Transplant International

Poster Sessions – Late Breaking

Late Breaking – Clinical cases

LB-P-001 ORGAN DONATION AFTER THERAPEUTIC NEPHRECTOMY

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Nephrectomy is occasionally still required for patients with benign renal conditions such as chronic loin pain and irreparable ureteric injuries. In such cases autotransplantation (AT) may be considered, if the contra-lateral kidney function is suboptimal. In the event of the remaining kidney having good function, the organ being removed may be considered for donation as an allograft to a potential recipient on the deceased donor waiting list. We present a report of such a case.
The Donor: A 61 year old male presented 1 year following resection of a "benign retroperitoneal fibromatosis mass" for elective closure of a defunctioning colostomy. Post operatively he developed a urine leak from his left kidney requiring percutaneous nephrostomy. Imaging confirmed a long segment of ureter was missing and, following two failed attempts at stenting, it was felt that there was no surgical option for re-establishing continuity. Radioisotope studies confirmed adequate function in the right kidney and the patient rejected AT in view of the potential for further complications. He was then approached for consent to use his left kidney as an allograft and readily approved.
The Recipient: After approval from Human Tissue Authority and NHSBT we selected a 69 year old man from our local cadaveric waiting list.
Operation: A left subcostal flank incision was used to extract the kidney and, after confirmation that the organ was suitable for transplantation, the recipient was anaesthetised and the procedure was performed. The donor and recipient recovered well and were discharged home on days 4 and 12 respectively. The recipient has subsequently written to the donor, an experience the donor relates as particularly "moving and emotional".
Conclusion: Patients who require nephrectomy may value the opportunity to become a live organ donor and, in particular situations, this option may be possible.

LB-P-002 STILAMIN IN THE TREATMENT OF LYMPHATIC FISTULA AFTER LIVING-RELATED RENAL TRANSPLANTATION

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Purpose: To discuss about the diagnosis of lymphatic fistula after living-related renal transplantation and to evaluate the safety and effectivity of stilamin in it.
Methods: Twelve patients with lymphatic fistula after kidney transplantation were recruited to survey the lymphatic drainage and other complication.we compared the lymphatic drainage before and after using stilamin.
Result: The incidence of lymphatic fistula after kidney transplantation is 2.8%,usually happen in the 5-9 day after operation. stilamin can decrease the drainage and shorten the time of wound healing obviously to prevent the complications such as reoperation, lymphocele, infection. No adverse reaction was found except pathoglycemia, and there was no influence to the nutrition condition. We did not note a rejection episode and lymphocele develops in one-momth follow-up after operation.
Conclusion: Stilamin can effectively treated the lymphorrhea after kidney transplantation and was consider to be a safe and useful treatment.

LB-P-003 THE EFFECTIVENESS OF THE MOVING TO MORPHINE AUGMENTED MAGNETIC RESONANCE CHOLANGIOPANCREATICOGRAPHY FOR IMPROVING THE QUALITY OF IMAGES IN LIVING LIVER DONORS

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The evaluation of biliary antomy in living donor liver transplantation (LDLT) is very important and performed most commonly using intraoperative cholangoigraphy, some centers use MR cholangiopancreaticography (MRCP) or ERCP in selected patients.
MRCP has been increasingly used for evaluations of LDLT donors due to its noinvasiveness. However, the quality of MRCP images are inferior to the direct cholagiography. Some authors have used morphine to enhance the image quality of MRCP.
The objective of our study was to evaluate the effectiveness of morphine augmented MRCP to illustrate the biliary anatomy of LDLT donors
We have been using MRCP in LDLT donor evaluation since 2007. We recently changed the protocols of preoperative MRCP with morphine injection. So we divided the donors into two groups between MRCP without morphine and MRCP with morphine.
Thirty seven LDLT donors who ranged in age from 17 to 64 years were retrospectively evaluated with preoperative MRCP. MRCP was performed on a 1.5-T magnetic field. Morphine HCl (0.04mg/kg) was administrated intravenously 15 minutes before taking MRCP images. The quality of MRCP images was assed by visulalization grading score between two groups. Findings were compared with intraoperative cholangiography also. Biliary anatomy was classified according to the classification proposed by Huang and colleagues. Prevalence of MRCP for the detection of aberrant biliary anatomy was revealed.
Pre-morphine era group (M–) and Morphine era group(M+) donors were 26 and 11 respectively. The quality of MRCP in M+ group was superior to M– group (P=0.013). Intraoperative cholangiography and biliary exploration revealed that 26 donors (70.3%) had conventional and 11 (29.7%) had aberrant biliary anatomy.
Preoperative MRCP with morphine represents more improving visualization of the biliary tree than without morphine in LDLT donors. However, the clinical effectiveness is controvertible.

LB-P-004 IN SITU SPLITTING USING A DONOR WITH AN INTRA-AORTIC BALLOON PUMP

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Splitting the liver allows two recipients to be transplanted utilising one donor. The split can be carried out on the bench, ex situ following retrieval, or in situ prior to cross clamping the donor. Advantages of an in situ split include reduced cold ischaemia (CI), reduced cut surface bleeding at reperfusion and no additional for splitting is required.
The donor was a 35-year-old female, weighing 57.2Kg. Previously well prior to experiencing an out of hospital cardiopulmonary arrest with 40 minute down time. CPR was commenced at scene. Due to cardiovascular instability she required an intra-aortic balloon pump (IABP) insertion. Referred as a donor after brain death 5 days following admission, liver function tests included – AST-116 IU, ALP-182 IU and Bil-13-μmol/L.
Only liver and kidneys were retrieved. Iliac vessels were prepared for early cannulation. As the circulatory parameters were stable it was decided to start the splitting in situ. A standard split producing a left lateral segment (segments II-III) and a right lobe (Segments I and IV-VIII) was performed in situ. The right lobe graft weighed 1041g and the left lateral segment 447g. On table cholangiogram showed a single left bile duct. There was a replaced right hepatic artery from the superior mesenteric artery and portal vein trifurcation.
At the time of cannulation the aortic balloon pump was rapidly removed. Time from start of the procedure to cross clamp was 2 hours 47 minutes.
Our adult recipient was a 65yr-old lady with erythropoietic protoporphyria. CI was 4 hrs 19mins. A 3-year old child was transplanted for Citrullinaemia. CI was 7hours 23mins. Both grafts are functioning well and the patients have been discharged.
With careful technique, the presence of IABP should not preclude in situ splitting.

LB-P-005 ALTERNATIVE PORTO-LEFT GASTRIC VEIN ANASTOMOSIS WITH OVARIAN VEIN GRAFT INTERPOSITION IN POST KASAI EXTRAHEPATIC PORTAL VEIN OBSTRUCTION

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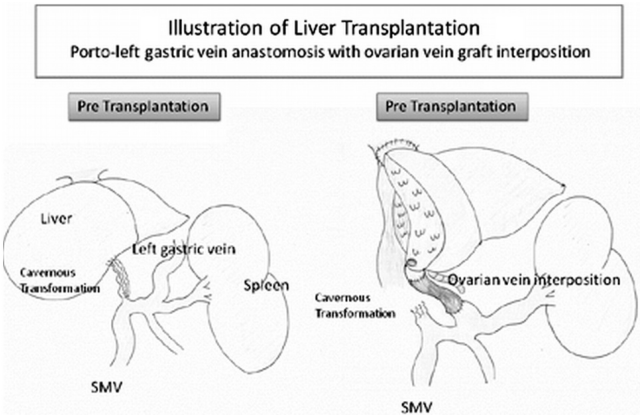
Extrahepatic portal vein obstruction (EPVO) is a common cause of portal hypertension in children and can lead to life-threatening bleeding, thrombocytopenia, and coagulation disorders. Twelve year-old girl with post Kasai biliary atresia showed life-threating esophageal and RY limb bleeding despite conventional treatment for 8 years. The patent received maternal left + caudate lobe graft. The main portal vein was completely obstructed with caverunous transformation. Alternative Porto-left gastric vein anastomosis with maternal



ovarian vein graft interposition was initiated. The duration of operation was 20 hours 44 minutes, blood loss was 227 g/kg.
The patient is currently doing well without any surgical complication. The video present alternative portal vein anastomosis with left gastric vein for EPVO.

LB-P-006 ADULT RIGHT LOBE LIVE DONOR LIVER TRANSPLANTATION (LDLT) IN PRESENCE OF A RETRO-PORTAL ACCESSORY RIGHT HEPATIC ARTERY (RPARHA) ARISING FROM LEFT HEPATIC ARTERY (LHA)

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Introduction: Certain variant hepatic arterial anatomy contraindicates LDLT owing to risks posed to right lobe graft. Extrahepatic trifurcation of hepatic artery, accessory or replaced right hepatic artery (ARHA/RRHA) from SMA are relatively common anomalies however, ARHA arising from the LHA is a rare anatomical variant. We describe the first reported case of RPARHA originating from LHA in LDLT.
Case: A 55 year old donor was assessed for right lobe donation. Vascular mapping suggested an abnormal artery, possibly a segment IV artery arising from LHA or trifurcation of hepatic artery. During hilar dissection a single right hepatic artery was detected at porta hepatis. Trial clamping of this did not produce complete right lobe ischaemia, hence the suspicion of significant arterial contribution of the right lobe by the abnormal vessel originating from LHA. Intraoperative Doppler showed an anomalous artery posterior and deep to the right portal vein. A 3 mm large RPARHA was identified towards the end of parenchymal transection, behind the portal vein bifurcation and within a subglissonian/subcapsular plane. This RPARHA was divided and marked with Absolok® at the cut surface; bench reconstruction with a paediatric iliac conduit Y graft was done with successful restoration of graft arterial inflow. RPARHA is an extremely rare finding and has been previously described as a cause of discarding a right lobe split and a contra-indication for splitting. The RPARHA from LHA supplies the posterior segments (VI/VII) and likely to be associated with the biliary anomaly of a posterior right duct draining in the 1st order left hepatic duct which was also present in this case. To our knowledge this is the first case of successful LDLT in the presence of RPARHA from LHA.

LB-P-007 PASSIVE TRANSFER OF PEANUT ALLERGY BY ORGANS TRANSPLANTATION

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Background: Peanut allergy, a common cause of food allergy, may be transmitted to recipients by organs procured from donors who died from anaphylactic shock after eating peanut-related food (Legendre C et al. N Engl J Med. 1997; 337:822-4; Khalid I et al. J Heart Lung Transplant. 2008; 27: 1162-4). However, this could happen even though the donor died from another cause.
Methods/material. s: A 20-year-old man died from a brain haemorrhage following a car crash. Brain death was confirmed a few hours later. Organs procured and transplanted were kidneys, liver, pancreas, lungs and heart. The liver was split in two parts. Atopy, i.e. allergic asthma and peanut allergy was found in the donor's medical history.
Results: Three months after transplantation, the lung recipient presented a symptomatic allergy with malaise and dyspnea within 30 minutes after peanut ingestion. The recipient, a 52-year-old woman, had no history of allergy. Peanut allergy was confirmed by a positive prick-test and positive specific IgE testing. The liver recipient, a 63-year-old woman, presented 2 months after the transplantation an anaphylaxis syndrome immediately after peanut ingestion. Testing for specific IgE against peanut and recombinant peanut allergens was positive. Noteworthy, further allergological testing (skin, blood, oral peanut challenge) was negative 6 months after initial symptoms demonstrating that allergy was transient.
Conclusion: Peanut allergy may be transmitted to one or several recipients by organ transplants. Careful investigation in organ recipients experiencing passive allergy is needed as well as appropriate follow-up of all recipients of grafts from the same donor.

Late Breaking – Islet / cell transplant

LB-P-008 DEVELOPMENT AND IN VITRO EVALUATION OF CLINICALLY APPLICABLE MICRON-SIZED SILICA-BASED IRON OXIDE PARTICLES FOR CELLULAR IMAGING WITH MRI

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Introduction: Liver cell transplantation (LCT) offers an alternative treatment for inborn metabolic liver diseases by bridging the patients until liver transplantation. Magnetic Resonance Imaging (MRI) can be used for non-invasive monitoring after LCT, but clinical applicable micron-sized particles are not available, yet. Aim of this study was to develop a new class of micron-sized particles for cellular imaging based on clinical applicable materials.
Material and Methods: We developed silica-based particles (1,18μm) with different surface modifications: positively charged Poly-L-Lysin, neutral Streptavidin, and negative COOH-groups. Huh7-cells, primary rat hepatocytes, and primary human hepatocytes were used for in vitro evaluation. Cellular uptake mechanisms were investigated by inhibiting endocytosis using hypothermia (4°C) or culture medium supplemented with NaN3. Phantom studies were performed using a 3.0T whole body scanner. T2 maps were generated to quantify the amount of incorporated particles. Transaminase leakage was measured to investigate possible adverse effects of the particles.
Results: Cell labeling with Poly-L-Lysin particles produced an iron load of approximately 35pg iron/cell. COOH-coupled particles lead to about 22pg iron/cell, Streptavidin-particles achieved 6pg iron/cell. Treatment with endocytosis inhibitors caused no significant differences in particle uptake. Cells labeled with Poly-L-Lysin-particles were detectable from a cluster of at least 5000 cells, whereas detection threshold for COOH- and Streptavidin-labeled cells were 10.000 and 25.000 cells, respectively. Effects on transaminase leakage were similarly low for all particles.
Discussion: We showed that efficient cell labeling with our new Silica-based particles is possible without any indication for altered cell viability or functional loss. Differently labeled cell clusters could be detected and quantified with clinical MRI. The different particle surface modifications reveal the opportunity to create multifunctional theranostic agents for diagnostic imaging, drug delivery or therapeutic monitoring.

LB-P-009 ROLES OF TOLL-LIKE RECEPTORS IN ALLOGENEIC ISLET TRANSPLANTATION

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Background: Toll-like receptors (TLRs) are involved in organ allograft rejection. We investigated the roles of TLRs on islets in allogeneic islet transplantation together with roles of TLRs on the recipients.
Methods: After islets were stimulated by poly I:C and LPS, expression of chemokines, cytokines, and procoagulants in islets were measured using reverse transcriptase polymerase chain reaction. In order to assess *in vivo* roles of TLRs on donors or recipients, allogeneic islet transplantation models were used using MyD88, TLR4, or Trif knockout (KO) mice with or without anti-CD154 antibodies (MR-1). Next, LPS was administered to simulate TLRs on donor islets after BALB/c islet transplantation to diabetic TLR4 KO C57BL6/J mice.
Results: Murine islets expressed TLR3 and TLR4 at resting status. Various

chemokines (RANTES, IP-10, MCP-1) and tissue factor were upregulated in islets in response to TLR stimulation. Both LPS and poly I:C also upregulated iNOS expression. These proinflammatory responses induced by TLR activation were abrogated in islets isolated from MyD88, TLR4, Trif, and IPS-1 KO mice. When islets from MyD88, TLR4 or Trif KO C57BL6/J mice were transplanted to diabetic BALB/c mice without MR-1, their allograft survivals were not better than the wild type controls. There was also no significant difference in islet allograft survival between MyD88 KO, Trif KO, and wild type recipients without MR-1, although some of MyD88 KO recipients obtained long-term allograft survival. However, MyD88 deficiency of either recipients or donors prolonged islet allograft survival, when MR-1 was added (Log-rank test, p=0.0146; 0.0121). When BABL/c islets were transplanted to TLR4 KO C57BL6/J recipients with MR-1 treatment, LPS stimulation on donor TLR4 interfered with islet allograft tolerance (Log-rank test, p=0.0029).
Conclusion: TLRs on donor islets contribute to islet allograft rejection as well as TLRs on the recipients.

LB-P-010 MRI ENABLES NON-INVASIVE MONITORING DURING LIVER CELL TRANSPLANTATION TO THE SPLEEN IN A PORCINE MODEL

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Objectives: Liver cell transplantation (LCT) is a promising approach for the treatment of metabolic liver disorders. The spleen has been considered as ectopic implantation site for liver cells, but clinical studies addressing LCT to the spleen have so far been limited to investigation of tissue samples. Labeling of liver cells with superparamagnetic iron oxide particles can enable the visualization of transplanted cells by magnetic resonance imaging (MRI). The aim of this study was to investigate the feasibility of MRI monitoring during liver cell infusion to the spleen.
Methods: Male porcine liver cells were labeled with micron-sized iron oxide particles (MPIO) and infused to the spleen of female fully-grown pigs (n=5) through a catheter placed in the lineal artery. MRI monitoring was performed using a conventional 3.0 Tesla MR scanner. Initially, T1- and T2-weighted pulse sequences were tested for the detection of MPIO-labeled cells in the spleen. Thereafter, fast dynamic MRI was performed during cell infusion. MR findings were verified by histological and immunohistological examination.
Results: Images from static MRI showed significantly lower signal intensity and signal-to-noise ratio after cell infusion compared to pretransplant images. T2-weighted fast dynamic MRI enabled visualization of continuous signal decrease of the spleen during cell infusion. When cells were infused systematically, no signal changes in the spleen were observed. After successful cell delivery, the arterial vessels of the spleen and the surrounding parenchyma contained large numbers of CK18-positive and Fish- positive male liver cells.
Conclusions: This study shows that fast dynamic MRI can enable non-invasive visualization of liver cell distribution in the spleen and verification of the success of cell delivery. Moreover, these findings suggest that the spleen may act as an temporal reservoir for liver cells during LCT.

LB-P-011 NEOHYBRID LIVER GRAFT – A NOVEL CONCEPT OF IN VIVO TISSUE-ENGINEERING

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Background: Liver transplantation is an effective therapy for end-stage liver disease, but immunosuppression may lead to serious complications. Hepatocyte transplantation alone still has not reached long-lasting effects, mainly due to hepatocyte failure over time. We investigated whether transplantation of syngeneic hepatocytes into allogeneic liver grafts may be used as a novel concept to improve tolerance induction.
Methods: Male Lewis rats were pretreated with 2-acetaminophen and partial hepatectomy to induce proliferation of hepatocytes and progenitor cells. Cells were isolated in a modified two-step procedure with density gradient separation of progenitor cells and transplanted into female Lewis rats after allogeneic liver transplantation. In order to facilitate cell engraftment, graft donors (female Dark Agouti) were pretreated with Retrorsin. 5×10^6 Hepatocytes and progenitor cells were transplanted via the spleen. Immunosuppression consisted in CyclosporinA, rats were sacrificed at days 8, 15, 30 and 90. Detection of transplanted male cells was performed by FiSH-typing of y-chromosomes and immunhistochemical staining of OV-6, CK18, CK19 and BrdU.
Results: Animals surviving the first 3 days after combined hepatocyte and liver transplantation showed continuous stable liver function. FiSH-typing revealed moderate to good engraftment of transplanted male cells at all time-points. Counting of male cells/vision field (200x) showed a proportion between 13% and 38% of male cells per total cell count. So far no statistically significant difference between time-points could be detected (n=4/time-point).
Conclusion: Establishing the new concept of a neohybrid liver graft we could proof a relevant proportion of engrafted cells up to 90 days after combined liver and hepatocyte transplantation. Cell transplantation via the spleen seems feasible, even after liver transplantation. Influence of progenitor cells on engraftment and proliferation of transplanted hepatocytes are under evaluation, especially with respect to minimization of immunosuppression and induction of tolerance.

