWAZ PEOPLE ABOUT ORGAN DONATION AFTER BRAIN DEATH

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The shortage of donor organs is the primary issue limiting success in the field of organ transplantation. Several approaches have been taken to maximize donor organ capture, including expanding the criteria that define a suitable organ and increasing donor consent through public education efforts. The aim of this study is evaluation of Ahwaz people opinions about donation after brain death. Study population was Ahwaz citizens of whom four thousands was selected by random cluster sampling. 68.3 percent of samples were male and 31.7 percent were female. 75 percent were agreeing and 22 percent were opposed and 3 percent had no any opinions about donation after brain death. Age, gender and job had no any effect but nationality, level of education, socioeconomic status and having a person in their family who needs organ transplantation, were the factors that increased attitudes of people about organ donation after brain death (P<0.05). For increasing consent of organ donation after brain death, increasing the level of general education and improvement in socioeconomic status and financial reimbursement will be helpful.

P 512
LIVING KIDNEY DONORS IN IRAN

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Living kidney donation and more specifically living unrelated is common in Iran. In 2005, 1721 (89%) kidneys for transplantation were from living donors and 209 (11%) were procured from heart-beating brain dead donors. Considering high living kidney donation rate (25 PMP) and in order to find out the motivations and donors’ feeling following donation, this study was conducted. 345 living kidney donors (20%) were studied in viewpoint of various characteristics using a questionnaire. Findings are analysed by SPSS. Donors were 82% male and 18% female. Mean age was 27 +/- 0.34 (Mean +/- SD). Donors were related to recipients in 10% and in 90% they were unrelated. Motivation for donation was purely financial in 60%, financial plus altruistic components in 34% and 6% was purely altruistic. Donors’ feeling following donation and before discharge of hospital was complete satisfaction in 95%, relative satisfaction in 3%, 0.3% regretful and 1.7% indifferent. Kidney transplantation among renal replacement therapies owning to increase in life expectancy, improve in quality of life and as the cheapest modality (after the first year of Tx) has remarkable significance. Since cadaveric kidney donation does not supply all the ever-increasing needs, living kidney donation should be considered seriously under defined and transparent circumstances. Being based on clear legal basis, governmental incentive, supervision, donors’ long-term support and follow-up should be the main requirements of this rewarding donation programme.

P 513
VOLUME OF ORGAN FAILURE IN SYRIA & OBSTACLES TO INITIATE A NATIONAL CADAVER DONATION PROGRAM

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In the absence of formal registry data, the volume of organ failure in Syria and the cause are difficult to establish with certainty; however, we have tried in this study to evaluate the extent of organ failure by collecting data from health care authorities and different medical institutions who are involved in caring of patients with organ failure, and then we assessed the problem of the widening gap between organ request and availability in our country and highlighted the obstacles to initiate a national cadaver donation program as a viable option to address the challenge of organ shortage. Volume of organ failure: the estimated prevalence of corneal blindness in Syria is 2.3 per one thousand population. The estimated incidence of viral cirrhosis is 49 – 67 per one million population, these include both HCV and HBV which constitute the leading cause of liver failure however, since we are lacking national registry, we do not know precisely the incidence of other known causes of liver failure. We estimated the incidence of end stage renal disease (ESRD) to be 80 – 100 per one million population. The estimated prevalence of ESRD patients undergoing dialysis in May 2005 is 143 per one million population; but unfortunately, we do not have data on the percentage of ESRD patients who receive dialysis. Obstacles to initiate a national cadaver donation program: Lack of societal awareness and acceptance, and the attitude of indifferent health care pro-
fessionals have been identified as a major limiting factor. Other obstacles include difficulties in providing the following: adequate resources in term of finance personnel and services, establishment of a national center for organ transplantation, influencing public attitude, national guidelines and data bank for organ failure, trained organ procurement professionals including transplant coordinators, ascertained ICU standard care, and comprehensive tissue center. The success of a national cadaver donation program requires sever-

P 514

FOUNDATION OF A LOCAL NETWORK FOR INCREASING ORGAN DONATION IN SOUTHERN IRAN

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After decades of organ transplantation, main problem is still short-
age of donors. In many European countries, “presumed consent” rule has facilitated the process. In our country that informed consent should be obtained from the first relatives of deceased donors, the problem is complicated. To overcome this problem, based on Shiite cleric’s Fatwa, we established a local Network in southern Iran. Kidney transplantation program was started in 1988 in Shiraz when the national organization for organ procurement has not been founded yet. For 3 years, kidney transplantation was performed only with living donors. In 1992, the first consent was gained from a deceased donor family. Between 1988 and 1993, we were able to obtain only six consents. Liver transplant program started in 1993. To increase the donation, we began educating ICU, ER, and neurosurgery wards nurses, neurosurgeons, anesthesiologists, and neuro-
ologists of our province and 7 other neighbor provinces in southern Iran. The necessity, diagnosis and reporting of deceased donor were discussed. These sessions were repeated every 6 months or yearly. First consent from a deceased donor family was obtained in 1992. During 7 years (1992-8), only 21 out of 128 deceased cases (16.4%) were harvested. In 1998, we educated 7 transplant coordinator nurses and one-hundred staff nurses for 7 other provinces. Sixty neurosurgeons, anesthesiologists, and neurologists, working in 20 cities, had several seminars about transplantation and brain-death. The consents rate increased from seven in 1998, to 12 in 1999, and to 243 between 2000 and 2005 (each year around 40 consents). In the last two years, 67% of deceased donor families issued consents for organ donation. Repeated education of ICU, neurosurgical and ER nurses, neurosurgeons, anesthesiologists, and neurologists is helpful in increasing the issued consent rates form deceased donor families and cooperation between the transplant wards.

P 515

INTENSIVE CARE NURSES KNOWLEDGE AND BELIEFS ABOUT BRAIN DEATH

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Lots of patients die while are waiting for organ transplantation because of organ shortage. ICU nurses play a major role in the differ-

P 516

THE TRANSPLANT COORDINATION SYSTEM AT BASKENT UNIVERSITY

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In 2001, the Turkish Health Ministry established the National Coordi-
nation Center (NCC) to promote transplantation activities for deceased donor organ procurement. Although, transplantation activ-
ities are gaining acceleration day by day all around the country, deceased donors are still far below the desired rates. In parallel with the founding of the NCC, in January 2001 the Başkent University Hospital Network (BUHN) adopted a new operating model for trans-
plantation. Today, the BUHN encompasses six hospitals and 14 dial-
ysis centers throughout Turkey mostly dedicated to organ trans-
plantation. Till now, in our network, the number of brain-dead patients was 46 and the number of family consent was 27 (58.6%). Of the 85 total solid organ grafts collected in this period, 88.2% were transplanted at our own center and 11.8% were offered to the NCC. The rate of heart and liver grafts offered to the NCC was 66.6% and 17.4%, respectively. Although, the majority of grafts were used in our center, we also had contribution to the national donor organ pool. Besides, Başkent University put great effort and endeavour for not only the health care professionals but also the
publics education on organ transplantation, by the assistance of the University's television and radio channels. Improvements in the fields of education and coordination should increase the quality and the quantity of transplantation activities. The transplantation activities in our network will hopefully lead to a larger organ pool and shorter waiting lists.

P 517
IMPACT OF AN EDUCATIONAL PROGRAM ON ORGAN AND TISSUE DONATION AND TRANSPLANTATION

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For the last eleven years, Hospital de la Santa Creu i Sant Pau (HSCSP) has been running an educational program on organ and tissue transplantation for high school students. The main goal is to promote organ and tissue donation. The program is designed in four parts: a talk by a transplant coordinator on general concepts, a talk by a nephrologist comparing dialysis versus kidney transplantation, interviews with already-transplanted kidney patients, and interviews with waiting-list patients while undergoing dialysis. The objective of this work was to evaluate the impact of this program on students. A total of 465 students who participated in the 2005/2006 sessions were asked to fill in a 30-question survey before attending the talks in order to evaluate their knowledge and attitude regarding donation. The students were invited to answer the same survey 6 months later. The two surveys were then compared to evaluate the impact of the talks. The talks were useful in conveying knowledge about the severe shortage of organs and the role of transplantation as the only viable option for many diseases. A positive attitude to organ donation was promoted since only 5% of the students expressed any uncertainty or disagreement about donation 6 months after the talks. An educational program on organ transplantation is a good strategy to create awareness among high school students and to promote organ donation. Similar programs could be implemented worldwide in order to increase the organ pool.