LB-P-012 ISLET AFTER KIDNEY TRANSPLANTATION AND POST TRANSPLANT LYMPHOPROLIFERATIVE DISEASE

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Background: Islet transplantation is considered a safe therapeutic approach in type 1 diabetic (T1D) patients bearing a kidney graft.
Objective: These retrospective study analysed occurrences of post transplant lymphoproliferative disease (PTLD) in patients receiving islet after kidney (IAK)
Methods: T1D patients with end stage kidney disease were included: 27 patients received IAK, 60 patients kidney transplant alone. The induction immunosuppression after kidney transplant was ATG; each subsequent islet transplant was performed under further ATG administrations. Chronic therapy was: MMF/azathioprine + FK506/cyclosporine.
Results: Three patients (#1,#2,#3) developed PTLD 15, 10, 10 years respectively after islet transplant. Patient #1 previously underwent pancreas-kidney graft and then kidney alone, in addition he received single islet infusion; the other two patients underwent kidney alone and then 2 and 3 islet infusions. They received cyclosporine and MMF as chronic immunosuppression. Patient # 1 had abdominal mass, budded from small bowel, that was surgically completely removed; histological finding was diffuse large B-cell lymphoma EBV-associated, totally extranodal. Patient #2 had abdominal mass, budded from small bowel, that was partially surgically removed; histological finding was diffuse large B-cell lymphoma EBV-associated; abdominal lymph nodes were enlarged. In both cases cyclosporine and MMF were withdrawn and replaced with sirolimus; chemotherapy and rituximab were administered with complete remission of PTLD.
Patient #3 had chest mass raised from 4th left rib; histological finding was myeloma EBV-associated; no other bone lesions were present; specific therapy is actually under evaluation, while cyclosporine and MMF have been withdrawn and replaced with sirolimus. No PTLD were observed in patients who received kidney alone.
Conclusions: It is mandatory to consider the long term effects of immunosuppression in the evaluation of IAK risk/benefit balance. Repeated load of ATG should be avoid and alternative induction therapy should be recommended.

LB-P-013 ESTABLISHING THE SNBTS ISLET ISOLATION LABORATORY

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SNBTS Tissues and Cells in conjunction with NHS Lothian recently received funding from the Scottish Government to establish a pancreatic islet cell transplantation service for Type I diabetic patients presenting with poor glycaemic control and/or awareness, often associated with numerous hypoglycaemic events. Over the last 18 months SNBTS Tissues and Cells have installed and commissioned a new Grade B/C processing facility and established the islet isolation service (based on the Edmonton Protocol), to the appropriate GMP and legislative standards, creating in excess of 150 controlled documents and completing over 20 individual validations.
The process of islet cell isolation (described in the "Edmonton" protocol, *Shapiro et al. NEJM. 2000*) is laborious requiring several members of staff working concurrently. Once the organ is received it is decontaminated then cannulated and perfused with collagenase enzyme until distended. The organ is cut into pieces and placed within a chamber in the presence of active colla-

genase, which is recirculated through the chamber and associated circuit. The combination of mechanical and enzymatic digestion results in a crude islet preparation that is purified by density gradient using a COBE 2991 cell processor. Purified islets are quantified before being placed in culture for a period of 24-48 hours, enabling additional tests/checks to be completed (endotoxin, viability), prior to clinical/QA release. Islets are then transplanted into the portal vein of the patients' liver under local anaesthetic.
The clinical service was established in December 2010 and the first transplant took place in February 2011, the first of its kind in Scotland and one of just over 20 in the UK. Early indications suggest the graft was extremely successful as evidenced by a reduction in insulin requirements, reduced hypoglycaemic events, restoration of glycaemic awareness and production of c-peptide, a marker of endogenous insulin production.

Late Breaking – Allocation

LB-P-014 HLA-A,B,DR ALLELE FREQUENCIES AND MATCHING ALGORITHM IN CADAVERIC KIDNEY TRANSPLANTATION PAIRS

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Background: Croatia is a member of Eurotransplant (ET) and consequently the allocation of cadaveric donor kidneys is founded on a ET scheme involving matching for HLA-A, B at the broad specificity level and matching for HLA-DR at the split specificity level. Cadaveric kidney transplantation with no HLA-DR mismatches can improve the graft survival. We analyzed the level of mismatching at each locus depending upon the HLA type of cadaveric renal transplant donor/recipient pairs.
Methods/Materials: A total of 440 renal transplant donor/recipient pairs transplanted between August 2007 and May 2011 in Clinical Hospital Centre Zagreb. HLA-A,B,DR typing of both recipients and donors was performed by PCR using sequence specific primers (PCR-SSP). Assessment of HLA mismatching (MM) was determined for HLA-A,B,DR phenotypes as levels 0 to 6 MM and for each locus separately as levels 0-2 MM.
Results: The level of matching was analyzed according to HLA type of recipent and donor and according to the frequency of HLA alleles. The most frequent level of MM was 3 (39%), and 6 MM as the less favourable level was also less frequent (1%). The results show that 0 MM for HLA-DR locus was acheived in 18% of pairs. When analysing the level of MM at HLA-DR locus according to the allele frequency, the incidence of MM was lowest for DR11 and DR13 and at the same time much higher for the less frequent alleles (DR8, DR14). The most striking result is obtained for DR12 where all 15/15 alleles were MM.
Conclusion: Full HLA-DR matching as the most favourable allocation scheme is dependent on the allele frequency and in the Croatian patients will be least acheivable for patients with DR12, DR14, DR8, DR9 and DR10 alleles.

LB-P-015 "CALCULATED RISK" DONOR RELATED SOLID ORGAN TRANSPLANTATIONS IN THE EMILIA-ROMAGNA REGION (ERR) (2003-2009): ANALYSIS OF GRAFT SURVIVAL

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Introduction: The gap between organ donation and demand continues to represent one of the main issues in transplant activity, thus "non standard" organ transplantations (TX) have been performed over the years. The "calculated risk" (CR) protocol has been in use in ERR since 2003.
Aim of the study: Aim of this study is to review CR donor related TX carried out from 2003 to 2009, then to assess graft survival at 2 years after TX.
Material and methods: CR donors have been divided in 7 categories:
Bacteremia: All CR donor related TX carried out from the 1st of January 2003 to the 31st of December 2009 have been reviewed. Afterwards organ survival data at 2 years after TX have been analyzed.
Results: 406 CR effective organ donor related TX in all (43 hearts, 203 livers, 160 kidneys) were reported between the 1st of January 2003 and the 31st of December 2009.
Table 1 shows graft survival in heart, liver and kidney TX.
Referring to HBcAb+ donors (the most utilized category), we see that kidney TX has significantly higher survival rate than liver TX, while N of heart TX is not enough wide to express an affordable estimate.
Conclusion: Tough restricted only to liver and kidney TX results, the positive issues of this study, along with the improvements in treating these infections, should encourage to enlarge the range of organ choice in order to increase organ procurement and transplant activity.

Table 1

Organ and risk categories		TX	Graft survival after 2 years	95% CI
Heart	HBcAb+	25	0.84	(0.62–0.94)
	Meningitis	7	1.00	/
	Bacteremia	7	0.71	(0.26–0.92)
Liver	HBsAg+	14	0.74	(0.39–0.91)
	HCV+	25	0.79	(0.57–0.91)
	HBcAb+	132	0.73	(0.64–0.80)
	HCV+HBcAb+	14	0.61	(0.29–0.82)
	Meningitis	4	1.00	/
	Bacteremia	12	0.90	(0.47–0.99)
Kidney	HCV+	4	1.00	/
	HCV+HBcAb+	3	0.67	(0.05–0.95)
	HBcAb+	138	0.87	(0.80–0.92)
	Meningits	3	1.00	/
	Bacteremia	12	0.89	(0.44–0.98)

CI, Confidence Interval.

LB-P-016 IMFLUENCE OF THE RATIO OF GRAFT VOLUME TO RECIPIENT BODY SURFACE AREA ON GRAFT FUNCTION AFTER LIVING DONOR KIDNEY TRANSPLANTATION

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Background: Functioning nephron mass is a determinant of the graft function of kidney transplant recipients. The graft kidney volume and its weight have been reported to be surrogates of the nephron mass.
Materials/Methods: To investigate the impact of the ratios of the surrogates to recipient body surface area (BSA) and body weight on the graft function within 6 months post-transplantation, we measured the graft kidney volume, using computed tomography with 3-dimensional reconstruction before transplantation, and measured the graft kidney weight during surgery.
Results: Ninety-four cases of live donor kidney transplants were included in this study. The graft kidney volume/recipient BSA ratio was correlated with the glomerular filtration rate (GFR) of recipients at 1 month and 6 months post-transplantation ($r=0.416$, $p<0.001$ and $r=0.381$, $p<0.001$, respectively). We found a difference in the graft function between recipients with a graft kidney volume/recipient BSA ratio of ≥ 90.9 ml/m^2 and those with a ratio of <90.9 ml/m^2 ($p<0.001$). Multivariate analysis demonstrated that the graft kidney volume/recipient BSA ratio and donor age are independent predictors of recipient GFR at 1 month and 6 months post-transplantation ($p<0.05$).
Conclusion: During living donor and recipient matching, both the potential volume of the donated kidney and the body size of recipient should be considered.

Late Breaking – Ethics / law / psychosocial / public policy

LB-P-017 LEVEL AND SOURCES OF INFORMATION ON ORGAN TRANSPLANTATION IN ROMANIA

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In order to investigate the ways in which the Romanians relate to issues concerning organ transplantation, we built a 42-item questionnaire covering: attitudes towards organ transplantation, the relation between the type of consent and transplant legitimacy, personal willingness to donate one's organs in various situations, information sources about the topic, as well as social and demographic information. The instrument was administered to 250 participants,

of various ages and social categories from three districts belonging to different Romanian geographic regions.
When addressing the level and sources of information on organ transplantation, the results of the nine related items indicate a week level of information, although the majority of participants (68%) agree that organ transplantation saves lives. 58% declare that they don't know about the national legislation in the field of organ transplantation. Information is mostly gathered from the mass-media, mainly form TV and radio (66,8%), followed by the print media (31,3%). One noticeable element is the fact that physicians manifest a low involvement in the dissemination of information about the necessity and the benefits of transplant. Only 19,6% of respondents declare that family doctors offered them information about organ transplantation, and only 7,6% state the same about the specialized physicians they visited. At the same time, participants identify family doctors, mass-media and specialized physicians as the best sources of information about the topic of organ transplantation. Also, results indicate various significant associations between the demographic variables and participants' responses to the items addressing the dimension of the level and sources of information on this topic. Generally, our results suggest a series of ideas which could serve as reference points for future strategies in the field of health policies, mainly regarding the manners in which to effectively disseminate information about organ transplantation.

LB-P-018 EVALUATING AN ORGAN DONATION TEACHING RESOURCE FOR SECONDARY SCHOOLS IN SCOTLAND

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Introduction: In 2010, the Scottish Government distributed an updated "Organ Donation Teaching Resource Pack" to all secondary schools in Scotland.
The aim of the pack is to educate secondary pupils about the moral, ethical and medical issues surrounding organ donation/transplantation.
The evaluation establishes the impact of the resource on teachers and students.
Methods/materials: Quantitative and qualitative data from telephone and face to face interviews with 186 teachers and self-completed questionnaires by 518 students.
Results: 61% of the sampled schools were aware of the pack with 47% of those having used it. 31% who had not used the pack were intending to use it in the future. The pack was considered professional, detailed, flexible and teacher-friendly. 98% of teachers believed their students engaged well with the topics of donation/transplantation. The pack was most commonly used in Year 3 (37%) and Year 5 (44%) in biology (35%) and social studies (52%) respectively.
84% of students recognised the importance of discussing organ donation in schools. The need for transplants (87%), blood donation (68%) and the transplantation process (67%) were the commonly remembered topics by students. 89% watched the short film from the pack, had class discussions (70%) with 45% reading stories about people affected by donation/transplantation. 82% of students felt more aware of the subject and 81% more comfortable discussing the issues following a class. 61% of students had discussed the subject with other people including family and friends.
Conclusions: 98% teachers who used the resource will continue to do so, feeling it is a subject that is relevant to students and one which they engage with. Students believed strongly this subject should be discussed in schools. The resource made them more aware of the issues and more confident discussing donation with family and friends.

LB-P-019 ADAPTIVE TRIAL DESIGN FOR IMMUNE TARGETING BIOLOGICS – A CREATIVE AND COOPERATIVE APPROACH TO ADVANCING TRANSPLANT MEDICINE

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The tragedy in Northwick Park following first in man administration of the T cell anti-CD28 agonist TGN1412 spawned enhanced efforts to ensure patient safety in clinical trials. Unlike TGN1412, TOL101 is a novel anti-T cell antibody antagonist specific for the $\alpha\beta$ TCR, not anticipated to trigger significant immune activation upon administration. However, the history of clinical testing of agents targeting T cells indicates that the prevailing theory of an antibody's mechanism of action and its actual effects in humans may not align. Therefore, the first in man trial of TOL101 was designed, with input from the FDA, as a two-part Phase 2 study consisting of an initial dose-finding component (Part A), beginning with 1/10 the Minimum Anticipated Biologic Effect Level; followed by a randomized active control component (Part B) in de novo kidney transplant patients. Part A involves testing in cohorts of living donor patients at successively higher dose levels to identify two potentially therapeutic dose levels which will be evaluated in Part B of the study. Conservative inclusion/exclusion criteria, a 48-hour registration hold between subjects and an independent Data Monitoring Committee review at each new dose level are key safety features. In both Part A and Part B, extensive immune and safety monitoring has been undertaken to develop a full TOL101 clinical profile.
Careful study planning and cooperation with regulatory agencies on study design can reduce the risk of repeating a tragedy such as the TGN1412 trial. Improved patient safety and participation in clinical research and more efficient collection of safety and efficacy data early in drug development may lead the way forward to more rapid progress through clinical development and to more rapid registration by the regulatory authorities.

LB-P-020 DOES VAMS DONOR NEPHRECTOMY SATISFY DONORS IN BODY IMAGES?

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Background: Video assisted mini-laparotomy surgery (VAMS) nephrectomy is thought to result in a better cosmetic outcome for healthy donor than open donor nephrectomy. however, there are few studies have established the opinion of donors with respect to their bodily appearance. This study investigates the body image of donors after VAMS donor nephrectomy.
Methods: Donors who underwent VAMS donor nephrectomy between 2009 and 2011 were requested to fill out a body image questionnaire. This questionnaire consists of three subscales: the body image scale (BS), confidence to surgery scale (CS) and the hospital experience scale (HS). A total of 20 VAMS nephrectomy donors replied to the questionnaire.
Results: There were 3 male and 17 female donors & mean ages were 38.7 ± 12.4 years. Eight donors were unmarried (40.0%), 11 donors were married (55.0%) and one donor was divorced. Mean follow-up time was 7.9 ± 4.5 months. Mean BS, CS and HS score was 41.6 ± 5.3, 21.85 ± 8.3, and 13.9 ± 2.2 out of 50, 30, and 20 as perfect score, respectively.
Conclusion: This study showed that the VAMS nephrectomy donors tended to be pleasured with their body image, operation and hospital experiences.

LB-P-021 TOOLS OF ENGAGEMENT WITH YOUNG ADULTS IN RENAL: FINDING FROM YOUNG ADULT PROJECT IN SOUTH WEST ENGLAND

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Background: The Young Adult support project in the SW is an 18 month NHS Kidney Care funded project. The project aim is to identify and develop services for all young people between the ages of 14-25 who are transitioning from paediatric care and those presenting to adult Nephrology. The SW is large geographically dispersed region with 1 paediatric centre and which transitions into 5 adult units across the region.
To develop and improve services across the region, the voice of the young person is needed. This presentaion will present the challenges and success's in doing this. It is well recognised that young people within renal services are the minority but are often the most complex.
These young adults face a developmental process of moving into adulthood, the challenges of education, work, leaving home, and forming relationships alongside often complex medical management.
Method: Young person focused branded project: Communicat8
Avertising campaign/use of multimedia and social networking.
Patient interviews: Self assessment framework of all units involved, based on You're Welcome criteria.
Linking patient groups together/peer support networks.
Linking in with non health youth projects.
Patient representation on project board
Findings: Quantative Data from survey.
Quality of life questionairres.
Results of self assessment framework.
Levels of adherence: Levles of involvement in project.
Outcomes: Sustainable changes made to service across region.
Patient involvement rates.
Improved adherence to health for young adults
Conclusion: Service improvement/developed that is meaningful to young adults across the whole region.
Challenges/success of engagement.

LB-P-022 CERTIFICATION OF ORGAN AND TISSUE PROCUREMENT ORGANISATIONS: THE FRENCH EXPERIENCE

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Background: The Agence de la Biomédecine (ABM) is by law the French competent authority (CA) regarding human organ, tissue and cell transplantation. As such, improving quality of organs and tissues (OT) procurement activities is a constant concern. To achieve this goal, the ABM notably set up a policy for certification of hospital-based OT procurement organisations (OTPO).
Methods/materials: Certification of OTPO is performed in hospitals authorised for OT procurement activities on a voluntary basis. However, this specific certification is fully recognized by the global mandatory "certification of hospitals". The certification process includes: 1) a self-evaluation using a standardised questionnaire, 2) an external audit performed by the ABM, 3) a detailed program of actions to improve quality of procurement and 4) evaluation by an independent committee composed of OTPO professionals and representatives of professional societies. As a result, OTPO certification is either granted eventually with conditional recommendations or denied. The self-evaluation questionnaire comprises 52 references addressing OPTO management, resources, procurement process and activities, training and communication, risk and quality management.
Results: So far, 50 OTPO out of 199 have been audited. Certification process and main results of OTPO certification will be presented during the conference.
Conclusion: OTPO certification has been upgraded and should be an important tool to improve the quality of OT procurement activities. Additionally, it helps OTPO activities to be given more consideration by hospital management in terms of quality policy and resources allocation. Last but not least, this certification complies with the recent 2010/53/EU European Directive.

Late Breaking – Clinical immunosuppression

LB-P-023 PHARMACOKINETICS OF TACROLIMUS MODIFIED RELEASE QD FOLLOWING LIVING DONOR LIVER TRANSPLANTATION: RESULTS OF PILOT STUDY

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Background: Data on the pharmacokinetics of tacrolimus QD inliving donor liver transplantation have not yet been assessed. This phase 4 study was designed to describe the pharmacokinetics (PK) of tacrolimus QD in recipients of a living donor liver transplantation.
Methods and Materials: Patients received tacrolimus continuous infusion from days 0–5. Conversion to tacrolimus QD was on day 5 with targeted trough levels of 10–20 ng/ml until day 30 then lowered.Study duration was 12 weeks. The primary variable was $AUC_{0\text{-}24h}$on days 6 and 14. Secondary variables were C_{max}, t_{max}, C_{min}, incidence, severity, and time to acute rejection, patient and graft survival, and incidence of adverse events. The first PK profile (PK1) was obtained on day 2 after conversion (day 6 post transplantation) and the second (PK2) on day 9 after conversion (day 14±3 days post transplantation). Each PK profile comprised 10 blood samples drawn before the first QD dose (0h) then at 1, 2, 3, 4, 6, 8, 12, 16, and 24h after the QD dose. Efficacy and safety analyses were based on the full analysis set (FAS) and PK analyses were based on the PK evaluable set (PKES). AUC was calculated using the linear trapezoidal rule. C_{max}, t_{max}, and C_{min} were obtained directly from time-concentration profiles.
Results: The FAS included 11 patients. Nine patients completed the study. Mean tacrolimus trough levels were slightly lower than targeted on day 6 but thereafter within targeted ranges. Mean $AUC_{0\text{-}24h}$ and C_{max} were nearly doubled at PK2. No events of acute rejection, graft loss, or patient death occurred. All patients experienced an adverse event and 3 a serious adverse event.
Conclusion: Conversion to tacrolimus QD was safe and efficacious in this population. Mean $AUC_{0\text{-}24h}$ at PK2 was higher than previously reported.

LB-P-024 DETERMINANTS OF SUCCESSFUL USE OF SIROLIMUS IN RENAL TRANSPLANTATION

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The German Sirolimus Study Group has established a database among 10 German transplant centres to better define indications, contraindications, adverse events and outcomes for Sirolimus therapy in renal transplant recipients. Included are 726 patients with conversion to Sirolimus 3 months post-transplantation or later in the years 2000-2008 (total observation time 1582 patient-years, median 22.4 months). This analysis focuses on treatment failures and their underlying causes.
462 males and 264 females (age 49.8±13.4) were put on Sirolimus 80.4±74.3 (range: 3-343) months post-transplantation. Sirolimus was initiated because of malignancies (22.9%), CNI side effects (26.3%), chronic allograft nephropathy (17.6%), creeping creatinine (22.5%), or a study protocol (11%). S-creatinine at Sirolimus initiation was 2.2±1.0 mg/dl, proteinuria was 349±755 mg/l (range 1-5480). Before, 85.2% patients had CNI's, after Sirolimus initiation 69%. Sirolimus was terminated in 328 patients (45.3%) during the course, mostly early (1st year: 184; 2nd: 64; 3rd: 36; 4th: 17; 5th: 11). Main causes were allograft impairment (52%; specified as GFR decline, gross proteinuria, rejection, return to dialysis), infections & pulmonary complications (20%), musculoskeletal & skin problems (7%), gastrointestinal & metabolic complications (4.3%), neurological or psychiatric symptoms (1.2%), disturbed wound healing/before elective surgery (4.3%), patient's request (18%). Allograft function at the time of conversion to Sirolimus was slightly better in patients who continued with Sirolimus (41±19 vs. 36±20 ml/min; $p<0.001$). The major difference between patients with and without continued Sirolimus therapy was the degree of proteinuria at Sirolimus initiation (mean values: 192 vs. 534 mg/l, medians: 75 vs. 133 mg/l, range 1-2473 vs. 5-5480; $p<0.0001$). Further, multivariate analysis revealed age, time of SRL initiation after transplantation, and cause for SRL initation as significant variables.
Conclusion: The major determinant for successful conversion to Sirolimus is the absence of significant proteinuria.

LB-P-025 A THERAPEUTIC EXPLORATORY STUDY TO DETERMINE THE EFFICACY AND SAFETY OF CALCINEURIN-INHIBITOR-FREE DE-NOVO IMMUNOSUPPRESSION AFTER LIVER TRANSPLANTATION (CILT): THE INTERIM ANALYSIS

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Acute renal dysfunction has been observed in up to 50% of all patients after orthotopic liver transplantation (OLT). More than 90% of patients receive calcineurin inhibitors (CNI) for immunosuppression after OLT, and nephrotoxicity of CNI contributes to renal impairment. Early renal dysfunction significantly increases the risk of chronic renal failure and subsequently the risk of premature death. Multiple trials investigated the effect of delayed CNI and reduced-dose CNI regimens or early withdrawal of CNI.
Based on the aforementioned data we conducted a prospective, non-controlled, test-of-concept study to evaluate the efficacy and safety of CNI-free de-novo immunosuppression after OLT. Here we report the interim analysis after the allocation of 9 patients. All patients transplanted within the same time frame but not allocated to this study because of not fulfilling the inclusion or exclusion criteria served as control group.
Nine patients were allocated to the study group and were compared to 61 patients in the control group; three patients were excluded because they received combined kidney-liver transplant or no measurements could be obtained. We did observe one rejection in the study group. Furthermore the safety profile was comparable except for a higher incidence of wound healing disturbances in the study group. Liver function tests were not significantly different but patients in the study group had a better recovery of kidney function. Graft and patient survival were not different in this small group of patients.
Conclusion: This interim analysis shows that the new therapeutic regimen has an acceptable safety profile. Furthermore there are indications for an improvement of kidney function in patients with hepatorenal syndrome. We will continue with the ongoing study until the allocation of 29 patients as planned.

LB-P-026 **EFFECT OF INTERLEUKIN 2 RECEPTOR ANTIBODY BASILIXIMAB (IL_2RA) IN TACROLIMUS (TAC) BASED IMMUNOSUPPRESSION WITH AZATHIOPRINE (AZA)/MYCOPHENOLATE MOFETIL (MMF) IN LIVING DONOR KIDNEY TRANSPLANT PROGRAMME**

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Background: The aim was to evaluate IL_2RA in Tac based immunosuppression with AZA or MMF in living donor transplantation.
Methods: This is a retrospective analysis of 205 consecutive kidney transplant recepients done at our hospital. 107 patients received IL_2RA (Group I) & 98 patients did not (Group II). Of these 113 received AZA and 92 MMF. All received Tac and steroids.The outcomes were acute rejection, infections, graft loss and death.
Results: The study group had 205 patients [163 males & 42 females]. The mean age was 40±14.3 years in group I and 40±15.7 years in group II. The mean follow up was 16.5±9.7 months and 16.7±10.0 months respectively (p=0.75). There was no difference in the incidence of AR in the two groups 15/107 (14.6% group I) Vs 17/98 (17.3% group II) p=0.72. The incidence of infection was similar (22.1% group I and 20.6% group II, p=0.79) as was NODAT (9.3% group I Vs 8.1% group II, p = 0.6) and Graft loss (2.8% group I and 4% group II, p=0.57). Patient deaths were also similar 3.7% vs 4%, p=0.27. Rejection in MMF group with IL_2RA were 5/37 (13.5%) and without IL_2RA were 7/55 (12.7%),p=0.50. In AZA group the incidence of rejection was 10/70 (14.2%) in IL_2RA and 10/43 (23.2%) without IL_2RA, p=0.10.
Conclusions: The results suggest that in Tac based immunosuppression, IL_2RA does not provide a benefit in reducing AR. And Aza is as good as MMF in Tac based immunosuppressive regimes in living donor kidney transplantation.

LB-P-027 **THE RELATION BETWEEN TESTOSTERONE LEVELS AND GRAFT FUNCTION IN KIDNEY RECIPIENTS UNDER TREATMENT OF m-TOR OR CALCINEURIN INHIBITOR**

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Objective: Based on negative effect of low testosterone levels on renal function, the present study was designed to evaluate the relation between testosterone levels and graft function in patients with kidney transplantation receiving m-TOR (mammalian target of rapamycin) or CNI (calcineurin inhibitor, cyclosporine and tacrolimus) treatment.
Material and Method: A total of 75 male patients (aged 18-79 years) with at least 6 months passed after the renal transplantation were included in the present study. Patients with creatinine level of <2.5mg/dl, stable renal functions and the first renal transplantation were accepted as inclusion criteria. Patients were divided into 3 treatment groups including sirolimus, everolimus or CNI groups.
Results: When compared to other treatment groups, a significant increase in testosterone levels and reduction in creatinine levels were determined in patiens receiving everolimus ($p<0.05$). On the otherside, in patients receiving sirolimus a significant reduction in testosterone levels and increase in creatinine levels were determined.
Conclusion: Considering positive effects of increased testosterone levels on cardiovascular system and graft function, careful selection of immunosuppressive therapy seems crucial to achieve long term survival in patients following renal transplantation.

Late Breaking – Pre-clinical immunosuppression

LB-P-028 **CYTOKERATIN DEPLETION IN PROXIMAL TUBULES OF NEPHRONS CORRELATES WITH OXIDATIVE STRESS INDICES IN RATS ON IMMUNOSUPPRESSION**

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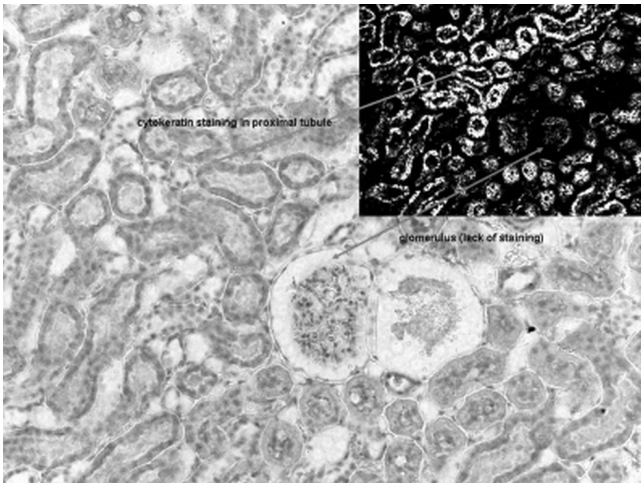
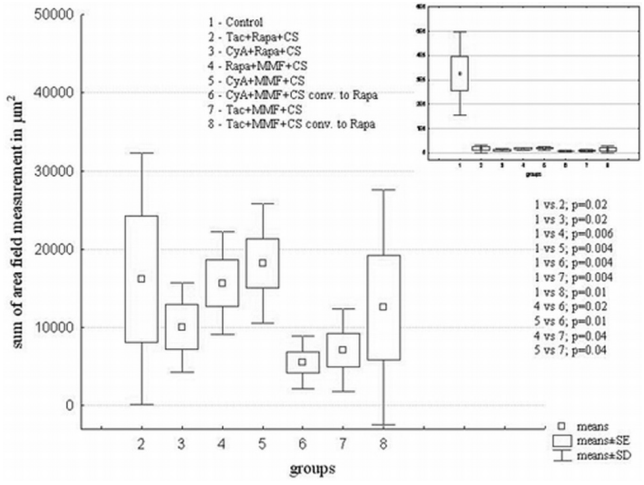
Immunosuppression (IS) causes oxidative stress (OxS). Some studies reveal that OxS may influence tubular epithelial cells and stimulate their transdifferentiation to mesenchymal-type cells. Tubulointerstitial injury (IF/TA) is leading to progressive graft failure. In this study we examined the possible connection between IS, indices of OxS and maker of injury of nephrons expressed as a loss of the number of cytokeratin (CK) in proximal tubules (proxT).We examined 49 male Wistar rats.IS was started in 12 weeks old rats and continued for 6 months. Group 1-control (no IS), group 2-8 received different combinations of IS drugs (fig 2).The doses of the drugs were: Tac 4 mg/kg/d, MMF 20 mg/kg/d, CyA 5mg/kg/d, Rapa 0,5mg/kg/d, CS 4 mg/kg/d. We performed immunohistological staining for CK in rat kidney. Results were obtained with histometric method with the use of Axio-Vision programme (Zeiss).



We measured activity of superoxide dismutase (SOD), glutathione peroxidase (GSHPx), catalase (CAT) in erythrocytes of rats. In multivariate analysis we found that all types of IS drugs except CS caused significant depletion of CK number in prox tubules ($p<0,0001$). There were significant differences between study groups according to CK number in visual field.



There was a positive correlation between GSHPx and the number of CK in proxT ($p<0,01$, R=0,46).
Conclusion: IS and OxS may be linked with the injury of proxT.

Late Breaking – Histocompatibility

LB-P-029 DESENSITIZATION RESULTS ARE INFLUENCED BY THE NATURE OF THE HLA Ab BEING TREATED

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Desensitization results vary considerably amongst individual patients. Our study aim was to evaluate effects of HLA antigenic and HLA Ab-related factors in proteasome inhibitor (PI) –based desensitization in kidney transplant candidates.
Methods: 31 patients were treated in a prospective, IRB-sponsored PI-based desensitization protocol under an FDA IND. HLA Ab levels (Day 0 and Day 50) were analyzed for the first 15 patients who received two cycles of bortezomib (Day 0 and Day 30) with a single rituximab dose (375 mg/m2) on Day 30. Immunodominant IgG Ab (iAb) was the Ab with the highest mean fluorescence intensity (MFI) by single-antigen bead testing (OneLambda). Dilution studies were performed when bead saturation was present. Antibody cross-reactivity was used for epitope determination.
Results: Significant reductions in iAb were observed that varied based on iAb specificity: HLA A 52±30% (p=0.02); HLA B 51±24% (p=0.009); HLA DR 59±25% (p =0.04); DRB1 75±13% (p=0.06); DRB3/4/5 39±24% (p=0.03); DQA and/or DQB 26±46% (p=0.14); Private Epitope 71±16%($p = < 0.001$); Public Epitope 47±27% ($p < 0.001$). Reduction in iAb for HLA DQ was less than for other loci, and a higher reduction was observed in private epitope iAb compared to public epitope iAb ($p<0.0001$). iAb reduction also varied based on Ab subclass: IgG1 93±65%; IgG2 67±25%; IgG3 73±16%; and IgG4 37±24%.
Conclusions: PI-based desensitization effects on individual HLA Abs is variable and is influenced by the nature of the Ab- its specificity and subclass (ie, class switching). These observations suggest that variability in desensitization responses may be predetermined by the biology of the plasma cell and/or memory B cell populations producing the Ab.

Late Breaking – Immunobiology / basic science

LB-P-030 ELEVATION OF LBP AFTER LIVER ISCHEMIA AND REPERFUSION INJURY IN RATS

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LBP is an acute phase protein, which is mainly synthesized in the liver and up-regulated in inflammation and infection. The inflammatory response to LPS is mainly depending on the binding of LPS-LBP to CD14-MD2-TLR4 complex. During liver I/R, gut derived molecules, including endotoxin are released into the blood stream due to the congestion of intestinal wall. We were interested whether the expression of LBP was increased after liver ischemia and reperfusion injury in rats and was associated with the severity of the inflammatory response. Rats were subjected to for 90min warm ischemia followed by 0.5h, 6h and 24h reperfusion (n=6/group), six rats were subjected to liver transplantation (LTx) and sacrificed 24h postoperatively. Serum LBP levels were determined by ELISA method. The expression of mRNA of LBP, CD14, MD2, TLR4, TNF-α and IL-6 were measured by quantitative PCR. Following 90min of warm ischemia, LBP mRNA expression was up-regulated to 7-folds as early as 6h after reperfusion and further increased to 12-folds with reperfusion time up to 24h. LTx also increased the expression of LBP mRNA up to 9-fold 24h postoperatively. LBP-protein was released into peripheral circulation with maximum to 43 ng/ml at 6 h after warm I/R. The mRNA expression of CD14, TLR4 were increased up to 3-4 folds after warm I/R and LTx. Hepatic TNF-a and IL-6 mRNA were upregulated to 20-folds and 100-folds 6 hours after warm I/R, respectively. Hepatic LBP mRNA expression was increased and serum LBP released into systemic circulation, and was associated with an increase of hepatic TNF-a and IL-6 mRNA expression. These findings suggest that the elevated LBP may mediate LPS-induced liver damage after I/R. Blocking experiments, planned as a next step, will help to elucidate its role as potential molecular target for preventing IR-injury.

LB-P-031 FK506 INDUCES APOPTOSIS OF HUMAN JURKAT T CELLS THROUGH MITOCHONDRIA AND DEATH RECEPTOR RELATED SIGNALING PATHWAYS

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Purpose: FK506 is an immunosuppressant which is widely used in transplantation of solid organs. To elucidate the mechanism of cytotoxicity in FK506-treated Jurkat T cells, signal transduction pathway of TNF-related events was studied. We will further evaluate the roles of TNF-related death receptors and endoplasmic reticulum-related proteins on the death of Jurkat cells after treatment with FK506.
Methods: Viability of Jurkat T cells was measure by MTT assay. The catalytic activation of caspase-3 and caspase-9 proteases was determined by digestion of fluorogenic biosubstrates and Western blot with anti-caspase-3 and anti-caspase-9 antibodies. The levels of mRNA and proteins for p53, Bax, PUMA, Proline oxidase, TRAIL (TNF related apoptosis inducing ligand), TRAIL-R1 (DR4), TRAIL-R2 (DR5), Fas, FasL, TNF-α, IL-6, and NFκB were measured by RT-PCR and Western blot with specific antibodies. Also we further examined the localization of TRAIL family proteins using by fluorescent microscope with specific TRAIL family antibodies.
Results: FK506 decreased the viability of Jurkat T cells concentration- and time-dependently along with catalytic activation of caspase-3 and caspase-9, p53 phosphorylation, and changes in expression levels of Bax, PUMA, and Proline oxidase protein. It caused an increase in expression of TRAIL, TRAIL-R1 (DR4), TRAIL-R2 (DR5), Fas, and FasL in the levels of mRNA and proteins of Jurkat T cells. Furthermore, FK506 increased extracellular release of TNF-α and IL-6 cytokines in Jurkat T cells. It also induced the transactivation of NFκB through the dephosphrylation of Ser486 residues in Jurkat t cells.
Conclusion: These results suggest that FK506 induces apoptotic death of Jurkat cells through activation of caspase family protease, Bcl2 family protein-related mitochondrial dysfunction, activation of death-receptor and endoplasmic reticulum mediated signaling pathways.