P 518
EVALUATION OF AN EDUCATIONAL PROGRAM ON ORGAN AND TISSUE DONATION AND TRANSPLANTATION BY TEACHERS

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Since 1995, the Hospital de la Santa Creu i Sant Pau (HSCSP) has been running an educational programme on organ and tissue donation and transplantation for high school students. The main objective is to promote organ and tissue donation. The programme is designed as a four hour session: a general talk by a transplant coordinator about donation and transplantation processes, a talk by a nephrologist about dialysis versus kidney transplantation, interviews with already-transplanted patients; finally, students visit and talk to waiting list patients during dialysis. The objective of this work was to evaluate the impact of this program according to the teachers who attended these sessions with their pupils. A total of 368 sessions were performed over 11 years (October 1995 - June 2005). A total of 5168 students from 31 schools participated in the programme. Teachers answered a short questionnaire that was sent out in March 2005. Scoring on a one to ten scale, they were asked to evaluate programme contents, course dynamics and students satisfaction. All 31 questionnaires sent to teachers at the 31 participating schools were answered (100%). The average score concerning programme content was 9.06 (range 7-10), for course dynamics it was 8.84 (range 6-10), and for student satisfaction it was 8.65 (range 5-10). This educational program on organ and tissue donation for transplantation is highly considered and a good strategy to educate high school students. Similar programs could be implemented at high schools worldwide.

P 519
QUIRON, AN INTERNET WEBSITE FOR ORGAN AND TISSUE DONATION AND TRANSPLANTATION PROMOTION

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Since 1995, the Hospital de la Santa Creu i Sant Pau (HSCSP) has been organizing an educational programme on donation and transplantation for high school students. The main objective is to promote awareness on the therapeutic importance of transplantation. The programme is conducted at the HSCSP and has a major limitation: only a small number of students can attend the talks. QUIRON is an Internet platform for donation promotion whose main objective is to overcome the logistic limitations of the present system. The
P 520
HEALTH PROFESSIONALS ATTITUDE TO ORGAN DONATION IN GREECE
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The Hellenic Transplant Organization has made great efforts in motivating health professionals in detecting and referring more donors. To achieve this goal, Donor Action Foundation was invited to Greece for an introductory seminar. Thereafter, a Hospital Attitude Survey (HAS) was administered to hospitals expressing interest.

Purpose: The study examined the attitude, skills and involvement of ICU staff to organ donation. The HAS questionnaire from Donor Action was distributed equally between medical and nursing staff.

Results: Eleven hospitals agreed to take part in the survey and 92 questionnaires were completed and were classified into 3 main categories: Attitude towards Donation, Skills, and Participation in Donation Procedures. Positive attitude was reported by 94.6% but only 73.9% would donate their organs. An 80.4% would donate relative’s organs and 29.3% their child’s. Regarding self-reported skills in donation practice, 57.6% felt comfortable with notifying a transplant coordinator, 25% with explaining brain death, 32.6% with introducing organ donation and 10.9% with donor family supporting. Regarding participation, 68% of nurses had never nursed a donor, and 44% and 34% of doctors had taken part in 1 to 3 cases or none respectively. In Greek hospitals evidence shows that: a) Support towards organ donation is average. b) ICU’s staff involvement in donation practice is minimal. c) Skills of ICU staff regarding donation practices are inadequate.

Conclusion: Compared to international data, Greek health professionals are more reluctant to donation. It seems that doctors and nurses are uncomfortable in dealing with brain death matter. These issues need addressing immediately if organ donation is to reach its maximum potential.

P 521
IMPROVING THE ORGAN TRANSPLANTATION PROGRAM IN GREECE: INSTITUTION OF TRANSPLANT COORDINATORS NETWORK
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The success of a transplantation program depends upon the quality and effectiveness of the donation process, whereby the key role is assigned to the local procurement transplant coordinator (TxC). This important professional figure was only recently established in Greece. The local TxC’s duties were outlined alongside those of the Hellenic Transplant Organization (H.T.O.) foundation in 1999, whereby three different transplant coordinator positions, Clinical, Central and Local were specified. In 2002 the above mentioned were legally consolidated. The professionals had to be doctors or nurses already working in ICU and had to be appointed by the Hospital and the ICU directors in each hospital as requested by the H.T.O. By the end of 2004, this network consisted of 122 TxC’s located in 74 ICU’s, especially trained on donation procedures and ethics. Furthermore, the board of directors of H.T.O. decided that in 2005 there be closer cooperation between the 45 most donor generating ICU’s and their TxC’s. It was decided that the local TxC’s would work part time and receive an H.T.O. monthly grant. Professionally, 70% were doctors and 30% nurses. Half of the doctors were ICU directors, specially appointed to influence the ICU personnel. The 45 ICU network started in 2005, resulting in an increase of 154% in potential donor referrals and a 33% and almost 38% increase in actual donors and transplantation procedures respectively, compared to 2004. This substantial increase achieved by the institution TxC’s network was considered satisfactory. Higher goals were set for the future.
134% respectively. Cadaveric kidney transplantation has also shown remarkable progress with a 126% increase during the same period. Similarly, liver transplantation had a three-fold rise (89%) during the same time. Unfortunately, heart and lung transplantations remain very low, thus preventing statistical conclusions to be drawn. Although Greece in previous years had the lowest donor and transplantation rates p.m.p, the position is expected to rise significantly this year, compared to other European countries. Undoubtedly, the numbers and percentages compared to previous years are due to the radical changes implemented by HTO, by introducing the transplant coordination principle and procurement management, concepts not previously established in Greece. However there are still major obstacles, such as intensivists’ refusal to disconnect, inaccessible geographical locations, few transplant centers and society’s suspicion of organ donation concept, that still need overcoming. Nevertheless the first step has been taken and other European countries standards will hopefully be attained soon.

**P 523**

**THE EVOLUTION OF ONE CENTER IN TURKEY: AKDENIZ UNIVERSITY**

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Solid-organ transplantation in Turkey began with two heart transplantations in 1969, both of which, unfortunately, were unsuccessful. By the early 1970s, experimental studies on liver transplantation had already been initiated. On November 3, 1975, the first renal transplantation performed in Turkey, with a kidney donated from mother to son. This was followed by the first cadaveric kidney transplantation, which was carried out at our center on October 10, 1978, using an organ supplied by the Eurotransplant Foundation. On June 3, 1979, the law on harvesting, storage, grafting, and transplantation of organs and tissues was enacted, and in the next month, on July 27, the first local cadaveric kidney transplantation was performed. Antalya is a city with 1.7 million inhabitants. There are 1 university, 2 government and 6 special hospitals at city center. In Akdeniz University Medical School, the first living related kidney transplantation was performed in 1982. The first cadaver donor kidney transplantations were performed in 1986. The first heart and liver transplantation were performed in 1998 and 1997, respectively. Between 1982-1999 mean living related kidney transplantation rate was 14/year and between 1986-1999 mean cadaveric kidney transplantation rate was 5/year. Between 1997-1999 mean liver and heart transplantation rates were 1,33/year and 0,66/year, respectively. There were only one transplant coordinator (TC) in Antalya who were working at Akdeniz University between 1992 – 1999. Donor procurement rate was 1 pmp in Antalya and 0,5 pmp in Turkey. 360 kidney transplantation were performing in Turkey and 19 of them were in Antalya. We had a reorganisation in 2000. Our first aim was increased awareness of the public to the importance of organ donation and explain the difference between transplantation and dialysis. Due to these aims we increas the number of TCS 1 to 2 in 2000 and 3 in 2002 and 4 in 2004 and trained all of them. Now two 2 of them certificated by ETCo and all of them certificated by Transplant Coordinators Society of Turkey. We are performing kidney transplantation to recipient with DM Type I, Hbs Ag (+), HCV Ab (+), LCM IGM (+). Also we are performing kidney transplantation with 1 DR match or 0 MM from spousal living donors after regeneration. 200 living related and 49 cadaveric totally 249 kidney , 18 liver and 11 pancreas transplantations were performed in 2005. Our cadaver supply rate is 20 per million population (pmp) which higher than of our country (2/pmp) in 2005. Kidney transplantation numbers increas from 19 to 249, deceased donor procurement rate increas 1 to 20 pmp between 1999 and 2005. Amount 758 kidney, 69 liver, 26 pancreas and 13 heart transplantation performed between 2000 and 2005. We think that difference in the transplantation rates between 2000-2005 and previous years is mainly due to the establishment of a good transplant team with surgeons, physians and transplant coordinators. In general, the argument runs for transplant teams “if you can do it, then you must”. We can save life and present a better life quality with solid organ transplantation.

**P 524**

**THE SOLUTION OF ORGAN SHORTAGE IN TURKEY: TRAINED TRANSPLANT COORDINATORS**

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The outstanding progress made in clinical transplantation during the last decades has greatly increased graft and patient survival. Equivalent advances in immunosupression and research in graft tolerance could provide a brighter future for thousands of human beings. Unfortunately, however this wonderful prospect is today undermined by the shortage of cadaveric organs for transplantation, a tragic dilemma inherited from the 20th century especially for the developing countries. The dramatic increase in the number of patients on waiting lists and the stagnation of organ transplantation worldwide have resulted in today’s cruel reality: thousands of patients are “unfairly” dying every year while waiting for a cadaveric organ. The organ shortage is a social, psychological, ethic, m and probably legal and political problem of the 21st century. It must be solved as soon as possible to save lots of life; and transplant coordinators are very important corner stone on this way. There are 46 organ procurement and 20 organ sharing transplant coordinators in Turkey in 2005. There were only 5 organ procurement coordinators in 1998 and no organ sharing coordinators. In 1998 and 2005 cadaveric organ rates was 0.44 pmp and 2 pmp respectively in Turkey. According to Transplantation Society held in Rome, August 2000. (more than 25 donors pmp ); there should be 1675 donors in Turkey but we had only 136 for 2005 and it was 49 in 1999. We orginase 4 transplant coordinators course at Akdeniz University since 2002. There were 27 participants at the first one from different hospitals, but unfortunately 13 of them could work as a transplant coordinator in their hospital after course. The numbers of cadaveric donors at these hospitals and Turkey increased 34 % and 12 % respective-
ly according to 2001. In 1999 there were only 3 TCs but in 2001 14 hospital had actual transplant coordinator (TC) and 12 of them were a transplant center. In 2005 There are 66 TCs in Turkey and 4 of them certificated by ETCO. 13 non-transplant center have an actual transplant coordinator. All TCs certificated by Transplant Coordinators Society of Turkey. There are good transplant coordination systems in Antalya and Izmir as a city and also at the Aegean part as a region. Antalya, Izmir, Aegean region and Turkey’s cadaveric donor procurement rate were 20 pmp, 17.2 pmp, 7.5 pmp and 2 pmp in 2005 respectively. 10 of TCs situated in Antalya, 12 of them in Izmir and 17 of them at Aegean region. In general, the argument runs for transplant coordinator “if you can do it, then you must”. We can save life and present a better life quality with solid organ and tissue donation.

**P 525**

**CONSEQUENCES OF LIVING KIDNEY DONORS IN EGYPT**

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To assess demographic variables of living unrelated kidney donors and health, economic, and social effects of a living kidney donation in Egypt. Analysis of a quantitative data set of demographic variables of 142 living donors from one transplant center in Cairo and qualitative interviews from 1-8 months following the donation of 50 living kidney donors in 2005 and 2006 in Egypt. Ninety-four percent of donors were not related to recipients. Demographic variables indicate that 95 percent of donors are male and the average donor age is 33 years. Follow-up interviews indicate that the average price received for a kidney was 2600 USD. Eighty-six percent of participants sold a kidney to pay off debts, 67 percent to support their families with housing, food and clothing costs. 78 percent reported a decline in their health condition and a weakened ability to perform labor-intensive jobs. 81 percent of participants spent the money within 5 months of their donation. 91 percent reported that they did not tell anyone about their donation and felt socially isolated about concerns related to their donation. 94 percent felt regret about their donation and an inability to get further assistance from those involved with their donation including the recipient, broker, labs, or transplant center. Living kidney donation in Egypt is associated with a decline in health, economic and social conditions. As suggested in other studies, physicians and policy makers should condemn the use of financial incentives to increase the supply of organs for transplantation

**P 526**

**IMPORVING ORGAN DONATION IN CENTRAL IRAN, ISFAHAN: THE IMPORTANCE OF CONNECTING EDUCATION FOR TRANSPLANT STAFF**

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To improve organ donation in central Iran, Isfahan, a donor team was formed to deal and facilitate the logistical aspect of donation in the 5 main health hospitals in Isfahan province and continuing education for transplantation were being instituted. We annually evaluated the result of organ donation after a donor team formed in Isfahan.

We reviewed the medical records of all potential donors at 5 main hospitals in Isfahan form 2001 to 2005 annually. Data with regard to the number of donors reported, documentation, and success rate and organ type of transplantation were recorded over 5 years (January 2001 to November 2005). The total actual number of organ donors from 2001 to 2005 were 51 (38 man, 13 woman). The mean age of men and women actual organ donors were 28 ± 4.6, 32 ± 6.2 respectively. The annual records of brain death to transplant coordination staff from 2001 to 2005 were 7, 40, 58, 68, 73 respectively. The actual number of organ donors from 2001 to 2005 were 2 (4 kidney), 4 (8 kidney, 1 liver, 1 heart), 10 (16 kidney, 5 liver, 3 heart), 17 (34 kidney, 6 liver, 3 heart) and 18 (36 kidney, 11 liver, 4 heart, 1 lung) respectively. The above result clearly indicates that continuing education for transplant coordination staff can improve the donation, types of transplantation organs and may eliminate the gap between the potential and actual number of organ donors.

**P 527**

**TPM: PROFESSIONAL TRAINING WORLDWIDE IMPACT**

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After 15 years experience, Transplant Procurement Management (TPM) an international educational program aimed to train professionals in Transplant Coordination (TC), has examined the worldwide impact of its training regarding donation rates. Its courses implementation has empowered a constant growth of organ procurement (2005 Spanish pmp is 35.1). This model gradually spread to other countries, such as Lebanon, where there has been a growing average donation rate of 58.62% through last 5 years. Countries gathered in four areas considering those with more than 10 country representatives attending the TC courses: 10 countries from Latin America (LAT), 10 from Eastern Europe (EE), 9 from Western Europe (WE) and 6 from Middle East (ME). International Registry of Organ Donation and Transplantation (IRODat) provided the donation activity data. The total number of donors and the growing percentage’s averages of donation pmp rates/year are considered according to participants/year/country. The number of participants...
was 587 in LAT, 401 in EE, 1720 in WE and 135 in ME. The number of donors increased from 1195 to 2315 in LAT (93.7%), 460 to 993 in EE (115.8%), 3226 to 4538 in WE (40.7%) and 151 to 194 in ME (28.5%). The growing percentage’s average is 146% in LAT, 185% in EE, 32% in WE and 45% in ME. Whereas the donation rates are subjected to several factors such as religious, economic, cultural and legal issues, well-trained professionals may considerably contribute to raise them, suggesting that professional training is a successful method to increase donation rates.

P 528
AHWAZ TRANSPLANT CENTER , A MODEL FOR DECREASING WAITING LIST AND MORTALITY
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Buying and selling organ for transplant forbidden in many legal systems, so many of patient with, crf, are in waiting list for receiving organ from cadaver, but with iranian model or living non–relative donor we decreasing waiting list, in our center from 571 kidney transplantation 447 (78%) donor was from living non relative and only 6 case from cadaver and 124 case from living related donor in ahwaz transplant center from 1990-2006 totally 571 transplantation was done in this model of transplantation. much of donor was from living non relative (78%) and 124 (% 21.7) from living relative and 6 case from heart beating cadaver. In this model donation from cadaver was very rare due to multiple factor but more than %78 take kidney from living non relative with this model we haven, t waiting list in the developing country due to rarity of cadaver for transplantation iranian model or donation by living, non relative is a good method for decreasing waiting list and decrease mortality due to waiting list.