LB-P-032 THE EXPRESSION OF MicroRNA TREATED TACROLIMUS (FK506) IN JURKAT HUMAN T LYMPOCYTES

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Tacrolimus (FK506), an immunosuppressant agent belonged to the calcineurin inhibitor family, has been widely used in treatment of autoimmune disorders and in prevention of transplant rejection. FK506 suppressesT cell activation by inhibiting calcineurin and the calcineurin-dependent transcription factors nuclear factor of activated T cells (NFATc), which are central regulators of T cell function. However, the molecular mechanisms underlying how FK506 regulates NFATc in T cell activation are obscure. MicroRNAs (miRNAs) play important roles in a wide range of biological events through post-transcriptional regulatory functions by targeting mRNAs for cleavage or translational repression. To investigate the effects of FK506 on microRNA expression, we purified total RNA of Jurkat cells treated with 20 uM FK506 for 72 hours and used to analyze miRNA profiling by using Agilent's chip. Our results demonstrated that treatment with FK506 markedly induced the down-regulation of 20 miRNAs as well as the up-regulation of 20 miRNAs in a time-dependent manner. The genes that down-regulated by FK506 include let-7a*, miR-20a*, and miR-487a. Otherwise miR-202, miR-485-5p, and miR-518c* are gradually up-regulated in expression. Sanger Institute and DAVIS bioinformatics indicated that miRNAs regulated the several transcriptomes including NFATc-related, T cell receptor (TCR)/interleukin-2 (IL-2) signaling, and Ca^{2+}-calmodulin -dependent phosphatase calcineurin pathways. We will further test the individual target genes of each identified miRNAs in our experimental system, which could provide the information which genes or proteins are attributed as therapeutic targets in prevention of organ transplantation rejection phenomenon and autoimmune disease.

LB-P-033 PROTECTIVE EFFECT OF NOVEL mTOR INHIBITORS ON HUMAN PRIMARY CELLS UNDER OXIDATIVE STRESS

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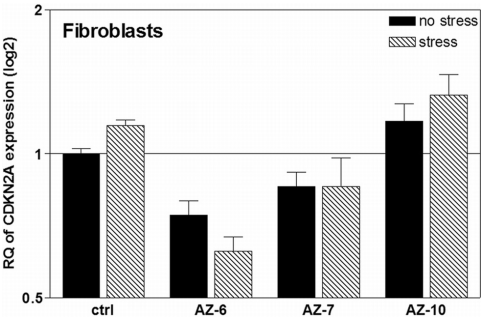
Background: Oxidative stress, either natural or induced, can cause serious renal cell damage. At molecular level, cellular ageing is accelerated as judged by increased CDKN2A levels and decreased expression of SIRT1 and XRCC5 (Sklavounou, 2006; McGlynn, 2009). Drug intervention that would mitigate such effects may have a potential to prevent ischaemia/reperfusion injury (IRI).
Methods/Materials: Using the above mentioned genes and a range of other biomarkers of cellular ageing, we studied the effect of a group of three novel ATP-competitive mTOR inhibitors in protecting human primary renal and fi-

broblast cell cultures from oxidative damage, together with using xCELLigence real-time growth monitoring system.

Results: In both primary human fibroblasts and human renal epithelial cells, all three compounds caused concentration dependent growth arrest, which was expected from blocking mTOR pathway; however, this effect was only temporary. The expression of CDKN2A was elevated in response to oxidative stress, while in presence of two compounds, AZ-6 and AZ-7, the expression was significantly reduced (see Figure). SIRT1 expression decreased in presence of stress, while after addition of AZ-6 and AZ-7 this was reversed. Both of these compounds induced SIRT1 over-expression even in control cells without any stress.



Conclusion: Our results indicate that compounds AZ-6 and AZ-7 have an overall protective and stabilizing effect on primary human cells, and could have an exciting potential to mitigate the oxidative damage due to IRI.

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LB-P-034 QUANTITATIVE STRENGTH OF ANTIOXIDANTS IS MORE ESSENTIAL FOR THE TREATMENT OF ISCHEMIA REPERFUSION INJUY OF SOLID ORGAN TRNASPLANTATION

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Free radical therory of ischemia reperfusion injury (IRI) is one of he most likely explanations for many years. Production of reactive oxygen species (ROS) induced by oxidative stress on the level of cellular mitochondria overwhelms the antioxidatn defense mechanism of the graft and damaged cell again produce another cluster of ROS. These repeated and continuous damages are a kind of cascade mechanism and doing on the whole duration of IRI. Free radical theory looks very obvious at the cellular level on the biochemical findings. The progress of IRI is confirmed by a decrease in antioxidant defenses and an increase in oxidative damage in many studies. Mutation of mitochondrial DNA occurs with IRI and it is known as the cause of overproduction of ROS. Reducing the ROS with the antioxidants seems to be the most reasonable method to overcome the IRI. Howerver, clinical outcomes of antioxidant therapy are quite controversial now. Some studies insist the effectivenes of antioxidants and the others describe the disappointing results of ROS scavegers. It may be due to the ambiguity of clinical results of antioxidant treatment. The other interpretation for the controversial results is about quantitatvie aspect. Singlet oxygen quenching rate is regarded as the ability of antioxidant to soothing the destruction of ROS and very diverse among each antioxidants. On the basis of the quenching rate, the potency of several kinds of carotenoid is from two to three times to more than ten thousand times greater than vitamin C or E. So all the antioxidants differ qualitavely and for same antioxidants quantitative difference should be considered. We try to prove them in animal IRI models.

LB-P-035 MYCOPHENILIC ACID MEDIATED MITOCHONDRIAL MEMBRANE POTENTIAL TRANSITION CHANGE LEAD TO T LYMPHOCYTE APOPTOSIS

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This study demonstrated mycophenolic acid (MPA) induced apoptosis is mediated by mitochondrial membrane potential transition (MPT) change in Jurkat cell line. Cell viability and MPT change were measured by flow cytometry. Western blottings of Bcl-2 family, Bid, tBid, cytochrome c, voltage dependent anion channel (VDAC), poly ADP-ribose polymerase (PARP), and protein kinase C-δ(PKC-δ) were also performed. And the catalytic acitivity of caspase-9 and -3 proteasses in Jurkat cells was also measured. Cell viability was decreased in time and dose dependent manners. Bcl-2 protein expression decreased, but Bax protein expression was noted. And decreased Bcl-XL/Bcl-Xs ratio was idetified. Trucated Bid protein also increased in a time dependent manner in MPA treated Jurcat cells. While normal MPT shows orange fluorescence, abnormal MPT shows green fluorescence. Green fluorescence increased and orange decreased in MPA treated cells. Significantly increased MPA induced cytosolic cytochrome c released was confirmed. MPA increased the catalytic acitivity of caspase-9 and caspase-3 proteasses of Jurkat cells. MPA induced apoptosis is mediated by MPT change with decreased Bcl-XL and expression of tBid protein. Mitochondrial released cytosolic cyotchrome c and increased the catalytic acitivity of caspase-9 and caspase-3 proteasses in MPA treated Jurkat cells. This result suggests that MPA mediated mitochondrial dysfuction lead to human T lymphcyte apoptosis.

LB-P-036 TRANSCRIPTIONAL ACTIVATION OF NUCLEAR RELATED FACTOR 2 (Nrf 2) BY FK506 IN JURKAT CELLS

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This study demonstrates that pharmacologic induction of HO-1 along with catalytic activation significantly modulated apoptosis of Jurkat cells induced by KF506.

We investigated the role of oxidative stress by FK506 on human Jurkat T cells. Cell viability, reactive oxygen species (ROS) generation, and mitochondrial membrane potential transition (MPT) change were measured by flowcytometry. Western blottings of HO-1, PUMA, Nrf 2, and Bax were also performed.

Treatment with FK506 increased the generation of reactive oxygen species (ROS), including hydrogen peroxide and superoxide anion, and nitric oxide (NO) in Jurkat cells in a dose-dependent manner. Expression of iNOS increased after 12hours treatment with FK506 in Jurkat cells and peak level at 24hours. And then expression of iNOS decreased from 48hours. Immunohistochemistry and western blot analysis dada revealed that treatment with FK506 increased induction of heme oxygenase-1 (HO-1) in Jurkat cells in a dose-dependent manner. Expression of HO-1 was induced after 6hours by the addition of FK506 in Jurkat cells. Peak level at 24hours and then HO-1 induction decreased from 48hours. Control green diffused pattern fluorescence increased and orange punctuated pattern decreased by FK506 treated cells. Expression of anti- apoptotic PUMA protein decreased in a time dependent manner while FK506 induced pro-apoptotic Bax protein expression. We further found that a marked dissociation of Nrf 2/Keap 1 and subsequent intranuclear translocation of Nrf 2 were occurred in Jurkat cells treated with FK506 during 48hours. We also examined the transcriptional activity of HO-1 among Nrf 2-driven transcripts, including HO-1.

These results suggest that FK506 induces Nrf 2-driven transcriptional activation of AMP response element (ARE) through HO-1 activation and free radicals, such as ROS and NO.

LB-P-037 PROTECTIVE MECHANISM OF HEME OXYGENASE-1 ON MPA-INDUCED APOPTOSIS IN HUMAN JURKAT CELLS

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Mycophenolic acid (MPA) is a selective inhibitor of inosine monophosphate dehydrogenase. Heme oxygenase-1 (HO-1), the rate-limiting enzyme of heme catabolism, is known to modulate apoptosis in stress-related conditions. This study demonstrated that pharmacologic induction of HO-1 along with catalytic activation significantly modulated apoptosis of Jurkat cells induced by MPA. We observed, cell viability, measurement of H_2O_2 generation, intracellular accumulations of Ca^{2+} and NO, and western blottings of apoptotic pathway proteins, such as caspases, Bcl-2, and Bax proteins. Mitochondrial membrane potential determination by JC-1 staining was performed.

Cells were cultured with the presence or absence of FK506.MPA induced apoptotic cell death showing nuclear fragmentation and sub G0/G1 phase arrest in Jurkat cells. Caspase-3 proteases expression on MPA treated-Jurkat cells in a time-dependent manner. Treatment of MPA resulted in reactive oxygen species (ROS) generation in Jurkat cells. Decreased HO-1 expression on MPA treated-Jurkat cells after 36 hours. Change of mitochondrial membrane potential transition (MPT) was also noted. Expression of Bax proteins was identified. CoPPIX, HO-1 inducer, induced expression of HO-1 proteins in MPA treated Jurkat cells. CoPPIX inhibited generation of H_2O_2. CoPPIX also inhibited change of mitochondrial membrane potential transition (MPT). CoPPIX significantly inhibited the MPA induced apoptosis.

Summaries were as follows. 1.Pharmacologic induction of HO-1 along with catalytic activation significantly modulated apoptosis of Jurkat cells induced by MPA. 2.MPA induced apoptotic cell death showing nuclear fragmentation and sub G0/G1 phase in Jurkat cells. CoPPIX, HO-1 inducer, significantly inhibited the cisplatin-induced apoptosis. 3.Treatment of MPA resulted in ROS generation in Jurkat cells. CoPPIX attenuated ROS production and mitochon-

drial permeability transition in MPA-treated cells. In conclusion, the protective mechanism of HO-1 on MPA-induced apoptosis is associated with direct inhibitions of ROS generation and mitochondrial permeability transition.

LB-P-038 EFFECT OF FK506 ON ENDOPLASMIC RETICULUM (ER)-MEDIATED APOPTOSIS OF JURKAT CELLS

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Two major apoptotic pathways are dead receptor pathway and mitochondrial pathway. And third apoptotic pathway is endoplasmic reticulum (ER) mediated apoptosis. We examined the effects of FK506 on ER mediated apoptosis of Jurkat cells. We observed cell viability, measurement of H_2O_2 generation, intracellular accumulations of Ca^{2+} and NO, and western blottings of ER stress mediated apoptotic pathway proteins, such as phospho-PERK, PERK, CHOP, Grp78, Grp94, Bcl-2, and Bak proteins. Mitochondrial membrane potential determination by JC-1 staining was performed.
Cells were cultured with the presence or absence of FK506. Flow cytometric analysis was performed after PI stain. Viability of Jurkat cells were decreased by the addition of FK506 in a dose-dependent manner. FK506 induced cytotoxicity was characterized by sub G0/G1 phase arrest. FK506 induced cell death was confirmed as apoptosis characterized by nuclear fragmentation and caspase-3 protease activation. Intracellular accumulations of Ca^{2+} and NO production were identified in FK506 treated Jurkat cells after 24 hours. Expression of iNOS protein was also noted. Generation of H_2O_2 was identified. Deceased activation of procaspase-12 protease confirmed activation of caspase-12 after 48 hours. Activation of phospho-PERK protein peaked at 36 hours after FK506 treatment. Expressions of CHOP/GADD153, Grp78 and Grp94/BiP proteins were also identified after 36 hours. Expression of Bak protein was also noted. Change of mitochondrial membrane potential transition (MPT) was also noted.
In conclusion, FK506 treated Jurkat T cells increased the sub G0/G1 phase, nuclear fragmentation and activations of 3 and 12 caspases. FK506 also increased NO production through induction of iNOS and H_2O_2. Reactive oxygen species induced by FK506 resulted in the modulation of Bak protein expression and mitochondrial dysfunction through ER stress mediated pathway. FK506 induced ER mediated apoptosis in Juekat T cells were identified.

LB-P-039 BIOMARKERS IN URINE AFTER KIDNEY TRANSPLANTATION: NON-INVASIVE MONITORING OF ACUTE REJECTION

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Background: Proteins produced by cytotoxic T lymphocytes during rejection are potential biomarkers for non-invasive monitoring of rejection. The aim of our study was determining the expression of granzyme B, perforine, FasL and FOXP3 in the urine of patients (P) with acute rejection (AR), chronic rejection (CR), non-immunological graft dysfunction (NI) and control group (C).
Methods/Materials: We examined urine samples from 65 patients: 19 AR, 8 CR, 21 NI (acute tubular necrosis, kalcineurin toxicity, cytomegalovirus infection, urinary tract infection, delay graft function), 17 in C (9 normal graft function, 8 healthy volunteers). Total RNA was isolated using Trizol reagent and reverse transcribed to cDNA. The expression (of each gene) of granzyme B, perforin, fas-ligand, and FOXP3 in urine cells were analyzed by quantitative RT-PCR using ABI 7000 real-time instrument. Gene expression assays were designed, tested and validated by manufacturer (Applied Biosystems). GAPDH was used as a housekeeping gene. The 2^{-DDCt} method was used to calculate the relative changes in gene expression.
Results:

	Group's comparison	Granzyme B	Perforine	FasL	FOXP3
P (ANOVA)		0,02	0,01	0,07	0,17
P (post hoc T-test)	NI-C	0,64	0,17		
	AR-C	0,04	0,01		
	CR-C	0,15	0,09		
	NI-AR	0,02	0,03		
	NI-CR	0,14	0,31		
	AR-CR	0,11	0,26		

Only mRNA expression of granzyme B (P=0.02) and perforine (P=0.01) in AR were statistically significant. In prediction of AR, sensitivity/specificity for granzyme B was 68.4%/93.7%, sensitivity/specificity for perforine 67.6%/86.9%. Lower sensitivity and specificity was showed for FasL (58.8%/85.0%) and FOXP3 (50.0%/70.0%). Accordingly to expectations, we found low gene expression of observed biomarkers in NI and C. We found relative discrepancy in expression of mRNA FOXP3. Increased levels of FOXP3 in AR, CR and NI showed no correlation.
Conclusion: We detected higher incidence of increased levels of observed biomarkers in acute rejection.

LB-P-040 HMGB1 TRANSLOCATION AND EXPRESSION IS CAUSED BY WARM ISCHEMIA REPERFUSION INJURY, BUT NOT BY PARTIAL HEPATECTOMY IN RATS

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Mechanical injury or ischemia/reperfusion (I/R) injury induces HMGB1 translocation and release. However, the surgical procedure itself can initiate pathophysiologic processes causing damage to the respective organ. A liver resection, as an example, leads to portal hyperperfusion injury of the remnant liver. Therefore, we aimed to elucidate the impact of different hepatic surgical injury models on cellular localization and expression of HMGB1. Elevation of serum liver enzymes indicating hepatic injury peaked at 6h and recovered thereafter in models, warm I/R injury and PH. HMGB1 was translocated from the nucleus to the cytoplasm in livers subjected to warm I/R; but not in livers subjected to PH. Both protein and mRNA expression of HMGB1 were significantly upregulated in livers subjected to warm I/R. In contrast, neither 30% PH, 70% PH nor 90% PH caused an elevation of hepatic HMGB1 mRNA and protein expression. High serum levels of HMGB1 (30ng/ml) were measured at 0.5 h reperfusion period after warm I/R, much lower levels thereafter ($<$5ng/ml). Similar low serum levels were measured at all time points after 90% PH. Subsequently expression levels of levels of TNF-α reached a peak (26-fold elevation) at 6h and decreased down to 5-fold at 24h after warm I/R. TNF-α expression levels after PH never exceeded a 5-fold elevation. In conclusion, HMGB1 translocation and expression depends on the type of liver injury as it is induced by ischemia, but not by liver resection/hyperperfusion. Mechanic injury in hepatic surgery is associated with focal warm ischemia, and thereby HMGB1 translocation reflects surgical quality in experimental PH. Expression of hepatic TNF-α follows the kinetic pattern of HMGB1, pointing to a muss less pronounced inflammatory response after successful PH compared to warm I/R injury.

Late Breaking – Heart

LB-P-041 CLINICAL RELEVANCE OF HLA-DONOR SPECIFIC ANTIBODIES DETECTED BY SINGLE ANTIGEN ASSAY IN CARDIOTHORACIC TRANSPLANTATION

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Background: Donor specific antibodies (DSA) are preformed HLA antibodies and are a major contributor of acute graft rejection. Solid phase techniques, such as Luminex Single Antigen Assays (SA), can detect HLA specific antibodies, including DSA, to a much more sensitivity than that of complement-dependent cytotoxicity (CDC) crossmatch (XM). The antibody profiles were categorised as negative (NAB), non donor specific antibody (NDSA) or DSA positive. The relevance of low titre Luminex-defined DSA on cardiothoracic graft outcome is currently uncertain. The aim of the study was to identify the clinical relevance of DSA in regards to organ allocation to sensitised patients.
Method: Patients were selected from 1988 to 2005 with a minimum of 5 years follow-up data. Sera from day of transplant (D0) in 100 patients were retrospectively tested by class I and II Luminex SA assay; for all transplanted patients a CDC XM was carried out retrospectively the day after the transplant on the D0 sample. The cohort consisted of 66 CDC XM negative, 34 CDC IgM and 8 CDC IgG antibody XM positive. The antibody specificities were defined according to the mean fluorescence intensity (MFI) values from the SA assay that ranged from 1000 to $>$14000 MFI depending on the degree of sensitisation for each patient.
Results: The results showed that 20% (n=20) of total samples were DSA positive, 54% (n=54) NDSA and 26% (n=26) NAB. The DSA positive group had 65% (n=13) that were positive by Luminex only (CDC XM Negative) and 80% (n=16) were both DSA and NDSA positive.
Conclusion: Initial analysis showed that graft survival was significantly worse ($p \leq 0.05$) in DSA (CDC POS XM) compared to NDSA and NAB patients. In

contrast, low titre DSA antibody specificities, detected by Luminex only, had no significant clinical outcome on patients' survival.