P 529
CADAVER ORGAN PROCUREMENT IN KUWAIT
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An active local program for procuring organs from cadaveric donors was re-established in Kuwait in 1996 after temporary suspension due to the Iraqi invasion (1990). Organs were procured from 102 cadaveric donors, from 7 Intensive Care Units (ICU), with total capacity of 77 beds. The average number of cadaveric donors were 10/year. This represent only 9 % from the total annual kidney transplantation capacity of 77 beds. The average number of cadaveric donors were from 7 Intensive Care Units (ICU), with total capacity of 77 beds. The number of cadaveric donors is limited because of:
1. Delay in reporting.
2. Poor cadaver management.
3. Family refusal.
4. Objection of hospital administration, treating doctors & ICU staff.
5. The dissonance between the Islamic Laws and public perceptions.
6. Non availability of the budget.
7. Absence of organ procurement department & turned over transplant coordinators.

We believe that all above obstacles can be overcome if an “Organ Procurement Department” is established. This will promote living and cadaveric organ donation and will promote the organ exchange programme in GCC region.

P 530
IS IT NECESSARY TO WAIT FOR REVERSAL OF RENAL ARTERIAL SPASM BEFORE LIVE DONOR NEPHRECTOMY
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Renal arterial spasm secondary to manipulation of renal artery is one of complications of live donor nephrectomy. The aim of this study is to determine weather it is necessary to wait for reversal of normal renal consistency and resumption of urinary flow before nephrectomy. This study was conducted on 12 of 137 cases of live donor nephrectomy that developed renal arterial spasm. Treatment started by intra arterial injection of 40 m.g papaverin. In 7 cases we wait for reversal of renal arterial spasm, by observation of renal consistency and resumption of urinary flow before nephrectomy (mean,12 min), and in 5 cases we continued toward nephrectomy. We compared early graft function immediately after circulation started in the graft. The early graft functions as shown by immediate urinary flow and normal renal consistency did not show any difference in two groups and was 100% in both. We could show, it might not be necessary to wait for reversal of renal arterial spasm before live donor nephrectomy. But to confirm these results, we need further investigation with larger number of cases.

P 531
NHBD-MULTIPLE MONITORING OF NHBD KIDNEYS AND THE LONG TIME GRAFT SURVIVAL
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NHBD (Non Heart Beating Donor) is a marginal donor with high risk of delayed graft function due to long warm ischemia time. To be able to exclude the high risk kidneys we used the method of multiple kidneys monitoring and all the NHBD kidneys were evaluated by the following techniques:
1/ Clinical evaluation (color, oedema, turgor )
2/ Pulsatile hypotermic perfusion with monitoring of renal resistance as index of the vascular damage
Posters

P 532
BANTEC, A SOFTWARE TOOL FOR MANAGEMENT OF A CORNEA BANK

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Until recently, all tissue information at the Tissue Bank (TB) at Hospital de la Santa Creu i Sant Pau (HSCSP) was managed manually and no specific database had been implemented. The main objective of this work was to create a computerised system to integrate and classify all the information of all retrieved and transplanted corneal tissues. The developed system, BanTeC, aims to simplify cornea management, and to create a case-based historical file for statistical purposes to improve the quality of tissue processes. We used a PC, Microsoft Windows, Microsoft Access and Visual C++ as the programming language to carry out the software. The corneal images are stored using the bitmap format, since the specular microscope generates them in this way, and this format avoids any quality loss. All the stages of the development have been completed, from specification of needs, program design and implementation of the different components, to the total integration of the final result in the real production environment. The database stores information concerning all the steps in the life cycle of a cornea: procurement and the data analysis (laboratory tests, biomicroscopy, specular microscopy, tissue request, allocation and transplant follow-up). BanTeC software aims to computerise the TB. BanTeC allows to store all the data and reports concerning each cornea. Even when deemed unsuitable, all information must be kept on file. The TB can now generate statistics reports on its activity, analyse them and use the results to improve the performance of its processes.

P 533
CARREL: A SOFTWARE TOOL FOR ORGAN DISTRIBUTION AND ALLOCATION

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Human organs for transplant are presently distributed by means of manual handling and telephone-fax transmission of data related to the donor. This procedure is conducted organ by organ and the information is transmitted sequentially to the transplant teams. The main drawback of this procedure is the long length of time taken to allocate the organs on many occasions. The main objective of this work, CARREL, is to increase the efficiency, safety, rapidity and quality of organ distribution, thereby helping the allocation process. CARREL is a data-base system, accessible through Internet, to which any medical center authorised to perform organ transplants could subscribe. CARREL allows to share medical information between centers. This information includes administrative, anthropometric, immunological, analytical, radiological and clinical data of donors and recipients, as well as data concerning the follow-up reports of already-transplanted patients. The CARREL prototype has now been fully developed. The database can manage complete information concerning both donation and transplantation processes. Matching algorithms and allocation mechanisms have been implemented. CARREL can provide an alternative organ distribution procedure. This software must now be tested and validated by the government health authorities dealing with transplants, in order to be used by the full transplant community. CARREL is an online system which can reduce organ distribution time; it facilitates communication between transplant co-ordinators and transplant teams at different centres, thereby improving donor and organ evaluation, performing donor-recipient matching and hastening candidate selection.

P 534
ANTIOXIDANT VITAMINS PRESERVE SUPEROXIDE DISMUTASE ACTIVITIES IN GENTAMICIN INDUCED NEPHROTOXICITY

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The clinical use of gentamicin (G) is limited due to its known nephrotoxic actions. Generation of reactive oxygen species has been proposed as a causative factor of cell death in the G-induced acute renal failure (ARF). Studies have indirectly shown a role for superoxide ion, by the use of superoxide dismutase (SOD) mimetics, in G-induced ARF. In this study we aimed to directly measure the enzyme activities in the in situ isolated kidneys and to investi-
gate the effects of antioxidant therapy in preservation of endo-
geneous antioxidant levels in this model of ARF. 35 male Sprague-
Dawley rats were randomly assigned to 5 groups of control, the
Tyrode perfused; G, gentamicin (200 microg/ml) added to the
perfusate; G+Vit E, vitamin E (100 mg/100 g BW, im); G+Vit C,
vitamin C added to the drinking water for 3 days (200 mg/l) and
to the perfusate (100 mg/l); G+Vit E+Vit C, vitamins E and C were
both administered. SOD activities were determined in renal tis-
sues based on NADPH oxidation at 340 nm by spectrophotome-
try. In G group, SOD activity was significantly reduced comparing
to controls (p<0.05). Administration of vitamin E alone or in com-
bination with vitamin C significantly preserved the enzyme activity
levels comparing to G group (p=0.05). Antioxidant vitamins
have a role on preservation of endogenous antioxidant levels,
namely SOD, in G-induced nephrotoxicity.

P 535
ACID-BASE STATUS DETERMINES CYCLOSPORIN A-INDUCED HYPERCALCIURI...
Posters

Seven days post-transplant, animals were sacrificed and the transplanted kidneys removed for histological evaluation. All animals survived for 7 days and delayed graft function did not occur. Serum creatinine, peak-creatinine, serum urea and peak-urea values post-transplant were all significantly lower in the PS preserved grafts (p=0.018, p=0.044, p=0.049, resp.). Urine production did not differ significantly. The PS preserved kidney grafts showed overall less inflammatory infiltration, tubular damage and edema, although not significant. Using Polysol, renal function was significantly improved after 20 hours CS compared to UW solution in a porcine autotransplantation model.

P 538

LAPAROSCOPIC DONOR NEPHRECTOMY FOR PEDIATRIC RECIPIENTS.