LB-P-042 TESTOSTERONE REPLACEMENT IN CARDIAC TRANSPLANT PATIENTS ON TOP OF BISPHOSPHONATE THERAPY EXERTS MULTIPLE BENEFITS ON BONE MASS, LIBIDO AND SEXUAL ACTIVITY

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Background: Hypogonadism is frequent in cardiac transplant patients (CTX) and exerts negative effects on bone mass and libido. Aim of the study was to investigate whether testosterone replacement therapy (TRT) of hypogonadal CTX recipients on top of intravenous bisphosphonate treatment confers positive effects on bone mass and quality of sex life compared to untreated hypogonadal and eugonadal CTX patients.
Patients and Methods: Ibandronate (2mg/3 months), 1200mg calcium and 880IU vitamin D3 were administered. 14 of 31 hypogonadal patients (45%) were treated with testosterone enanthate (250mg intramuscularly/3-5 weeks) or daily 50 mg testosterone gel.
Results: At baseline 77% of the hypogonadal patients admitted loss of libido (compared to 27% of eugonadal men, P=0.005). Hypogonadal men at baseline had lower Z-score values at the femoral neck (-1.54 vs. 0.15), and total hip (-1.34 vs. 0.01) (all P=0.0001) as well as a higher percentage of prevalent vertebral fractures (63.3%; vs. 13.6%; P=0.0003). BMD had significantly increased in hypogonadal patients with TRT (neck 12.4 and 16.4%, total hip 9.2 and 12.4%, respectively, all $P<0.001$) as compared to eugonadal patients (neck 2.9 and 3.4%, total hip 3.7 and 4.4%). Compared to baseline annual sexual activities had increased in patients with TRT after 1 year (29 ± 8; $p<0.0001$) and 5 years (25 ± 9; $p<0.0005$) and had remained unchanged in unreplaced hypogonadal (5 ± 4 after 5 years) as well as eugonadal patients (16 ± 9 and 14 ± 8). At 1 and 5 years the number of annual sexual activities in replaced hypogonadal patients was also higher when compared to eugonadal CTX patients.
Conclusion: Intravenous IBN therapy increases hip BMD in CTX patients. Hypogonadal patients benefit from additional TRT with respect to bone mass changes and a better quality of sex life.

Late Breaking – Donation / retrieval

LB-P-043 PAEDIATRIC PROCUREMENT IN FRANCE: 2001 – 2010

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Background: The aim of this work was to describe in an exhaustive and clear manner the evolution of potential paediatric donors, actual donors and related causes allowing to explain this evolution in France over a period of 10 years.
Methods: Data was extracted from the French national database: Cristal. All potential brain dead donors aged under 18 years at the time of identification in France between 2001 and 2010 were included. Descriptive analysis was performed regarding identification, procurement and organs procured. The activity was described by years and by donor age considering 2 year classes (0–2 years, 2–4 years, ...).
Results: Potential paediatric donor identification and procurement show an important decrease over the studied period (-25%). This decline can mostly be attributed to donors aged over 4 years who show an important drop (-32%). Causes of donor death show that while most causes stay stable during the period, traumatic deaths have a 122% decrease. This can be correlated with the decline of paediatric deaths due to traumatic causes observed in the French general population (-45%). The main cause for non procurement is family refusals which is significantly higher than the one observed among adults (37% vs. 31%) and vary from 34 to 46% of identified donors depending on the age groups. The proportion of procured kidneys and livers per donors tends to rise with the age groups and is higher than the ones observed in the adult population.
Conclusion: Identification and procurement among paediatric donor show declining trends over the period which can be attributed a decline in traumatic deaths among this population. A specific work could be performed to identify the causes for the high refusal rates observed which could help to limit this decrease.

LB-P-044 THE RATE OF DISCARD OF KIDNEYS RECOVERED FOR TRANSPLANTATION IN THE UNITED STATES IS NOT JUSTIFIED

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Background: Over 2500 kidneys have been discarded annually in the United States since 2007. Discard is defined as a deceased donor kidney recovered for the purpose of transplantation and not utilized. The discard rate constitutes 19% of all recovered kidneys and it has increased from 7% in 1990, to 14.9% in 2000 to 19.2% in 2009. We examined the characteristics of discarded kidneys to determine whether such a high rate of discard was justified.
Methods/Materials: Data from the UNOS registry was analyzed to determine the codes that were submitted for discard.
Results: 941 of the 2631 kidneys discarded in 2010 were recovered from SCD, which was 10% of the SCD kidneys recovered. 1319 of the kidneys discarded in 2010 were from ECD, which was 43% of the ECD kidneys recovered. 377 of the kidneys discarded in 2010 more from DCD, which represented 20.4% of the DCD kidneys recovered.
In 2009, 507 kidneys were discarded because of inefficiencies in the system (377 no recipient identified; 53 too old on ice; 25 warm ischemic time too long; 21 recipient not suitable for transplantation; 17 positive crossmatch of primary transplant candidate; 14 to old on in 200 the pump).
Biopsy findings were recorded as the reason for discard in 26.6% of the SCD kidneys and 51.4% of the ECD kidneys. Biopsies were performed on 46.6% of donors 35 -49 years of age; 82.9% of donors aged 50-64 and 92.9% of donors >65. The rate of biopsies has increased from 27.9% in 2000-2001 to 48.2% in 2008-2009.
Conclusion: The increase in biopsy and discard is not justified by the characteristics of the donor pool.

LB-P-045 DONOR ACTION PROGRAM IN THE EMILIA-ROMAGNA REGION (ERR): RESULTS

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Objectives: The Emilia - Romagna Region (ERR), aiming at reaching high quality levels in organ donation, since 1998 it has supported the "Donor Action" program (DA). ERR Transplant Reference Centre (CRT-ER) decided to apply the DA program in order to constantly check whether all brain deaths are diagnosed, referred and assessed.
Methods: The program started in July 1998 in 25 ER ICUs, 7 belonging to hospitals with neurosurgical department (204 beds).
The DA program analyzes the potential donor identification through deceased patient charts in ERR (about 4 million inhabitants). The program is used by transplant coordinators through the regional computer network, whose data are collected and analyzed by the CRT-ER.
Results: The results (Table 1) showed that total deaths rised from the beginning to the end of the study, in spite of a decrease in the percentage of deaths with severe brain damages (GCS=3) on total deaths (43.9% vs 23.6%) and a significant increasing brain death assessments (30.2% vs 63%).
In the last 2 years is reported a decrease of family refusals.

Table 1. D.A. results

	1998 2nd semester	2005	2006	2007	2008	2009	2010
ICUs Total Deaths	649	1481	1418	1417	1513	1728	1603
Severe Brain Damage (SBD)	285	362	321	349	362	351	379
SBD/Total Deaths %	43.9	24.4	22.6	24.6	23.9	20.4	23.6
Brain Death Assessments	86	229	207	182	213	204	213
Organ Donors	55	145	118	108	128	118	118
Refusals	26	59	61	55	71	52	58

Through the years, organ donation improved from 24.1 to 27.2 per million population (p.m.p.) but decreased compared to 2008 (even if the ERR population increased from 3.9 million to 4.3 million inhabitants in the last 2 years). However, transplant centres achieved high level activity standards.
Conclusions: These results confirm that DA program is an efficient quality control program and helped the ERR system to improve potential donor's identification in the ICU's.

LB-P-046 IMPLEMENTATION OF A TISSUE PROCUREMENT MULTIDISCIPLINARY FUNCTIONAL PLAN IN A UNIVERSITY HOSPITAL IN SPAIN

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Background: Tissue transplantation is a therapeutic alternative for more than 12.000 patients yearly in Spain. University Hospital Joan XXIII (UHJXXIII), is one of the 30 licensed hospitals for tissue procurement in the region of Catalunya. However until 2007 tissue procurement rate was low, and conducted solely by a team of Tissue and Blood Bank (T-BB) an external organization belonging to the regional health system.
Objective: To increase the number of tissue donations of UHJXIII and its influence area through the implementation of a Tissue procurement functional plan carried out by a multidisciplinary team integrated by an in-hospital extractor and transplant coordination teams and the T-BB.
Material and Methods: A multidisciplinary functional plan was initiated in 2008 at UHJXIII (435 beds; 508 exitus in 2009) consisting on a collaboration agreement between the T-BB and TCT, a regional awareness educational program, and a training qualification program to conform an in-hospital extractor team.
Results: Mean tissue procurement rate increased from 6.6 tissues (1.41/100 exitus; mean 2004-06) to 27 tissues (5.4/100 exitus; mean 2007-09). The implementation of a functional plan diversified the source of tissue donations from 100% multiorganic origin in 2006 to only 42.2% in 2009.

Table 1. Tissue procurement

Tissue type	2004–2006 (annual mean)	2007–2009 (annual mean)
Cornea	6.3	23.3
Osteo-tendinous tissue	0.6	18.3
Vascular tissue	2.3	6.6
Skin	0	5.3

Conclusion: Implementation of a multidisciplinary functional plan involving active hospital participation increased the number of tissue donations and diversified its source.

LB-P-047 EMRS – UNINTENDED CONSEQUENCE SAVINGS

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The Emergency Medical Retrieval Service (EMRS www.emrs.scot.nhs.uk) was established in 2004 to provide advanced resuscitation and transfer skills for patients in remote and rural areas of Scotland. Initially covering Argyll and Bute, the service expanded in 2010 to become a national service. Every transfer is performed by a team including a consultant from a critical care specialty (anaesthesia, intensive care or emergency medicine).
As part of the service, EMRS has on occasion been called to patients with a reduced conscious level where no means of determining a diagnosis is present locally. Such patients have been intubated and ventilated at the scene and transferred to a facility with a CT scanner to establish if any intracranial catastrophe has occurred.
EMRS has an extensive clinical database, this was reviewed to determine how many transfers were subsequently determined to have catastrophic intracranial events and went on to become brain stem dead. These cases were examined to determine how many had become organ donors and an evaluation of any potential resulting financial benefit was done.
Between 2004 and 2010, there were six organ donors and one tissue donor from the cases transferred by EMRS. This is equivalent to the number of donor cases from an average District General Hospital in Scotland.
Prior to EMRS, there were no organ donors from these catchment areas and any such patients are unlikely to have been transferred fully resuscitated.
The potential "steady-state" net financial benefit to NHS Scotland is just over £1 million per year.
As an unintentional consequence EMRS has proven effective in transferring patients, with an unknown diagnosis, who have ultimately been shown to have catastrophic intracranial events and have become organ donors.
Such an unintended consequence must be treated sensitively given the nature of the area covered.

LB-P-048 A MULTIDISCIPLINARY PROTOCOL FOR THE MANAGEMENT OF PEDIATRIC POTENTIAL HBD

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Background: In Friuli Venezia Giulia Italian Region the number of pediatric HBD from 2008 to 2010 was 7. In the ICUs of the Udine's Hospital the activity of management of pediatric organ donors is rare (4 donors from 2008 to 2010) and the health personnel's knowledge on this topic is generally low. Because of this in 2010 the group working on the protocol of adult HBD developed a protocol for the ICUs management of pediatric HBD.
Methods and Materials:
– Creation of a multidisciplinary group for the development of the protocol composed by: physicians and nurses of ICUs, personnel of coordination from the Regional Transplant Centre; the group involved also pediatricians and the Department of laboratory medicine.
– Review of literature, national guidelines, legislation on donation and transplantation
– Analysis of the different phases of the management of pediatric HBD starting from the identification of pediatric HBD, ending with transportation of the donor in operating room
– Creation of specific and shared procedures to guide the activity of health personnel in the ICUs
– Creation of a dedicated Pediatric HBD manual for the clinical management: use of Broselow weight criteria for the definition of treatments.
Results: This group activity generated a complete protocol for the management of pediatric HBD from the identification of a donor to the moment of donation. This work include all the specific attentions related to the evaluation of donors' risks, of legislation in the field of consent for donation, of medical treatment and of donation and transplantation issues in pediatric age.
Conclusions: The creation of the protocol and the process of on-job-education for the implementation of the protocol, facilitate the procurement activity in ICUs and reduces its risks. It increased ICUs personnel's knowledge on pediatric HBD.

LB-P-049 AN AUDIT PROCESS FOR THE IMPLEMENTATION OF A PROTOCOL FOR THE MANAGEMENT OF POTENTIAL ORGAN DONORS IN INTENSIVE CARE UNIT

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Background: In Friuli Venezia Giulia Italian Region the rate of organ donors in 2010 was 37.4 pmp. There are four hospitals that make procurement in the Region and the major activity is done by Udine General Hospital (1000 beds) where the number of potential HBD in 2010 was 38. In 2006 in this Hospital a process of audit has been started to promote the implementation of a protocol for the management of organ donors to support and raise procurement.
Methods and Materials: 2007 Creation of a multidisciplinary team with nurses and physicians from ICUs and from Regional Transplant Centre
2007 Activation of a process of on-the-job education for the team
2007 Creation of the protocol by: literature and national guidelines review, identification and sharing of procedures with other hospital's services involved in ORGAN procurement
2008 Implementation of the protocol in ICUs by educational events
2008 Observational study of ICUs' nurses' knowledge and attitudes toward organ donation
2008 Audit on Hospital's ICUs conducted by CNT
2009 Creation of HBD nursing coordination team
2009 Amendment of ADULT HBD protocol and creation of a protocol for the management of pediatric organ donor
2010 Implementation of the new ICU protocols through educational activity and evaluation of previous knowledge and needs of education on nurses population.
Results:
– Increase of HBD reporting
– Increase of ICUs personnel's awareness
– Increase of activity of on-the-job education
Conclusions: The audit process has guaranteed:
– elevation of knowledge of ICUs' nurses and physicians on the process of procurement
– creation of protocols with processes of amendment and implementation in clinical settings
– planning of educational courses for coordination and clinical teams.

LB-P-050 ENDOUROLOGICAL MANAGEMENT OF UROLITHIASIS IN DONOR KIDNEYS PRIOR TO RENAL TRANSPLANT

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Background: Renal calculi are common and potential living related donor may have calculi diagnosed incidentally pre-operatively. We present our centres successful endourological methodology of ex-vivo ureteroscopy (EVFUS) in the management of these kidneys prior to renal transplantation.
Patient and methods: A retrospective analysis was performed of all living donors identified to have asymptomatic incidental renal calculi from January 2004 until December 2008. At our centre we performed a total of 512 renal transplants during this period amongst which 30.7% (n= 157) were living donors transplants. Amongst this cohort the incidence of asymptomatic renal calculi was 3.2% (n=5). All living donors were counselled prior to donor nephrectomy and remaining renal calculi free kidney was left insitu. Donors were subdivided into 2 groups depending on whether they donated the kidney with the renal calculus (Group 1) versus the opposite calculus free kidney (Group 2).
Results: The pre-operative parameters were comparable in both group. All donors in group 1 underwent a left laparoscopic donor nephrectomy. The calculi were extracted in all 3 cases using a 7.5 Fr flexible ureteroscope either prior to transplant (n=2) or on revascularization (n=1). There were no urological complications in either group. At a mean follow 64 there was no evidence of recurrent calculi formation in the recipient in group 1. However, 1 recipient formed a calculus in group 2 at a follow up of 72 months.
Conclusions: Renal calculi can be successfully retrieved during living related transplantation at the time of transplant itself using EVUS. This is technically feasible and is associated with no compromise in ureteral integrity or renal allograft function.

LB-P-051 BROSELOW SYSTEM IN THE MANAGEMENT OF PEDIATRIC ORGAN DONOR

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Background: The clinical maintenance of pediatric potential organ donors in ICU begins when there are the first signs of brain death and ends with surgical organ procurement. In this period there is a high risk for hemodynamic instability and organ failure. The donors should be treated as any patient suffering of multifactorial shock, with the purpose of improving organ function for transplantation.
To ensure an effective monitoring and treatment during maintenance of pediatirc HBD it is essential to know the pathophysiology of brain death and its differences between pediatric and adult patients.
In Udine's Hopital (Italy) there aren't dedicated pediatric ICUs, just general ones where young patients are occasionally admitted. Because of this the maintenance of pediatric HBD is rare and not completely known by professionals. To simplify this activity we have created a dedicated pediatric HBD operative manual.
Methods and Materials:
- Use of the Broselow System to define the vital signs, dosages of medications and equipment size (endotracheal tubes, suction catheters, etc) for pediatric HBD management
- Distinguish groups of pediatrics patients according with color coding/weigth

Results: Creation of a dedicated Pediatric Manual for the clinical maintenance of pediatric HBD using Broselow–Luten Color Coding System.
This Manual gives specific guidance on:
- equipment size
- emergency medication with specific indication of dosages
- normal and ideal vital signs of the potential donor
- fluid balance and fluid therapy
- treatment of hemodynamic instability
- maintenance of organs suitability

The manual:
- simplifies the management of the potential pediatric donor,
- elevates the levels of security in the process of procurement,
- elevates knowledge of ICUs' professionals,
- has a positive impact in a non-pediatric hospital.

LB-P-052 STAFF OPINIONS ON ORGAN DONATION IN A DISTRICT GENERAL HOSPITAL

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Background: The concept of organ donation may be familiar to hospital-based health professionals however knowledge of the organ donor register (ODR) and the processes surrounding organ donation is sporadic. Understanding staff attitudes and individual experience of organ donation should identify some of the obstacles that prevent referral and conversion; furthermore any obstacles may potentially be addressed, ensuring that staff are better informed when approached by relatives.
Objective: To gauge the opinions and level of awareness of organ donation processes in hospital-based health professionals.
Methods: An online questionnaire was sent to all staff working in the Borders General Hospital (BGH) by email. Outcome measures included awareness of the ODR, owning a donor card, views on organ donation and willingness to consent for relatives.
Results: 261 staff members responded to the survey. All 261 supported the notion of organ donation, however only 144 (55%) possessed a donor card and 103 (39%) thought they were registered on the ODR. Of those who were not registered 129 (87%) expressed interest in joining. 194 (74%) had discussed the topic with family and friends and 243 (93%) would give consent for a loved one to donate. 121 (46%) knew someone who had received a transplant while 853 (33%) had been involved in some aspect of organ donation, and 37 (14%) had been present in theatre for a transplant operation.
Conclusion: Although this survey showed that all staff supported the notion of organ donation, just over half of the responders had formally communicated this either through a donor card or through registration on the ODR. More education is needed to raise levels of awareness among staff which will in turn help to keep patients and relatives better informed.