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Laparoscopic nephrectomy has become the technique of choice for live donor nephrectomy. However, limited data are available regarding the role of this technique for pediatric recipients whose parents need additional information. Since March 2003, we have performed laparoscopic nephrectomy in more than 400 consecutive patients for live donor transplantation. Of these, 39 cases were identified that involved a recipient younger than 17 years of age. The preoperative, intraoperative, and postoperative data were reviewed to analyze the outcome of these cases. We used the left kidney in 26 cases and the right kidney in 13 cases. Seven cases had double renal arteries and these were reconstructed on the bench table in the form of side to side anastomosis. The mean donor and recipient age was 31 years (range 22-34) and 13 years (range 6 to 17), respectively. The mean donor operative time was 2.1 hours (range 1.2 to 3.2). The warm ischemia time averaged 3 minutes (range 2 to 5). In 27 cases we used the common iliac artery and common iliac vein for vascular anastomosis. In 12 cases the anastomosis was performed to the aorta and vena cava. Seven patients had prior augmentation cystoplasty and the ureter was anastomosed to the pouch directly. All the grafts functioned immediately, with a mean creatinine at 24 hours of 1.5 mg/dL (range 0.3 to 4.0). At last follow-up (mean 13.6 months), the mean creatinine was 0.9 mg/dL. One patient lost the graft due to severe rejection that was resistant to ATG. Our early experience with laparoscopic donor nephrectomy for pediatric recipients confirmed that the technique provides quality organs with excellent function. The method yields outcome comparable to those after traditional open donor nephrectomy and does not require modifications for the recipient operation.

P 539

A COMPARISON BETWEEN THE LEVELS OF C0 AND C2 IN SURVEILLANCE OF CHILDREN UNDERGONE RENAL TRANSPLANTATION


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Cyclosporine A, with individual varieties in absorptive properties, needs a separate dose adjustment for each patient. In a prospective design, from October 2004 to June 2005, 64 renal transplanted children, who had renal transplantation at least 3 months before, at Namazee Hospital, were enrolled in our study. Immunosuppressive regimen consisted of Cyclosporine and prednisolone plus Cellcept or Immuracen. Data regarding GFR, serum creatinine, electrolytes, lipids and C0 and C2 levels was collected at beginning, in one-month, and five-month intervals. Cyclosporine was adjusted to 100-250 ng/ml based on C0 level. Patients were divided into two C0 (<100 and ≥100 ng/ml) and two C2 (<800 and ≥800 ng/ ml) subgroups. Mean creatinine at the end of study was statistically similar to values at beginning (1.27 +/- 0.63 mg/dl). The same was true for GFR (84.91 +/- 27.03 ml/min). C0 (127.56 +/- 51.15 ml/min), C2 levels (569.96 +/- 195.82 ml/min) and C0 level was found to be correlated to C2 (r=0.74, P=0.01). In addition, C2 level was correlated to cyclosporine dosage (r=0.52, P=0.01). However, C0 level was negatively correlated to serum creatinine (r=-0.07, P<0.05). The coefficient of variation of the three samples of each patient was 10.89% for C0, 8.94% for C2 while the drug dosage kept constant. The PS preserved kidney grafts showed overall less inflammatory infiltration, tubular damage and edema, although not significant. Using Polysol, renal function was significantly improved after 20 hours CS compared to UW solution in a porcine autotransplantation model.

The mean donor and recipient age was 31 years (range 22-34) and 13 years (range 6 to 17), respectively. The mean donor operative time was 2.1 hours (range 1.2 to 3.2). The warm ischemia time averaged 3 minutes (range 2 to 5). In 27 cases we used the common iliac artery and common iliac vein for vascular anastomosis. In 12 cases the anastomosis was performed to the aorta and vena cava. Seven patients had prior augmentation cystoplasty and the ureter was anastomosed to the pouch directly. All the grafts functioned immediately, with a mean creatinine at 24 hours of 1.5 mg/dL (range 0.3 to 4.0). At last follow-up (mean 13.6 months), the mean creatinine was 0.9 mg/dL. One patient lost the graft due to severe rejection that was resistant to ATG. Our early experience with laparoscopic donor nephrectomy for pediatric recipients confirmed that the technique provides quality organs with excellent function. The method yields outcome comparable to those after traditional open donor nephrectomy and does not require modifications for the recipient operation.

Cyclosporine A, with individual varieties in absorptive properties, needs a separate dose adjustment for each patient. In a prospective design, from October 2004 to June 2005, 64 renal transplanted children, who had renal transplantation at least 3 months before, at Namazee Hospital, were enrolled in our study. Immunosuppressive regimen consisted of Cyclosporine and prednisolone plus Cellcept or Immuracen. Data regarding GFR, serum creatinine, electrolytes, lipids and C0 and C2 levels was collected at beginning, in one-month, and five-month intervals. Cyclosporine was adjusted to 100-250 ng/ml based on C0 level. Patients were divided into two C0 (<100 and ≥100 ng/ml) and two C2 (<800 and ≥800 ng/ ml) subgroups. Mean creatinine at the end of study was statistically similar to values at beginning (1.27 +/- 0.63 mg/dl). The same was true for GFR (84.91 +/- 27.03 ml/min). C0 (127.56 +/- 51.15 ml/min), C2 levels (569.96 +/- 195.82 ml/min) and C0 level was found to be correlated to C2 (r=0.74, P=0.01). In addition, C2 level was correlated to cyclosporine dosage (r=0.52, P=0.01). However, C0 level was negatively correlated to serum creatinine (r=-0.07, P<0.05). The coefficient of variation of the three samples of each patient was 10.89% for C0, 8.94% for C2 while the drug dosage kept constant. Similar creatinine levels, drug dosage, and complications of C0 and C2 subgroups may be due to dependence of renal function to several factors other than cyclosporine dosage. Regarding coefficient of variation, C2 was more accurate and reliable than C0 level. As there was no significant difference in mean C0 and C2 levels at beginning and the end of the study, there seems to be no need to check C2 levels after renal transplantation.
**P 540**

**GROWTH AND BODY MASS INDEX IN CHILDREN WITH NORMAL ALLOGRAFT FUNCTION**

Derakhshani A¹, Basiratnia M², Bazargani Z³, Fallahzadeh MH¹, Hashemi G⁴, Bahador A³, Salah H¹, Davari HR¹, Nikeghbalian S¹, Salehipour M², Jalaeian H³, Hosseini SA M³

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Marked weight gain is a common finding following pediatric kidney transplantation. Despite this weight gain, their final heights are often suboptimal. In a cross-sectional design, among a 3-month period, in all children and young adults that had been transplanted from the beginning of transplant program (from 1993 to 2005) in Shiraz organ transplant center and had normal post transplant renal function (serum creatinine ≤1.5) were evaluated. Seventy-one children and young adults, aged 3-19 years at transplantation, were enrolled in this study. Different parameters extracted from their records and their height and weight were measured with appropriate device and body mass index was calculated, using BMI=Body weight (kg)/height (m)² equation. Their BMIs and heights were compared with available standards. There were 45 males and 26 females. Their primary renal diseases were as follow: Glomerulopathies (n=11, 15.5%), hereditary nephropathies (n=20, 28.2%), congenital urological malformations and hypoplasia/dysplasias (n=29, 40.8%), others and unknown (n=11, 15.5%). Mean age at transplantation was 12.6+/3.2 years (range, 3-19) with a mean follow up of 4+/2.4 (range, 1-13) years. Sixty-nine (97.1%) of them were on triple immunosuppressive therapy (cyclosporine + prednisolone + cellcept or azathioprine), one was on double therapy, and one didn’t use any medication. Fifty eight patients (82%) had heights below the 5th percentile of their age and sex; nine cases (12.7%) had heights between the 5th and 10th percentile and in 4 (5.6%), the height was between the 25th and 50th percentile. Regarding their body mass index, the following data was obtained: <10th percentile: 11 (15%), 10.90th percentile: 53 (75%), and >90th percentile: 7 (10%). Height and BMI percentiles were not different significantly between the sexes. We conclude that despite acceptable BMI, growth retardation is still common among our children following kidney transplantation.