Late Breaking – Infections

LB-P-053 NATIONAL EVALUATION OF HEPATITIS B CORE ANTIBODY-POSITIVE DONORS IN FRANCE

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Background: In 2005, the french legislation authorized temporarily, the use of organs for transplantation purposes issued from donors positive for hepatitis B core antibody (AcHBc), negative for the AgHBs, whatever the positivity of AcHBs was. This authorisation was submitted to an evaluation performed by the Agence de la biomedecine.
Methods: All recipients transplanted in France between January 1st, 2006 and october 30th, 2008 with an AcHBV-positive donor were prospectively followed at 3, 6, 9, 12 to 24 months after transplantation. Evaluation was focused on the HBV markers, the analysis of infection cases and the one year-graft survival.
Results: A total of 293 (6%) HBV positive donors allowed 617 (5%) grafts, mainly kidneys (442) and livers (135): 80% of these donors were AcHBs-positive. One case of infection in a kidney recipient (isolated AcHbc+) was observed at month 24 without formal evidence of a viral transmission or reactivation. In addition, 3 cases of infection among liver recipients occurred at the beginning of the study, mostly due to the lack of information of the protocol delivered to the professionals. These 4 recipients received appropriate antiviral therapy with a graft still functional all along the follow-up. Positivity of AcHBc occurred in 39 of the 415 AgHBs- and AcHBc-negative recipients, without any DNA detection, clinical or other biological disorders. No difference in 1 year-graft survival was found for liver or kidney recipients compared to the national cohort of the same period.
Conclusion: The results of this national and prospective evaluation was submitted to the Health Ministry and allowed us to use AcHBc-positive donors under specific conditions. Caution is given to the recipient information and to the prevention measures to be applied such as vaccination and prophylactic treatment.

LB-P-054 FULLY AUTOMATED GENERATION OF ANTIGEN-SPECIFIC CD4+ AND CD8+ T CELLS FOR ADOPTIVE IMMUNOTHERAPY

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Adoptive transfer of antigen-specific T lymphocytes with specificities for one or several viruses is a promising strategy to treat or even prevent opportunistic infections in immunocompromised patients. Human adenovirus, Epstein-Barr virus or cytomegalovirus (HCMV) infections are frequent, often life-threatening complications post transplantation. Virus-specific CD4+ and CD8+ T cells can rapidly be isolated after short-term antigen-specific restimulation of peripheral blood cells with pools of peptides covering the complete sequence of the viral antigen by using the Cytokine Capture System IFN-gamma (CCS). A novel cell processing device for the CCS procedure was developed, which performs all

steps fully automated in a sterile processing system. All components including the cellular starting product (e.g. leukapheresis or bone marrow), antigen(s), reagents, buffer and media are connected to a sterile *single-use* functionally closed tubing *set via sterile filters or docking technique.* Cell processing runs overnight and the isolated cells might be used directly after enrichment or a phase of in vitro expansion. Starting with 1×10e9 cells up to 1-20×10e5 HCMV-specific T cells could be isolated. Using this cell processing device, IFN-gamma secreting HCMV-specific T cells were enriched to the same purity as with the semi-automated procedure. Cell loss is markedly reduced, leading to an increased yield of IFN-gamma positive cells. An improved viability of the automatically generated T cells was observed resulting in better expansion rates compared to the semi-automated process. In conclusion, the automation enables an easy, safe, fast and robust generation of antigen-specific T-cells for adoptive immunotherapy with minimal manual intervention, reduced workload and also simplified clean room requirements.

LB-P-055 HIGH PREVALENCE OF MULTIRESISTANT GRAM NEGATIVE BACTERIA IN RENAL TRANSPLANT PATIENTS

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Background: To effectively prevent and treat infection, doctors should be aware of resistance profiles for pathogens found in their environment. Our study was designed in order to detect more common causal agents of urinary tract infection and their antimicrobial resistance in renal transplant recipients.
Material and methods: Urine culture samples were collected from renal transplant patients from January 2009 to April 2010. Immunosuppression consisted from induction with basiliximab or ATG and maintenance therapy with cyclosporin+mycophenolate mofetil+steroids. Perioperative prophylaxis was cephazolin and ciprofloxacin that were discontinued next day after removal of urinary bladder catheter, usually on postoperative day 5. Resistance to antibacterials was tested by ATB and minimum inhibitory concentration (VITEK 2) methods.
Results: Total 213 positive urine culture samples were analized. The more common pathogens were *Escherichia coli* in 37%, Enterococci in 16%, *Klebsiella pneumoniae* in 12% and *Enterobacter cloacae* in 8% of cases. Antimicrobial resistance for Gram negative bacteria is shown in table:

	E.coli (n=79)	Kl.pneumoniae (n=26)	E.cloacae (n=18)
Ampicilin	58%	96%	88%
Ampicillin/clavulanate	10%	37%	88%
Cephotaxime (ESBL)	5%	57%	66%
Gentamicine	10%	42%	50%
Ciprofloxacin	24%	60%	58%
Trimethoprim/sulpfamethoxazole	41%	65%	66%
Nitrofurantoin	0%	9%	20%

No carbapenem resistance was recorded during the study.
Conclusions: High level of antimicrobial resistance was detected in Gram negative pathogens. The role of intrahospital dissemination must be determined. Ciprofloxacin, trimethoprim/sulfamethoxazole, gentamicin and ampicilin should not be used for empirical treatment of urinary tract infections in this transplantation department.

Late Breaking – Kidney

LB-P-056 MicroRNA REGULATION OF CELLULAR BIO-AGE PROVIDES A NOVEL PRE-TRANSPLANT PROGNOSTIC AND PREDICTIVE ASSESSMENT OF POST TRANSPLANT ALLOGRAFT FUNCTION

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Background: Pre-transplant prediction of post-transplant renal function and outcome is extremely challenging, particularly when applied to older and marginal donor organs. We and others have demonstrated previously that allograft bio-age, as determined by CDKN2A expression level, is a superior prognostic and predictive marker for post transplant function. The CDKN2 locus is complex, comprising a series of developmentally and epigenetically regulated transcript isoforms. Transcriptional regulation of these isoforms incorporates a broad range of MicroRNAs (miRNA), non-coding, single-stranded RNA molecules that are involved in the regulation of a variety of biological processes, including embryogenesis, differentiation, and senescence. We have sought to investigate whether CDKN2 associated miRNAs expression profile in "zero hour" pre-transplant renal allograft biopsies are linked to clinicopathological and functional characteristics post-transplant.
Material and Methods: MicroRNA profiles were determined in "zero hour" allograft biopsies using micro-fluidic TaqMan® MicroRNA arrays (Applied Biosystem) and were analysed in relation to clinical data including serum creatinine (SC), cold ischaemia time (CIT), donor age and acute rejection. Data were analysed using StatMiner® (Integromics). Furthermore, MicroRNA data were validated using individual assays.
Results: Pre-transplant expression of miRNAs in renal allografts, are be associated with cellular bio-age ($p<0.001$). Additionally these miRNAs are also linked with acute rejection ($p<0.01$), and post transplant renal allograft functions measured by serum creatinine levels ($p<0.05$).
Conclusions: This data indicates that miRNA profiling has clear potential to be used for pre-transplant assessment of post transplant allograft function. It offers the potential for prediction of rejection episodes or other complications. Furthermore, there are also clear links with donor bio-age, which may further enhance the diagnostic possibilities.
Acknowledgements: Authors would like to thank the Cunningham Trust for support.

LB-P-057 LIVING DONOR KIDNEY TRANSPLANTATION IN T-CELL FLOW CYTOMETRY CROSS-MATCH POSITIVE PATIENTS AFTER DESENSITIZATION WITHOUT INTRAVENOUS IMMUNOGLOBULIN

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(Background) Positive T-cell flow cytometry cross-match (FCXM) has been considered as a risk factor for acute rejection, early graft loss and poor outcomes in kidney transplantation (KT). Several pre-transplant desensitization protocols using rituximab, plasmapheresis, and/or high-dose/low-dose intravenous immunoglobulin (IVIG) have been found effective in high risk patients, especially those with positive complement-dependent cytotoxicity (CDC) cross-match. However, the desensitization protocol has not been standardized or stratified by level of immunologic risk. We evaluated the feasibility of our desensitization protocol using plasmapheresis and rituximab without IVIG for living donor KT in patients with positive T-cell FCXM.
(Methods) Patients with living donors with negative CDC cross-match but positive T-cell FCXM were desensitized 7-10 days before transplantation by pre-transplant plasmapheresis with single dose rituximab (500 mg). Prior to LDKT, negative conversion of T-cell FCXM was required. A median fluorescence intensity ratio ≥ 2.0 was considered positive.
(Results) Of the 30 patients treated with our desensitization protocol, 28 were negative for T-cell FCXM after a single session. In 1 of the 2 refractory patients, the donor was changed to an ABO-incompatible and positive T-cell FCXM donor. Following a second session of plasmapheresis combined with rituximab, this patient was negative for T-cell FCXM. Living donor KT was performed in 29 patients (96.7%) including 9 with ABO-incompatible donor. Median follow-up was 9 months (range, 1-32 months) with median serum creatinine concentration 1.0 mg/dL (range, 0.6-1.7 mg/dL). Two recipients experienced biopsy-proven acute cellular rejection, at 7 and 12 months post-transplantation; both recovered after steroid pulse therapy. There were no episodes of acute antibody-mediated rejection or graft loss.
(Conclusion) Although this study is preliminary, with a short-term follow-up, our desensitization protocol using plasmapheresis without IVIG was feasible for LDKT in patients with positive T-cell FCXM.

LB-P-058 STUDY OF SERUM ACTIVIN AND FOLLISTATIN IN POST RENAL TRANSPLANT PATIENTS: CORRELATION WITH RENAL HAEMODYNAMICS, GRAFT FUNCTION AND SURVIVAL

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Background: Chronic allograft nephropathy (CAN) is responsible for a significant proportion of graft loss. Activin A is a member of the transforming growth factor-beta (TGF-b) superfamily of proteins, it has a pro-fibrotic activity. The biologic effects of activin A are countered by follistatin. The present work was designed to study the serum activin A and follistatin levels in the post renal

transplant patients and their correlation with renal haemodynamics, graft function and survival.
Methods/Materials: 20 post-renal transplant patients and 20 healthy subjects as controls were studied. Serum activin A and serum follistatin were measured by Enzyme Linked Immunosorbent Assay (ELISA), serum C-reactive protein (S.CRP), serum and urinary alkaline phosphatase (S.ALP, U.ALP) were measured by spectrophotometry. Renal hemodynamics was evaluated by duplex Doppler ultrasonography, resistive and pulsatility indices (RI, PI) were calculated.
Results: There was statistical significant increase in serum activin A, S.ALP, S.CRP, RI and PI indices and a statistical significant decrease in U.ALP and follistatin/activin ratio in the renal transplant patients, specialy patients with CAN, than the control group. Serum activin A showed a statistically significant positive correlation with serum creatinine, S.CRP, RI and PI indices and a significant negative correlation with U.ALP and follistatin/Activin ratio. Urinary ALP showed a significant negative correlation with serum creatinine, S.CRP, RI and PI indices.
Conclusion: the enhanced activin A activity together with the decrease of folistatin/activin ratio in post renal transplant patients, showed that there was a dysregulation of the activin-follistatin axis with the increase of the unbound biologically active activin A with the deterioration of renal function. Also, there was increased activity of ongoing inflammation accompanied by the impaired renal function among graft recipients that lead to enhanced renal fibrosis and a degree of tubular dysfunction.

LB-P-059 THE GENETIC VARIANTS OF *IL1R1* AND *IL1RN* ARE ASSOCIATED WITH THE DEVELOPMENT OF ACUTE REJECTION IN KIDNEY TRANSPLANTATION

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Background: The occurrence of acute rejection shows inter-individual variation and genetic make-up of patient with regard to cytokine and cytokine receptor may contribute to a higher risk for acute rejection (AR). IL-1 is a pleiotropic cytokine involved in the initiation of inflammatory and immune responses. A complex of IL-1 (IL1A or IL1B), IL1RI and IL1RAP are needed for signal transduction.
We investigated the effect of genetic polymorphisms in the *IL1R1* and *IL1RN* genes on renal AR risk in 339 Korean kidney transplant recipients.
Methods: Single nucleotide polymorphisms (SNPs) in *IL1R1* (rs 949963 and rs 2192752) and *IL1RN* (rs 315952 and rs 4251961) were genotyped in 62 AR patients and 277 control renal allograft recipients. These single nucleotide polymorphisms (SNPs) were identified following extensive searches of the Ensembl (http://www.ensemble.org) and Entrez SNP (http://www.ncbi.nlm.nih.gov/snp) databases.
Results: There was no significant difference in the ages of recipients or donors, repeat transplantation, duration of dialysis, number of HLA mismatches, cause of renal failure, use of cyclosporine and percentage of panel-reactive antibody between the AR and non-AR groups ($p > 0.05$). The genotype frequencies of the *IL1R1* and *IL1RN* SNPs showed Hardy-Weinberg equilibrium in both the AR and control groups. The occurrence of AR was significantly associated with genetic variants of the *IL1R1*gene (rs2192752; OR = 1.88, 95% CI = 1.06-3.33, $p = 0.033$, dominant model) and with genetic variants of the *IL1RN* gene (rs3159521; OR = 2.03, 95% CI = 1.08-3.82, $p = 0.023$, dominant model).
Conclusion: Our results demonstrate that genetic variants of *IL1R1* and *IL1RN* may be associated with the development of AR and they may help predict AR risk in kidney transplantation patients.

LB-P-060 SLOW GRAFT FUNCTION IN LIVING DONOR KIDNEY TRANSPLANTATION: AN ISSUE TO BE ADDRESSED

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Background: Slow graft function (SGF) after living donor kidney transplantation is associated with more rejection episodes. However its influence on long-term graft survival remains inconclusive. *Methods:* Data were collected prospectively on 468 consecutive living donor kidney transplantations performed in our hospital between July 1996 and February 2010 to evaluate the occurrence of SGF and its influence on long-term graft survival. SGF was defined as a serum creatinine $\geq$ 265 μmol/L 5 days after transplantation without dialysis. *Results:* The incidence of SGF and delayed graft function (DGF) was 9,4% and 4,3%, respectively. Logistic regression analysis revealed recipient BMI, pre-transplant dialysis and anastomotic time as risk factors for the occurrence of SGF. Acute rejection free survival rates at 3 months were 83.4% for recipients with immediate graft function (IGF), 45.5% and 35% for recipients with SGF and DGF, respectively ($p<0.001$). Five year graft survival rates for recipients with IGF, SGF and DGF were 91.6%, 79.1% and 73.7%, respectively ($p<0.001$). *Conclusions:* Both, five year graft survival and 3-month rejection free survival are significantly lower in patients with SGF as compared to patients with immediate graft function. These results underline the clinical relevance of SGF as phenomenon after living donor kidney transplantation. Therefore, further research should focus on new strategies to reduce the incidence of slow graft function.

LB-P-061 THE FATE OF RENAL RECIPIENTS WITH PRETRANSPLANT MALIGNIENCIES

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The aim of this single-center study was to assess the risk of developing a cancer in kidney recipients who had been cured for a pre-transplant malignancy (PTM).
A cohort of 2235 recipients transplanted for the first, second or third time between February 28,1983 - December 31,2010 and treated with calcineurin inhibitors was retrospectively examined for the occurrence of a solid cancer in the pre-and post-transplant period.
The recipients were divided as follows: Group I is formed by 135 patients, 54% males, who had been treated for 142 different malignant tumors in the pre-transplant period varying from 1 to 46 years and transplanted after cancer-specific standardised tumor free pre-transplant periods. Group II is formed by 2100 recipients, 61.3% males, with no pre-existing malignancies. The characteristics of donors and recipients were not significantly different in the two groups.
In the Group I, the global incidence of post-transplant cancer was 26.6% in a a mean follow-up period of 12.6$\pm$7.8 yrs (range 0.8-27.8 yrs) and the Half Life of 19.6 years vs. an incidence of 16.3% and a HL of 17.0 yrs observed in the Group II for a mean follow up period of 15.4$\pm$7.8 yrs (range 0.40-28.2 yrs).
The global, not censored, graft survival at 10 yrs was also similar, with value of 63.7% in the Group I vs. 65.2% in the Group II (p=0.86, chi square=0.02), as well as patient survival at the same time (86.2% vs. 90.0%,p=0.36, chi square=0.82).
The incidence of cancer is significantly higher ($p<0.05$) in 20 re-transplants of the Group I vs. 186 re-transplants of the Group II (45.0% vs. 13.4%).
Cancer survivors can be good candidates for first KT, whilst poorer results may be expected for recipients of second/third transplants.

LB-P-062 THE VALUE OF RENAL VASCULAR RESISTIVE INDEX MEASUREMENT AFTER RENAL TRANSPLANTATION

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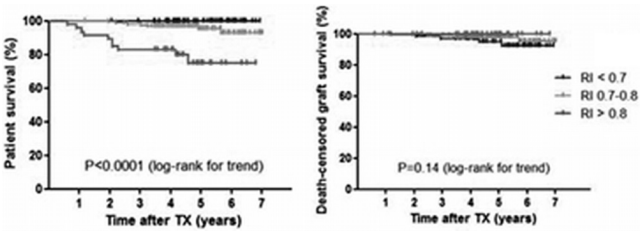
Background: The value of the ultrasonographic determination of the renal vascular resistive index (RI) in the assessment of renal allograft function remains unclear.
Methods: In total, 985 renal allograft duplex measurements in 295 renal allograft recipients were included in this study. RI were monitored by serial duplex ultrasound at predetermined time points after transplantation (at 0, 3, 12 and 24 months) and at time of graft dysfunction. Concomitant renal allograft biopsies were performed and blindly scored according to the revised Banff classification.
Results: At time of stable graft function, renal allograft recipients with a RI of 0.80 or higher had a significant worse patient survival ($P<0.0001$). Death-censored renal allograft survival did not differ between patients with a high or low resistive index (P=NS). In patients with stable graft function, the absolute RI and the relative increase or decrease of RI were neither associated with graft function nor with the histological appearance of the grafts. In multivariate mixed models repeated measures analysis, age of the renal allograft recipients was the single significant determinant of RI ($P<0.0001$), independent of time after transplantation. At time of graft dysfunction, RI were associated with acute antibody-mediated rejection (P=0.01) and acute tubular necrosis (P= 0.01). Chronic histological damage was not associated with higher RI, neither in indication biopsies nor in protocol biopsies.