**P 541**

**EARLY POSTOPERATIVE COMPLICATIONS OF PEDIATRIC LIVER TRANSPLANTATION**

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Liver transplant recipients are at risk for the same postoperative complications as any patient undergoing a major intra-abdominal operation. These complications can be technical, medical or immunological in nature. The aim of this study was to determine the types and frequencies of early postoperative complications that occurred among our pediatric liver transplant recipients. The medical records of 35 pediatric liver transplant recipients who were operated at the Transplant Center between April 1998 and April 2005, were retrospectively studied to gather demographic data, primary diagnosis, duration of hospital stay, source of graft, mortality, and complications including surgical (vascular, biliary, fluid collection) and medical (infection, respiratory, neurological, cardiovascular, and gastrointestinal). Among 23 male and 12 female pediatric liver transplant recipients (mean age: 11.8±4.9 years) with a mean hospital stay duration of 23.3±20.3 days, the most frequent postoperative complication was biliary (n=13, 37.2%) followed by respiratory (n=11, 31.4%), vascular (n=10, 28.6%), infection (n=10, 28.6%), and acute cellular rejection (n=6, 17.1%). As seen in adult liver transplantation, biliary complications remain the most common problem following liver transplantation in pediatric age group; however with timely recognition and active intervention a good outcome can be achieved.

**P 542**

**COMPARISON OF CHILD-TURCOTTE-PUGH AND PELD SCORING SYSTEMS IN PREDICTING MORBIDITY AND MORTALITY OF CHILDREN AWAITING TO UNDERGO LIVER TRANSPLANTATION**


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The pediatric end-stage liver disease (PELD) scoring system has been used widely for prioritizing children awaiting liver transplantation (LT). The aim of the present study was to compare the Child-Turcotte-Pugh scoring system with PELD scoring system in predicting the morbidity and mortality of children scheduled for LT while the organ was not still available. From 1999 to 2006, 83 infants and children who were evaluated and scheduled for LT in Nemazee Hospital Organ Transplantation Center while the organ was not available entered in our study. Child and PELD scores were determined according to data of initial assessment at time of listing. Outcome was also determined using their records or follow-up data. Of 83 patients, 12% had Child A, 53% had Child B, and 35% had Child C classification. The mean PELD score at listing was 19.8±12.8. Patients with Child A, B and C had the mean PELD scores of 15.7±9.3 and 30.5±11.7 respectively. Child-Turcotte-Pugh scoring system with PELD scoring system in predicting the morbidity and mortality of children scheduled for LT.
P 543

MORBIDITY AND MORTALITY OF CHILDREN WITH CHRONIC LIVER DISEASES, WHO LISTED FOR LIVER TRANSPLANTATION IN IRAN

Shiraz University of Medical Sciences, IRAN

Liver transplantation (LT) is the treatment of choice for end-stage liver disease in children, but shortage of donor is still a main problem in this age group. The aim of the present study is to evaluate the complications and mortality of liver diseased children waiting for transplantation. We analyzed medical records of 83 children aged less than 18 years, who were listed for LT but the organ was not available for them between 1999 and 2006. The outcome was determined by their records or follow up data. Among the children (mean age, 8±5 years; 50.5% boys) listed for LT, but the organ was not available for them, the common causes of cirrhosis were biliary atresia (27.7%) and cryptogenic (24.1%). The mean follow up duration was 14 ± 13.4 months (range 0.5-54 months). Sixty-seven (80.7%) patients developed one or more complications while awaiting transplantation. The most common complications were gastrointestinal bleeding (44.6%), spontaneous bacterial peritonitis (36.1%), infectious complications (28.9%), encephalopathy (24.1%), renal (18.1%), and pulmonary problems (10.8%). Fifty-one (61.4%) cases needed hospital admission due to complications and twenty-six (31.3%) patients died during awaiting. About two-third of children listed for LT needed hospital admission due to complications and one-third of them died without any LT. It seems that we need a trend toward splitting more livers and encourage live donation in our center for pediatric age group.

P 544

PEDIATRIC LIVER TRANSPLANTATION FOR ACUTE LIVER FAILURE

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The only proven therapy for patients unlikely to recover from acute liver failure(ALF) is liver transplantation. Therefore, recognition of the condition and urgent referral to a transplant center are critical. In this study, we evaluated 12 pediatric ALF patients who had undergone liver transplantation (LT) at a single center during a 4-year period. Seven patients were female, and 5 were male, and the mean age of the patients was 9.1 ± 4.2 years. Three patients received right liver lobe grafts; 1 received a whole liver graft; and the remainder received left or left lateral lobe grafts. All of the patients recovered from hepatic coma the day after transplantation. Overall, 2 patients died on the 57th and 71st postoperative days. One patient required retransplantation because of chronic rejection 7 months after having undergone the initial transplantation; that patient died due to sepsis 10 days after the retransplantation. As of this writing, the remaining 9 patients are healthy at between 2 and 46 months' follow-up. Today, 75% percent of our patients are alive. Living-donor LT is the only option for ALF patients in countries where organ donation rates are low. In such scenarios, donor preparation in a limited time is crucial, and we have been able to decrease this time interval to approximately 4 hours (including liver biopsy of the donor). In conclusion, at our center, cadaver donation rates are limited; however, in patients with ALF, an LDLT program has been developed that achieves success rates similar to those seen with cadaveric liver transplantation.

P 545

HYPERLIPIDEMIA IN CHILDREN WITH NORMAL ALLOGRAFT FUNCTION

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Post transplant hyperlipidemia is a risk factor for cardiovascular disease and may also causes chronic allograft nephropathy. There are many reports of this issue in adults but numbers of studies in children are limited. Some of the important contributing factors of post transplant hyperlipidemia include preexisting hyperlipidemia, medications, male gender, and allograft dysfunction. In a cross-sectional design, 12 hour fasting serum triglyceride (TG) and cholesterol (CHO) levels were measured in a group of children with normal renal function 1 to 13 years following kidney transplantation. There were 71 children, 45 males, 26 females with mean age at transplantation of 12.6+/3.2 years (range,3-19), and a mean follow up of 4+/2.4 years Sources of donor were living-related (n=24, 33.8%), living-unrelated (n=13, 18.3%) and cadaveric (n=34, 47.9%). Sixty-nine (97.1%) of them were on triple immunosuppressive therapy (cyclosporine+ prednisolone+ cellcept or azathioprine), one was on double therapy, and one didn’t use any medication. Mean triglyceride and cholesterol levels were 147+/51 (range, 65-298) and 185+/35 (range, 128-275) mg/dl. In most of our cases, TG and CHO level was more than 95th percentile of their standard age and sex values. Mean TG levels were 149+/50 and 143+/53 mg/dl among males and females, respectively (P>0.05). Furthermore, mean CHO levels were 180+/32 and 194+/40 in males and females, respectively (P>0.05). These levels were highly correlated with the percentile of BMI rather than other parameters such as cyclosporine levels, C0, C2, dose of prednisolone, etc. Hyperlipidemia is common among children who are long-term survivors of our kidney transplants, which should be detected and treated appropriately in post transplant follow up visits.
P 546
**EFFECT OF AQUEOUS –ALCHOHOLIC EXTRACT SEEDS OF HIBISCUS ESCU-LENTA ON DURESIS IN TESTICTOMIED MICE**

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Nowadays use medicinal plants have caused considerable interests in treatment of different disease. Okra is one of these plants, the seeds of Okra are traditionally assumed to have diuresis properties. Okra contains potassium, magnesium and calcium. Phosphoric acid is the main substance in the seeds of Okra. Effect of this plant on diuresis has been not investigated. In this study aqueous –alcoholic extract seeds of Hibiscus Escu-Lenta (40-200 mg) on diuresis in testicomed mice (body weight mean X¯=30.16±2, n=5) have been tested. Results indicate the extract cause increase urine volume in concentration dependent manner. Okra is containing the substances which offer some clinical use in facilitating diuresis in the mice.

P 547
**CHANGING THE TREATMENT PROTOCOL FROM AZATHIOPRINE TO MYCOPHENOLATE MOFETIL; DECREASE IN RENAL DYSFUNCTION, INCREASE IN INFECTIONS**

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Treatment protocol of renal transplantation changed from Azathioprine to Mycophenolate mofetil (MMF) in Iran, at 2000. However this change could have a great impact on post kidney transplantation outcomes, but it has not been studied fully, yet. We designed this study to investigate the impact of this change on the causes of rehospitalization. In Baqiyatallah hospital, Tehran, Iran; 524 post transplantation admission records were randomly selected, 202 of them had been admitted before the year 2000 (Group I) and 322 after that time (Group II). The causes of admission were categorized into renal dysfunction, infection, surgical complication, and macrovascular disease. Proportion of each cause compared between the two groups. Admissions related to renal dysfunction decreased from 53% to 31%, after the year 2000 (p=0.02). Instead, 33% of admissions in Group I and 47% in Group II were due to infections (p=0.01). Admissions due to macrovascular diseases, cancer and surgical complications were the same in two groups. The mean age at admission, time interval between transplantation and admission and the length of hospitalization were not significantly different (p>0.05). A marginally significant increase in mortality rate of inpatients (3% vs. 7%, 0.05<p) was observed.

Changing of a transplantation treatment protocol is a complex process. While changing the treatment protocol from Azathioprine to Mycophenolate mofetil has its own advantages, other complications, such as high infection rate, have emerged. It is important to modify the follow-up and caring modalities according to the new situation.

P 548
**PHARMACOKINETIC COMPARISON OF MYCOPHENOLATE MOFETIL (MMF) AND ENTERIC-COATED MYCOPHENOLATE SODIUM (EC-MPS) IN STABLE RENAL TRANSPLANT (RT) PATIENTS TR**

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EC-MPS is a delayed release formulation of mycophenolic acid (MPA) developed to deliver MPA to the small intestine and reduce upper gastrointestinal tract adverse-effects. The primary objective of this study is to compare pharmacokinetics (PK) of MMF plus FK with PK of EC-MPS plus FK. We studied a group of 32 stable RT patients treated with FK and MMF without steroids. 53% were men. Age x: 56.5y (31-76). Time from RT x: 5.5y (1.2-21.7). MMF doses x: 1.02g/d (500mg-2g) Target Cmin (1.5-4ng/L). FK doses x: 4.7mg/d (2-12.5) Target Cmin (8-11ng/L). We determined simultaneously the 12-hour plasma MMF and FK PK profile. Next, patients were switched to equimolar doses of EC-MPS. After 30 days a new PK profile of EC-MPS and FK was carried out. The following PK parameters were considered for each drug: predose concentration (Cmin), maximum concentration (Cmax), time of maximum concentration (Tmax), and the AUC calculated by the trapezoidal rule. FK and MMF doses remained stable throughout the study, no patient was on rifampicin, AAS, antacids or cholestyramine during the study period. S.Cr, proteinuria and S.albumin before and after conversion were 1.6 0.48mg/dl, 189 102mg/d, and 4.2 0.33mg/dl and 1.58 0.49mg/dl, 201 147mg/d, and 4.18 0.34mg/dl respectively. Leukocites, hemoglobin and platelets before and after conversion were 6.85 2.16, 13.3p 1.6mg/dl and 202 63 and: 7.40 2.83, 13.1 1.6mg/dl and 213 67 respectively. Bilirubin before and after conversion was 0.63 0.21mg/dl and 0.61 0.22mg/dl respectively. FK Tmax, Cmin and CV%, were equivalent with MMF and with EC-MPS. FK Cmax and AUC were 20% and 18% lower with MPS (p=0.0013). MPA Cmin, Tmax, Cmax, and AUC were 18%, 27% (p=0.0013), 36% (p=0.0013), and 27% (p=0.001) higher with MPS. Neither acute rejection episodes nor opportunistic infections were observed. No one patient complained of new-onset GI side-effects and no dose-adjustments were needed. In stable RT patients treated with FK, MMF can be switched to equimolar doses of EC-MPS taking into account that although FK Cmin concentration is not different, FK Cmax, Tmax, and CV%, were equivalent with MMF and with EC-MPS. FK Cmax and AUC were 20% and 18% lower with MPS (p=0.0013). MPA Cmin, Tmax, Cmax, and AUC were 18%, 27% (p=0.0013), 36% (p=0.0013), and 27% (p=0.001) higher with MPS. Neither acute rejection episodes nor opportunistic infections were observed. No one patient complained of new-onset GI side-effects and no dose-adjustments were needed. In stable RT patients treated with FK, MMF can be switched to equimolar doses of EC-MPS taking into account that although FK Cmin concentration is not different, FK AUC is significantly lower with MPS. At equimolar doses, MPS provides significantly higher AUC, Cmax and Cmin than MMF. These PK discrepancies were without short term clinical significance i.e. acute rejection or opportunistic infections. S.creatinine, daily proteinuria, bilirubin and hematological parameters showed no significant changes. G.I. tolerance after switching to MPS was excellent.
Cyclosporine microemulsion (CsA) has been the mainstay immunosuppressive agent for renal transplant recipients (RTR) for years. Single daily dosing of cyclosporine (SD) is rarely used. To evaluate the efficacy of SD versus twice daily dosing of CsA in RTR, retrospective evaluation of SD use was conducted for 44 RTR for 12 months (study group). Equal numbers of matched RTR were selected for age, sex, HLA mismatch, donor type, and immunosuppressive regimen (control group). CsA trough (C0) and peak (C2) blood levels, 12-hour CsA profile, and the area under the concentration-time curve (AUC) were measured. There were significant differences in CsA trough (C0) and C2 and calculated AUC after shifting to SD (p<0.0001, <0.0001 and 0.004) respectively. In the study group, the mean AUC was 4619 ng/mL/hour before versus 6567 ng/mL/hour after shifting to SD. This became more therapeutic and identical to the mean AUC in the control group which was 6551 ng/mL/hour. Total daily CsA dose was lower in the study group when compared with the control group at 6 and 12 months (p=0.0001). There were significantly fewer adverse effects in patients in the study group than in patients in the control group. There were no significant differences in rejection rate, graft and patient outcome between the groups. CsA dose should be individualized in RTR. Single daily dosing of CsA has the added advantage of decreasing dosages and cyclosporine-related adverse effects while maintaining optimal graft function.

Induction of the hepatic cytochrome P450 3A4 system and intestinal P-glycoprotein by rifampicin is difficult to be overcome by other drugs and require substantial increase in tacrolimus dose when given concurrently. Chronic diarrhea is known to precipitate tacrolimus toxicity irrespective of its cause in renal transplant recipients. A 24 years old lady had chronic renal failure due to membranous glomerulonephritis. She had kidney transplantation in 1988 complicated by chronic rejection, and a second renal transplant in 1993 which is functioning well. She was maintained on prednisolone, azathioprine and tacrolimus. She has close relatives infected with tuberculosis. She was started on isoniazide prophylaxis in April 2002 and tacrolimus was maintained on therapeutic levels. She had chronic anemia, fever, night sweating, nausea, vomiting, chronic diarrhea, and loss of weight. Detailed investigations including multiple gastrointestinal biopsies didn’t conclude definite diagnoses apart from mild gastritis. She was started on antituberculous treatment in November 2002 (rifampicin, isoniazide, ethambutol, and pyrazinamide). Ethambutol was discontinued after two months. She continued to have significant symptoms requiring multiple drugs to be controlled. She was getting omeprazole 20 mg twice daily which increases tacrolimus levels via hepatic enzyme inhibitor effect. She was taking also frequent doses of antacids (which decreases rifampicin absorption) and metoclopramide (which inhibits tacrolimus metabolism and increases its absorption). She was taking other drugs such as loperamide, acetaminophen and ondasetron hydrochloride as symptomatic treatment when required. She had very high tacrolimus blood levels requiring successive dose reduction from 7 mg/day up to 0.5 mg every other day with rise of serum creatinine from 100 to 140 µmol/l. Tacrolimus was changed to low dose sirolimus in April 2003 and renal function improved to its baseline while still on rifampicin. Gastrointestinal disturbances and multiple drug administration may cause significant toxic tacrolimus blood levels even in presence of rifampicin. Combination of enzyme P450 inhibitors and low absorption of rifampicin may overcome its strong enzyme induction effect.