Conclusion: Although RI are routinely measured in transplantation centers throughout the world for assessment of renal allograft status, the current large prospective study demonstrates that the clinical value of these RI measurements should be reconsidered. The RI reflect recipient factors (recipient age), but not intrinsic characteristics of the allograft.

LB-P-063 EARLY POST-TRANSPLANT MAG3 RENAL SCAN PREDICTS LONG-TERM OUTCOME OF RENAL TRANSPLANTS

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Background: Tc99m-Mercaptoacetyltriglycerine scintigraphy (MAG3 scan) has been used as a tool for evaluating perfusion and excretory function of renal allografts. This study was performed to determine whether MAG3 scan has any relationship with long-term renal transplant outcomes.
Methods: A total of 311 consecutive kidney transplant (KT) recipients were included. All had MAG3 scan on posttransplant day 3 and 7 and received the same immunosuppressive regimen in the early posttransplant periods. Patterns of the scan curve was graded as follows: 0 = normal perfusion and excretion, 1= normal perfusion, reduced excretion; 2= normal perfusion, flat excretion; 3 = delayed perfusion and excretion. Serum creatinine (SCr), acute rejection (AR) and graft survival were compared.
Results: At posttransplant day 3, 193 patients were grade 0 (62.1%), 58 grade 1 (18.6%), 19 grade 2 (6.1%), and 41 grade 3 (13.2%). At posttransplant day 7, 210 patients were grade 0 (67.5%), 61 grade 1 (19.6%), 20 grade 2 (6.4%), and 20 grade 3 (6.4%). MAG3 scan of deceased donor KT showed significantly higher grade on both day 3 and day 7 scan than live donor KT ($p<0.001$). SCr positively correlated with the grades of the scan at day 3 and day 7. AR rate was higher in the higher grade of renal scan (p=0.006). Grade 2 MAG3 scan of day 3 showed a significantly higher graft failure rate compare to the other grades (p= 0.014) and also showed the worst 5 year graft survival (p= 0.019).
Conclusion: Our data shows MAG3 renal scan correlates not only with early postoperative kidney function and incidence of AR but also with long-term outcome of renal allograft. Day 3 MAG3 renal scan especially contains important prognostic information.

LB-P-064 MAGNETIC RESONANCE (MR) VENOGRAPHY AND MR UROGRAPHY IN KIDNEY DONOR ASSESSMENT – CORRELATION WITH OPERATIVE FINDINGS

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Background: Computed Tomography (CT) is the established method of assessment for live donor kidney transplantation. Whilst CT imaging is robust in the evaluation of the kidney and the arterial anatomy, venous evaluation is suboptimal. Additionally, the need to image these patients in multiple post-contrast phases results in a high radiation dose.
Favorable venous and pelvi-ureteric anatomy qualifies the donor to undergo laparoscopic rather than open donation.
Purpose of the study is to evaluate the accuracy of Magnetic Resonance (MR) imaging in predicting the venous and pelvi-ureteric anatomy in transplant donor assessment.
Materials and Methods:
Over a 30 month period, 140 MR assessments were performed for potential renal donors. Of these 61 went on to complete kidney donation. The renal venous and pelvi-ureteric anatomies were correlated with surgical findings.
Results: Amongst the 61 kidney donors, there were 23 men and 38 women. The MR venous anatomy correlated accurately with surgical findings in 57/61 (93.4%) patients. There were 2 (3.3%) discrepancies- both were missed accessory renal veins. There were two cases (3.3%) of incomplete imaging where the MR study failed to include appropriate venous images. The pelvi-ureteric anatomy on imaging correlated with surgical findings in 53/61 (87%). There was one discrepant case (1.6%) where bifid collecting system was suggested on imaging. Adequate assessment of the pelvi-ureteric system was not possible in 7/61 (11.4%).
Conclusion: Appropriate MR imaging including venography and delayed images can predict venous and renal pelvi-ureteric anatomy with very high accuracy.
We have demonstrated a high predictability of venous and collecting system anatomy on MR imaging in potential renal donors. MR assessment gives high quality and accurate information without the need for ionizing radiation in these patients who are often young.

LB-P-065 TRANSPLANTATION OF RIGHT LIVING DONOR KIDNEYS IN OBESE RECIPIENTS CORRELATES WITH A DECREASED GRAFT SURVIVAL

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Background: During surgery in general, exposure of the operating area is compromised in obese patients. It is also known that vascular anastomosis of right kidneys is technically more demanding as compared to left kidneys due to a shorter renal vein. We hypothesize that transplantation of right kidneys into obese recipients affects outcome after living donor kidney transplantation.
Methods: Data were collected retrospectively on 447 consecutive adult living donor kidney transplantations performed in our hospital between July 1996 and February 2010. Slow graft function (SGF) was defined as serum creatinine >265 μmol/L at day 5 after transplantation. To allow a statistical analysis with a balanced number of cases over the subgroups, "obese" patients were defined using a BMI cut off level of 27.
Results: Multivariable linear regression analysis revealed recipient BMI (0.55 ± 0.16 minutes per BMI point) and right donor kidney (3.9 ± 1.4 minutes) as major determinants of vascular anastomosis time. Logistic regression analysis showed a significant correlation between anastomosis time and the occurrence of SGF (p=0.02). Obese recipients of right kidneys showed a decreased 5-year graft survival rate (70.8%) as compared to all other recipients (91.0%, p=0.016).
Conclusions: Obese recipients of right living donor kidneys are at risk of a prolonged vascular anastomosis time, which correlates with the occurrence of slow graft function. We also found that transplantation of right living donor kidneys in obese recipients affected graft survival. Our data indicate that the selection of right living donor kidneys, especially those kidneys with short renal veins, should be avoided in obese recipients.

LB-P-066 COMPARISON OF HEART RATE VARIABILITY BETWEEN PATIENTS ON KIDNEY TRANSPLANTATION AND HEMODIALYSIS

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Background: Heart rate variability (HRV) is regulated by the balance of sympathetic and parasympathetic tones. HRV can be used to assess the effects of drug and other interventions including respiration, exercise, metabolic change and psychological or physical stress on cardiac autonomic tone. Few studies about HRV in patients with kidney transplantation were performed in Korea. So, authors investigate the autonomic nerve system activity by HRV in patients with kidney transplantation.
Methods: We compared the pattern of cardiac sympathetic and parasympathetic activity through the time- and frequency-domain analysis of HRV with

Table 1. The comparison of time-domain HRV measures between groups

	KTP patients	HD patients	p value
Mean NN (msec)	830.14±122.07	850.69±152.64	0.60
SDNN (msec)	117.57±42.88	92.53±43.69	0.06
rMSSD (msec)	57.96±64.08	57.03±61.17	0.96
SDNNi (msec)	50.03±41.96	40.12±35.98	0.35
pNN50 (%)	17.23±25.41	11.96±21.05	0.41
HRV index	16.40±5.55	11.72±5.70	0.01

SDNN: standard deviation of all normal sinus R-R intervals over 24 hours; rMSSD: the root mean square of the difference between the coupling intervals of adjacent R-R intervals; SDNNi: mean of the standard deviation of all normal R-R intervals for all 5-minutes segments of the entire recording; pNN50: the percentage of adjacent R-R intervals that varied by more than 50 ms; HRV index: Integral of the density distribution divided by the maximum of the density distribution.

24-hour Holter monitoring between 32 kidney transplanted subjects and 30 control patients with hemodialysis due to end stage renal disease. The subjects have been received kidney transplantation at the Bong-Seng hospital between January 2007 and December 2009.
Results: The mean age of subjects and controls were 58.22±13.72 and 51.17±11.91 years-old respectively. In subject group, all time- and frequency-domain HRV measures including HRV index, very low-frequency (VLF), normalized unit of low-frequency (LFnorm) and ratio of low-frequency power to high-frequency power (LF/HF) were increased compared with control group.

Table 2. The comparison of frequency-domain HRV measures between groups

	KTP patients	HD patients	P value
VLF, msec2	995.46±1936.52	153.40±180.66	0.03
LF, msec2	878.27±1472.30	303.69±826.52	0.10
LF norm, nu	44.55±21.25	33.35±20.35	0.03
HF, msec2	1363.90±2907.10	649.82±1555.85	0.28
HF norm, nu	35.29±13.84	40.24±15.42	0.23
VHF, msec2	634.84±1535.83	323.26±842.62	0.37
LF/HF	2.56±2.53	1.14±1.08	0.01

VLF: very low frequency; LF: low frequency; LF norm: LF in normalized units; HF: high frequency; HF norm: HF in normalized units; VHF: very high frequency; LF/HF: ratio of power in LF/HF.

Conclusion: Autonomic tones in patients with kidney transplantation are increased compared with those in patients with hemodialysis due to end stage renal disease. And sympathetic tones in KTP patients have the preponderance over parasympathetic tones. Kidney transplantation may be a modality to improve HRV index in patients with ESRD.

LB-P-067 ASSOCIATIONS BETWEEN MMP-2 GENE POLYMORPHISMS AND POST-TRANSPLANTATIONAL DIABETES MELLITUS IN KOREAN RENAL ALLOGRAFT RECIPIENTS

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Background: Post-transplantational diabetes mellitus (PTDM) is a serious metabolic complication that may follow renal transplantation. Matrix metalloproteinase-2 (*MMP2*) function is indispensable for pancreatic beta islet formation and endocrine cell differentiation. Thus, specific *MMP2* gene polymorphisms are considered to be risk factors for diabetes. In this study, we investigated the association between *MMP2* gene polymorphisms and the occurrence of PTDM in Korean patients who had undergone renal transplants.
Methods: A total of 311 patients who had received kidney transplants without a prior history of diabetes were included. Four single nucleotide polymorphisms (SNPs) of the *MMP2* gene were genotyped from genomic DNA with direct sequencing.
Results: PTDM developed in 56 patients (18.0%). The results showed that the allele frequencies of *MMP2* gene polymorphisms rs1132896*C and rs243849*C were significantly higher in the patients with PTDM than in those without PTDM. In multiple logistic regression analysis, 2 SNPs (rs1132896 and rs243849) of the *MMP2* gene were significantly associated with the development of PTDM in the codominant and recessive or, codominant and dominant models, respectively.
Conclusions: Our results indicated that genetic polymorphisms of the *MMP2* gene were associated with PTDM, suggesting that the *MMP2* gene might confer susceptibility to PTDM in patients who receive renal transplants.

LB-P-068 PROTEINURIA AND RENAL FUNCTION PREDICT OUTCOME AFTER LATE INITIATION OF SIROLIMUS IN RENAL ALLOGRAFT RECIPIENTS

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Objectives and Methods: In order to analyze outcome after initiation of sirolimus (SRL) in a large cohort of patients (pts) we investigated all renal allograft recipients converted to SRL between 11.1.2000 and 12.12.2008 from 10 german transplant (Tx) centers. All data were entered into a large database. The aim of this study was to define predictors for a favourable outcome.
Results: In total 726 pts started SRL therapy after a median of 55 months (Mo) after Tx with a median follow-up of 24 Mo. In 75% it was their first Tx, 10% had received a combined Tx and 33% had experienced at least one rejection episode before conversion. Reasons for conversion included 26% with CNI toxicity, 23% with malignancy, and 18% with chronic allograft nephropathy (CAN).
During the observation period 53 pts died, and 134 pts returned to dialysis. Overall patient and graft survival (including death) at 1, (and 5) yrs after conversion was 96% (82.4%) and 86.5% (57.7%). In 33% renal function (GFR) improved and in 28% deteriorated after conversion, resulting in overall stable GFR in the first year (40±18 vs. 41±20ml/min). Pts, who survived with a functioning graft had better GFR (43±20 vs. 28±14ml/min; $p<0.001$) and less frequent proteinuria >400mg/l (40% vs. 60%; $p<0.001$) at the time of conversion. Pts with proteinuria >400mg/l, poor (<40ml/min) GFR, and CAN had significantly ($p<0.001$) inferior 5 year graft survival (75% vs. 89%, 55% vs. 76%, and 39% vs. 63%, respectively). Pts with malignancy had better graft survival (89% vs 61%; $p<0,001$).
Conclusion: Conversion to SRL is a valid option for patients with malignancy and CNI toxicity, especially for those patients with adequate renal function and no severe proteinuria.

LB-P-069 INTERLEUKIN 2 (IL2) RECEPTOR ANTAGONIST INDUCTION DRAMATICALLY IMPROVES ECD KIDNEY TRANSPLANTATION RESULTS

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Background: Use of expanded criteria donors (ECD) for kidney transplantation is increasing. Recipients of ECDs have impaired graft survival and increased risk of rejections compared to recipients of standard criteria donor kidneys. The aim of the study was to investigate if induction therapy with an IL2 receptor antagonist improves the results of kidney transplantation with ECD ≥60 years of age.
Methods: A single centre study was conducted between 2004 and 2009. First time transplant recipients receiving a deceased donor (DD) kidney ≥ 60 years from 2004-2006 did not by routine receive IL2 antagonist (IL2-) while recipients from 2007-2009 did (IL2+). Survival data were assessed using the Kaplan Meier method and a multivariable Cox proportional hazard model. Possible predictors for acute rejection episodes were evaluated in a multivariable logistic regression model.
Results: From 2004-2009 we performed 1593 kidney transplantations. A total of 241 first transplant recipients received DD kidney ≥ 60 years and were included. Median follow-up was 32.8 months (range 0 - 82). Recipient age, donor age, initial immunosuppression and rate of acute rejection episodes during the first 90 days are summarised in Table 1. There was a highly significant improvement of two year uncensored graft survival in advantage of the IL2 + group (Figure 1). IL2- [hazard ratio (HR) 2.77; 95% confidence interval (CI) 1.49–5.15, P=0.001] and time on dialysis prior to transplantation [HR 1.03 (per month); 95% CI 1.01–1.05, P=0.002] were associated with increased risk of uncensored graft loss two years after transplantation. In addition, IL2- was associated with increased risk of acute rejection [odds ratio (OR) 2.65; 95% CI 1.44–4.86, P=0.002].

Table 1

	IL2+ (N=157)	IL2– (N=84)	P value
Recipient age (years); median (range)	64.5 (14.9–82.8)	65.6 (26.9–80.5)	NS
Donor age (years); median (range)	67.6 (60.2–89.0)	65.5 (60.3–78.8)	0.025
CNI: CsA vs. tacrolimus	81% vs. 15%	96% vs. 4%	0.02
Mycophenolate (MMF or MPA)	98%	99%	NS
Acute rejections 90 days post transplant	19%	41%	0.001

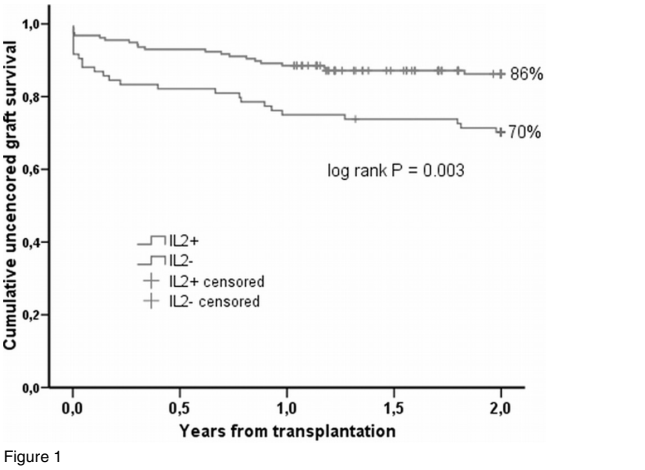

Figure 1

Conclusions: Induction therapy with IL2 antagonist provides increased survival and reduced incidence of acute rejection episodes in patients receiving an ECD kidney. This could improve long term graft outcome.

LB-P-070 CHALLENGING THE OLD TRADITIONS IN RENAL TRANSPLANTATION: ENHANCED RECOVERY AFTER RENAL TRANSPLANTATION

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Background: Despite recent evidence showing the benefit of multimodal care programmes in many surgical subspecialties, local practice in the renal transplant unit at Sheffield teaching hospitals is currently based on traditional perioperative care. Some of these included unnecessary delay in discharge planning and patient education. Also old traditions in anaesthetic techniques and leaving catheter and lines longer than necessary led to delayed recovery and subsequently longer length of stay. There is wrong belief among renal transplant surgeons and physicians that enhanced recovery can not be applied to these immunocompromised patients who are ASA III.
Aim: To prove that the principle of enhanced recovery is applicable in renal transplant recipients with improvement in the patient care.
Methods: We adopted a multidisciplinary team approach involving surgeons, anaesthetists, physicians and nurses. Patient education and discharge planning are commenced before transplantation. Goal-directed fluid management using Lithium Dilution Cardiac Output monitor (LIDCO*rapid*) helped to achieve adequate fluid balance during the operation. Intrathecal diamorphine and TAP block with minimal use of intravenous morphine improved postoperative pain control without increase in PONV. Patients commenced fluid intake few hours after the operation and oral feeding next day morning. Urinary catheter and drains were removed 3 to 4 days after the operation. This allowed continuing patient education and early mobilization and subsequently early discharge without increase in the readmission rate.
Results: patients were discharged within 5 to 7 days (mean 6) after surgery with enhanced recovery, compared to 6 and 23 days (mean 9.2) with traditional recovery.
Conclusion: The principle of enhanced recovery is applicable in this category of immunocompromised high risk patients. When a standardised, multidisciplinary pathway is implemented and managed correctly, reductions in the length of stay can be achieved without compromising the patients' care.

LB-P-071 IMPROVING ACCESS TO PRE-EMPTIVE KIDNEY TRANSPLANTATION IN ENGLAND: A NATIONAL QUALITY IMPROVEMENT PROGRAM

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Background: Pre-emptive transplantation is widely recognised as the "Gold Standard" modality of renal replacement therapy and has been associated with improved patient and graft survival. However, the most recent registry data (UK Renal Registry Report 2009) found that after 90 days of RRT, only 6.3% of incident RRT patients had received a kidney transplant. There is also wide geographical variation in the uptake of pre-emptive transplantation and transplant listing, even after correcting for age, ethnicity, sex and primary renal diagnosis (BMJ 2010; 341: c3451). Here NHS Kidney Care report on a project to increase pre-emptive transplantation and listing in England through a nationally funded and locally led program of quality improvement.
Methods: NHS Kidney Care will fund the role of transplant facilitators in hub renal units in England. Their role will be to identify barriers to pre-emptive transplantation and use quality improvement methodologies to work with health services to improve the availability and uptake of pre-emptive transplantation and listing.
Results: The role of the facilitators will be as problem solvers and facilitators, with the goal of producing long term and sustainable improvements in transplantation services. They will work to develop benchmarks and quality metrics with local teams concerning transplant listing and the rate of transplantation at 90 days after initiation of RRT.
Conclusions: Pre-emptive kidney transplantation potentially offers the best outcomes for people with Established Renal Failure. This project aims to improve the availability of this important form of renal replacement therapy by helping renal units to use quality improvement methodology to deliver sustainable improvements in their local kidney transplantation services.