One of the most disturbing side effects of CYA therapy is gingival hyperplasia. Although many studies were performed to determine the cause of this hyperplasia however, the mechanism of this effect is not established. The Dental school of the Lebanese University is performing a study to determine such a Mechanism. The study envisaged the determination of CYA levels in the blood, lymphocytes, saliva, dental plaque and gum biopsy. We here describe the method that we have developed and patented (MERI drug extraction solution, Beirut Lebanon) to measure the CYA levels in the saliva, dental plaque and gum tissue. We here describe the method that we have developed and patented (MERI drug extraction solution, Beirut Lebanon) to measure the CYA levels in the saliva, dental plaque and gum tissue. We here describe the method that we have developed and patented (MERI drug extraction solution, Beirut Lebanon) to measure the CYA levels in the saliva, dental plaque and gum tissue. We here describe the method that we have developed and patented (MERI drug extraction solution, Beirut Lebanon) to measure the CYA levels in the saliva, dental plaque and gum tissue. We here describe the method that we have developed and patented (MERI drug extraction solution, Beirut Lebanon) to measure the CYA levels in the saliva, dental plaque and gum tissue. One of the most disturbing side effects of CYA therapy is gingival hyperplasia.
The average CYA level was 93.7 ng/ml of saliva, 5.1 ng/mg of gum and 7.1 ng/mg of plaque respectively. The corresponding C2 blood level was 1123 ng/ml. The assay is sensitive up to 2 ng/ml and reproducible inter assay CV of 3.4% and intra assay CV of 6.7 %. There were many attempts in the past to measure CYA in saliva, most of which were not successful. The published data indicate that only one assay that was reproducible required as much as 40 ml of saliva. As for gum tissue or plaque CYA levels we believe that this is the only assay available.

**P 552**

**PHARMACOKINETICS OF MYCOPHENOLIC ACID DURING THE EARLY PERIOD FOLLOWING RENAL TRANSPLANTATION**

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Mycophenolic Acid (Mpa), The Active Metabolite Of Mycophenolate Mofetil (Mmf), Is Used In Combination With Cyclosporine And Oral Steroids To Prevent Acute Rejection Following Renal Allograft Transplantation. The Aim Of This Study Is To Investigate The Effect Of Time After Transplantation, Patient S Demographic Factors (Sex, Total Body Weight (Tbw), Age) And Mmf Dosage (By Body Weight) On Mpa Plasma Clearance In Early Post Transplant Period. Mpa Plasma Levels Of 19 Patients Were Determined By Validated Hplc Method At Steady State, Early After Transplantation, When Graft Function Was Normal (Creatinine Clearance> 70 Ml/Min). All Patients Received Fix Dose Of Mmf (1 G Twice Daily) In Combination With Cyclosporine And Steroids. Area Under The Time-Concentration Curve (Auc) And Mpa Plasma Clearance Were Measured For Each Patient. Both Auc From 0 To 12h And Predose Concentrations Increase Significantly With Time After Transplantation (P<0.05), While Mpa Plasma Clearance Decreases With Time (P=0.02). There Was Correlation Between Tbw And Auc (P=0.01,R= -0.627) As Well As Tbw And Mpa Plasma Clearance(P=0.04,R=0.555). Mpa Auc And Clearance Showed No Significant Differences According To Patient S Sex Or Age (P>0.05), Mmf Dosage (By Body Weight) Positively Correlates With Auc (P=0.01,R=0.628) But There Was Negative Correlation Between Tbw And Mpa Plasma Clearance (P=0.02,R= -0.604). Our Results Demonstrate That Total Body Weight, Time After Transplantation And Mmf Dosage (By Body Weight) Affect Mpa Pharmacokinetics. We Recommend That Mpa Pharmacokinetic Monitoring Is Necessary To Individualized Mmf Dosing During Early Post Transplant Period.

**Table 1**

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**Table 2**

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**P 555**

**OFFSPRING TO MOTHER AND HUSBAND TO WIFE TRANSPLANTS, SENSITIZATION OR TOLERANCE AFTER PREGNANCY?**

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It has been demonstrated that graft survival rates of offspring-to-mother and husband-to-wife renal transplants are equivalent to those of other living donors. Although the vast majority of these transplants proceed without incident, we have encountered several instances of hyperacute rejections that are not predicted by a positive cross-match. From 1375 renal transplants performed at our center between 1989-2005 twelve corresponded to offspring-to-mother (G1) and nine corresponded to husband to wife transplants (G2). All the recipients were multiparous (2 to 5 children). We compare these patients (pts) with other multiparous women (150 pts) who received their graft from living unrelated donors (G3). Pretransplantation lymphocytotoxic cross-match testing were performed by complement dependent citotoxicity with antihuman globulin added (AHG-CDC), being negative in all cases. All the patients received triple-drug immunosuppressive therapy consisted of cyclosporine, prednisolone and mycophenolate mofetil or Azathiopurine. Two pts in G1 (16.6%), two pts in G2 (22.2%) and non in G3 developed hyperacute rejection which led to graft loss. One, three and five year pts and graft survival were not different between remaining pts (Kaplan- meier). (Table 1 and 2) Why under similar conditions some husband to wife and offspring-to-mother kidney transplant recipients developed adverse hum immunological events while others maintain excellent long-term graft outcome? It is possible to speculate that for some women pregnancy is in fact a sensitizing event, while in others it promotes 'tolerance'

**Table 1**

<table>
<thead>
<tr>
<th></th>
<th>G1</th>
<th>G2</th>
<th>G3</th>
</tr>
</thead>
<tbody>
<tr>
<td>One year Graft survival</td>
<td>92.2%</td>
<td>93.6%</td>
<td>90.3%</td>
</tr>
<tr>
<td>Three year Graft survival</td>
<td>78.4%</td>
<td>75.2%</td>
<td>79.2%</td>
</tr>
<tr>
<td>Five year Graft survival</td>
<td>67.3%</td>
<td>68.5%</td>
<td>62.8%</td>
</tr>
</tbody>
</table>

**Table 2**

<table>
<thead>
<tr>
<th></th>
<th>G1</th>
<th>G2</th>
<th>G3</th>
</tr>
</thead>
<tbody>
<tr>
<td>One year pts survival</td>
<td>94.5%</td>
<td>96.5%</td>
<td>92.3%</td>
</tr>
<tr>
<td>Three year pts survival</td>
<td>89.4%</td>
<td>85.6%</td>
<td>87.4%</td>
</tr>
<tr>
<td>Five year pts survival</td>
<td>81.2%</td>
<td>78.4%</td>
<td>79.3%</td>
</tr>
</tbody>
</table>

**P 554**

**IMMUNOSUPPRESSION FREE KIDNEY TRANSPLANT PATIENTS**

Gerntholtz TE, Pooe MA

Dumisane Mzimane African Institute Of Kidney Disease, SOUTH AFRICA

Although immunosuppressive agents are needed in the achievement of transplant organ function and the prevention of rejection, they have many side effects. The most important of these are of
course increased susceptibility to opportunistic infections and malignancies. For this reason, it has been attempted to wean transplant ed patients down to the minimum required immunosuppression. In our clinic it is our practice to wean patients off steroids one year post kidney transplant. In those on calcineurin inhibitors, dosing is slowly reduced following patient consent with frequent monitoring of serum creatinines. There are some patients whose antirejection medication is further reduced for various reasons. We analysed the clinical course of four such patients who were on no immunosuppression at all. The following table summarises the results of our four patients who are no longer taking any antirejection medication:

<table>
<thead>
<tr>
<th>Age</th>
<th>Race</th>
<th>Donor Type</th>
<th>Reason for Weaning</th>
<th>Amt</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>61 yr</td>
<td>white male</td>
<td>10 yr living</td>
<td>Non-compliance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 yr</td>
<td></td>
<td>related</td>
<td>Kaposi's sarcoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52 yr</td>
<td>black male</td>
<td>23 yr cadaveric</td>
<td>Non-compliance</td>
<td>107</td>
<td>3 mnths</td>
</tr>
<tr>
<td>23 yr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54 yr</td>
<td>black male</td>
<td>14 yr cadaveric</td>
<td>Non-compliance</td>
<td>84</td>
<td>1 mnths</td>
</tr>
<tr>
<td>14 yr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33 yr</td>
<td>black female</td>
<td></td>
<td>Non-compliance</td>
<td>64</td>
<td>6 mnths</td>
</tr>
<tr>
<td>1 yr</td>
<td></td>
<td>1 yr living</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the non identical twin transplant, reasons for weaning immunosuppression were, non compliance in any case and Kaposi’s sarcoma. It is possible to completely wean or stop antirejection medication in stable kidney transplanted patients. This is particularly so in those where there is very good tissue matching or even in those where the transplant occurred many years previously. We have shown this to be possible in four patients by weaning immunosuppression gradually. Thus tolerance can be achieved using current medication regimens.
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