LB-P-072 THE QUALITY OF REFERENCE COSTS FOR KIDNEY TRANSPLANTATION

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Background: Reference costs help the English NHS to account for where and how its resources are used. By breaking down NHS expenditure into units of healthcare, they enable services to be planned effectively for the benefit of patients. Reference costs inform the allocation of budgets, underpin contracts between commissioners and providers and enable NHS organisations to use their resources more wisely. In order to support the development of a best practice tariff for renal transplantation, here we report a review by NHS Kidney Care of the quality of reference cost data since 2007/2008.
Methods: Reference cost returns were reviewed for the three financial years, 2007/08, 2008/09 and 2009/10. Data was compared to coded activity of renal transplantation activity and NHS Blood and Transplant records.
Results: Although there was convergence in the spread of the costing estimates between 2007/08 and 2008/09, there was no further improvement in the last financial year reported. There are still significant inconsistencies in the data, both internally and when compared with other measures of transplant activity. In all the financial years analysed, there is a 70-100 fold large variation in the locally calculated reference costs (Range £1,300 - £75,000 in 2009/10). This is most likely to be due to variation in accounting practice rather than true variation in the cost of renal transplantation.
Conclusions: Although there has been some improvement in the quality of the reference cost estimates, there is still much scope for improving the consistency of the costing methodology, as highlighted by the wide variation in locally derived estimates. Improving the quality and accuracy of clinical coding and increasing standardisation in how reference costs are calculated locally will be important steps in developing an accurate estimate of the cost of kidney transplantation.

LB-P-073 INCIDENCE AND RISK FACTORS IN NEW ONSET DIABETES MELLITUS AFTER KIDNEY TRANSPLANT AND SIMULTANEOUS PANCREAS KIDNEY TRANSPLANT

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Background: The incidence of new onset diabetes mellitus after transplant (NODAT) is quite variable, ranging from 2-50% in kidney transplant (KT) and 19-25% in simultaneous pancreas kidney transplant (SPKT). Our aim was to analyze the incidence of NODAT, the factors related to its development and its influence in the patient and both grafts survival.
Materials/methods: We analyzed 1124 transplantations performed from 1986 to 2010. Variables were collected in different postransplant periods (baseline, 6 months, 1 year and 5 years). Diabetes mellitus was defined by ADA 2009 criteria. Median follow-up was 5.5 years (23.9 range).
Results: 1) From 996 KT, 32.7% developed NODAT. NODAT patients were older ($p<0.001$). There were more men ($p=0.009$) and smokers ($p=0.003$). They had more missmatches ($p=0.011$) and a higher rejection rate (21.1% vs 15.7%; $p=0.037$). Higher tacrolimus levels were associated with NODAT ($p=0.029$). NODAT patients had a higher BMI and a higher TG/HDL ratio. More patients from this group needed magnesium oral supplements (MOS). NODAT patient survival is worse than non-diabetic patient (81.79% vs 84.72%, $p=0.0118$) and KT survival is also worse (60.36% vs 76.59%, $p<0.001$) than non-diabetic patient.
2) From 128 SPKT, 18.7% developed NODAT; 26.8% had a non functioning pancreas (undetectable peptide C) and 54.5% had a SPKT with good function. The time to become NODAT is 1.03 years (IQR 12.6). NODAT patients were more smokers and needed more MOS. We did not find any difference between the patient survival with or without NODAT.
Conclusions: We found a high rate of developing NODAT in our KT and SPKT population. Age, immunossupression, tobacco, BMI, lipids disbalance and MOS requirement are associated with NODAT. In KT, NODAT has a negative impact in patient and graft survival.

LB-P-074 ABO INCOMPATIBLE LIVING DONOR TRANSPLANTATION (ABOI KT): MINIMAL DOSE OF RITUXIMAB AND NOT A ROUTINE BUT AS NEEDED POSTTRANSPLANT PLASMAPHERESIS

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ABOi KT is now an established procedure with outcome equivalent to ABO

compatible KT. There are various protocols in different parts of the world, and the refinement of the protocol is required to improve outcome, safety and cost. Since the initiation of ABOi KT in 2007 in our center, the protocol has been being evolved. Conventional dose (375mg/m2) of rituximab was used initially, the dose halved subsequently, and recently 100mg fixed dose was used. Pretransplant plasmapheresis aimed anti-ABO titer ≤8 on transplant day, but patients with higher (≥16) titer whose antibody could not be lowered to target on transplant day were also allowed to transplant. Posttransplant plasamperesis was not done routinely but as needed in patients with higher antibody titer or increase in creatinine while awaiting biopsy result during the critical period.
A total of 36 ABOi KT was done since Feb. 2007. Median follow up was 17 (0-52) months. Patient and graft survival is 100%. There was only 1 clinical acute AMR. Median (range) anti-ABO titer at initial, on transplant day and at 2 weeks was 64 (8-1024), 2 (1-16) and 2 (1-16), respectively. The duration of the depletion of peripheral CD19+ cells among patients with different dose of rituximab seems not different. There was no CMV disease or BKV nephropathy. One patient developed progressive multifocal leukoencephalopathy with recovery of neurologic symptom by reduction of immunosuppressants.
Conclusion: ABOi KT with minimal dose of rituximab and restricted use of posttransplant plasmapheresis can be performed with excellent outcome, reduced cost and safety.

LB-P-075 THE INFLUENCE OF OBESITY ON RENAL TRANSPLANT OUTCOMES A PAIRED KIDNEYS ANALYSIS

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Background: Obesity is significantly increasing worldwide. It also affects people with end stage renal disease who are potential kidney recipients. The aim of the study is to evaluate the effect of obesity on surgical and non-surgical complications after kidney transplantation.
Methods: We analyzed 300 recipients from our transplant center. In this group we found 29 patients who were obese (BMI>= 30). To avoid influence of donor factors we analyzed those 29 patients with their pairs. In each pair kidneys were transplanted into one obese and one non-obese patient.
Results: The groups were similar in gender. The age of the obese group was slightly higher than non-obese (53,6 vs 46,2 years). The rates of acute rejection and delayed graft function were similar in both groups. The mean serum creatinine level at the time of discharge was similar in both groups and the obese group had a lower mean serum creatinine at 1 year but the difference was not significant. The length of hospitalization was longer in obese group (26 vs 21 days) and this group had more surgical complications (58,6% vs 44,8%) which was statistically significant. Numbers of reoperations were equal in both groups because complications which occurred in non-obese group were mostly of minor consequence like wound breakdown and wound infection.
Conclusion: 1. 10% of patients who undergone kidney transplantation in our center were obese. 2. There were no difference in the rate of delayed graft function and acute rejection between obese and non-obese group. 3. There were more surgical complications in the obese group and also the length of hospitalization was longer in this group.

LB-P-076 ROBOT-ASSISTED LIVE KIDNEY DONATION: THE ROTTERDAM EXPERIENCE

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Background: Laparoscopic donor nephrectomy has become the gold standard to procure kidneys in live donors because of less surgical trauma and subsequently less pain, shorter convalescence time and superior quality of life as compared to open approaches. Recently, we expanded our surgical armamentarium with the da Vinci robot. The advantages of the da Vinci robor are: 560-degrees rotatable instruments, the use of high definition 3D-technology, an enlarged image, the computerized corrections of undesirable vibrations and an improved surgeon comfort. We evaluated the results of the first 12 left-sided da Vinci-assisted donor nephrectomies.
Methods: From December 2009 until December 2010 twelve donors have been operated using the da Vinci Surgical System. Inclusion criteria were: a body mass index lower than 25 kg/m2 and a left-sided kidney with a single artery. Data were collected prospectively and compared with donors (1:2) extracted from our 2008 laparoscopic donor nephrectomy database.
Results: Baseline characteristics were similar in both groups. There were no significant differences in blood loss (100 vs 150 ml, p=0.67), warm ischemia time (5 vs 5 min, p=0.66), length of hospital stay (4 vs 4 days, p=0.55) and decline in glomerular filtration rate (23.1 vs 26.3 ml/min, p= 0.35). The operating time of the da Vinci donor nephrectomy was longer than the laparoscopic procedure (288 vs 188 min, p=0.001). There were no surgical complications or conversions in both groups. A steep learning curve was observed in the da Vinci group. Surgeon comfort was highly appreciated in the da Vinci group.
Conclusion: Robot-assisted live kidney donor nephrectomy seems a safe and feasible procedure without additional risk of postoperative complications. Further studies are needed to establish the safety, efficacy, benefits, and limits of this technique.

LB-P-077 BONE DISEASE AND VERTEBRAL FRACTURES AFTER KIDNEY TRANSPLANTATION

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Background: Bone disease and vertebral fractures has always been an important clinical problem in renal transplant patients, being associated with severe morbidity and reduced quality of life. Several factors such as renal osteodystrophy, persistent hyperparathyroidism, immunosuppressive therapy, the low intake of calcium and Vitamin D, may contribute to vertebral fractures and bone disease.
In this paper we analyzed 92 patients who received a renal graft.
Patients and Methods: 35 male and 57 female. Immunosuppressive therapy was based on basiliximab, steroids (1.6 to 2 mg/kg/day progressively reduced to 5 mg/day after 45 days from the transplantation), calcineurin inhibitor, mycophenolate mophetil. Patients were studied with Xray of the spine, bone density, PTH, 25(OH)VitD.
Results: 41 patients (44.5%) had osteopenia and 18 patients (19.5%) had osteoporosis. 6 patients (6.5%) showed signs of vertebral fractures to Rx column. Patients with normal bone density, compared to those with osteoporosis/osteopenia/fractures, are younger (average age 46 years vs. 54.3); they have spent less time on dialysis (26 months vs. 37.4) and they have values of 25(OH)VitD higher (18.3 to 25.3 ng/ml vs 8.6 to 15.2). The differences are statistically significant.
Conclusion: Prevention of Bone disease and vertebral fractures after renal transplant includes: a) treatment before transplantation b) supplementation of vitamin D and adequate calcium intake c) shorten the dialysis time.

LB-P-078 THE EFFECTIVENESS OF LOW DOSE DACLIZUMAB COMPARED WITH STANDARD REGIMEN IN PREVENTING FOR ACUTE REJECTION PREVENTION AFTER RENAL TRANSPLANTATION IN KERMAN-IRAN

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Background: One of the most important therapeutic problems in kidney transplant patients is preventing of acute graft rejection. The purpose of this study was to investigate the efficiency of low dose Daclizumab (Jain, A. et al. Pediatr Transplant 2009; 3: 490-4.) for prevention of acute kidney graft rejection in living donor recipients.
Methods: This clinical trial study was performed on 120 living donor kidney recipients who was admitted in kidney transplant ward of Kerman Afzalipor hospital. 60 patients, as a case group, received Cyclosporine, Mycophenolate mofetil and Prednisolone plus Daclizumab at a dose of 1mg/kg before transplantation and then two weeks later. The others received all above except Daclizumab. All patients were followed up at least for 6 months.
Results: The rate of acute rejection was significantly lower in case group (6.7 vs. 18.3; P=0.048). The six months graft survival rates at case group were 95% and at control group 85%. The 12 and 18 months graft survival rates were 95% in case group and 82% in control group. The mean graft survival time was significantly different between two groups (at case group 17.2 months and at control group 14.8 months; P=0.040).
There was a significant difference in 6 months graft survival between the weman of the case and control groups (97% vs. 74%; P=0.02) but it was similar for the men (94% and 92%). The incidence of serious infection was similar in the case group to that in the control group.
Conclusion: The use of induction therapy with two doses of Daclizumab in living donors kidney reciepients reduces the incidens of acute rejection with improving graft survival espacially in women and dosen't result in more infectious complication.

LB-P-079 LOWER DOSE OF MYCOPHENOLATE MOFETIL IS ENOUGH FOR RITUXIMAB TREATED RENAL TRANPLANT PATIENTS

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Background: Rituximab, anti-CD 20 antibody, enabled HLA-sensitized and ABO incompatible renal transplantations possible without splenectomy. As rituximab has a good suppressive effect on B lymphocytes, we would like to know the differences of the conventional immunosuppressive regimen without any harmful effect on graft in rituximab-treated patients compared to usual patients.
Methods: We investigated 69 patients who underwent rituximab treated (200mg or 500mg) living donor renal transplantation between January 2009 and March 2011 (group1). The outcomes of seventy-two renal transplant recipients who did not require rituximab were compared as controls (group2). All patients except 11 patients were treated with a combination of tacrolimus (FK506), mycophenolate mofetil (MMF) and methylprednisolone (mPD) after two doses of basiliximab for induction therapy.
Results: Graft survival was 98.3% in group 1 and 100% in group 2 (p=0.446). Renal function and incidence of infection including cytomegalovirus and BK virus were not significantly different between the two groups. Acute cellular rejection episodes occurred in 5.2% in group 1 and 9.7% in group 2 (p=0.511). Hyperacute rejection and antibody-mediated rejection episode was absent. The drug levels of FK506 and the doses of mPD after 1year and 2 years after transplantation showed no difference between the two groups (p=0.237 and 0.625 at 1year, p=1.000 and 0.667 at 2years). The required dose of MMF (g/day, mean±S.D.) was lower in rituximab-treated group post operative 1 month, 3 months, 6 months and 1 year (1.25±0.45 g vs. 1.42±0.39 g at 1 month; p=0.035, 1.15±0.50 g vs. 1.38±0.34 g at 3 months; p=0.006, 1.07±0.51 g vs. 1.30±0.42 g at 6 months; p=0.015, 0.92±0.57 g vs. 1.22±0.42 g at 1 year; p= 0.017).
Conclusion: These results suggest that lower dose of MMF is enough for successful immunosuppressive effect in rituximab-treated renal transplantation.

LB-P-080 THE PORCINE EXPERIMENTAL MODEL OF HETEROTOPIC RENAL AUTO-TRANSPLANTION

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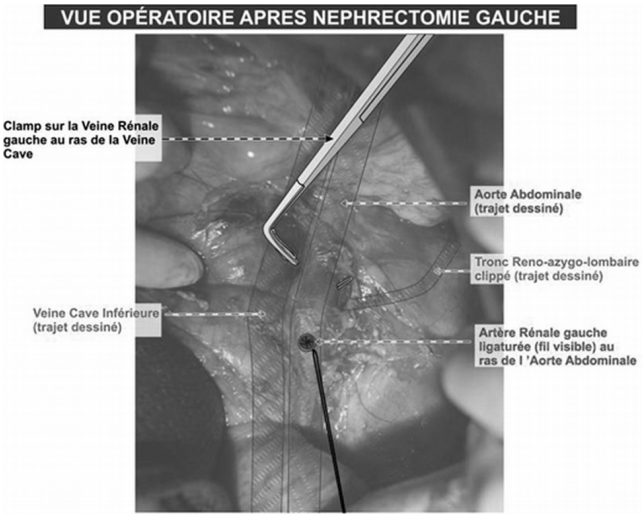
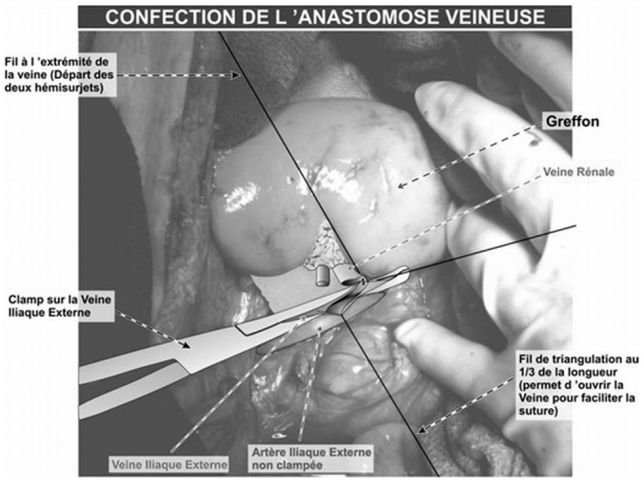
Learning the surgical techniques for renal transplantation would be facilitated by access to an educational experimental model. The aims of the present study was to validate an experimental model of renal auto-transplantation relevant to the human situation and enabling learning of the basic technical practice.
Mm: The Pietrin swine (40 to 50 kg) was incorporated in the study. Following median laparotomy, left kidney ablation was performed.



Transplant was washed and preserved in a standard hypothermic transplant conservation medium (Celsior) for 20 hours. Heterotopic auto-transplantation was performed onto the external iliac vessels with uretero-ureteral anastomosis.
Results: Thirty renal auto-transplantations were performed over a 5 months period of time. Progressive learning of the technical procedure was achieved by surgical residents, following theoretical and practical teaching.
Operating time progressively lowered as practical security increased, concomitantly. Mean suturing time for termino-lateral branchment of the renal artery and vein onto the external iliac artery and vein (figure 2) were respectively 21.3 and 34.5 min.



Conclusions: The experimental model in the large animal, relevant to the human anatomic and physiologic enable a fast progression for junior urologists in learning the technical practice of renal transplantation. The experimental model is an efficient bench for the renal transplantation in a living donor.

LB-P-081 PARVOVIRUS B 19 INDUCED ANEMIA IN RENAL TRANSPLATATION: EXPERIENCE OF ASAN MEDICAL CENTER

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Background: Chronic anemia is common in kidney transplantation (KT) recipients. The present study evaluated the incidence and clinical characteristics of the KT recipients with the PVB19 induced anemia, defined as a hemoglobin (Hb) < 9mg/dL.
Methods: During the period of January 2000 to December 2010 a total of 550 KT recipients with anemia defined as Hb <9 mg/dL were routinely screened for post-transplantation PVB19 infection at Asan Medical Center (AMC) by polymerase-chain reaction (PCR). A retrospective review of the medical record was performed.
Results: PVB19 induced anemia occurred in up to 31 out of 550 (5.6%) KT recipients with Hb <9 mg/dL screened by PCR in blood. The median time from renal transplantation to onset of PVB19 induced anemia was 1.57 months (range, 0.4–103 months). The mean age of the recipients with PVB19 induced anemia was 32.9±11.5 years, which was younger than that of the other KT recipients with anemia (Student *t* test, p-value = 0.002). Twenty three patients (74.2%) received intravenous immunoglobulin (IVIG). Among IVIG–treated patients, the rate of recurrence was 34.8%. Eight relapsed patients were retreated with IVIG, but Hb levels were still subnormal in 6 patients who were under tacrolimus. In these patients, the anemia was improved without recurrence after switched to cyclosporin.
Conclusion: Most of the PVB 19 infection occurred within 3 months post kidney transplantation. Intravenous immunoglobulin was an effective treatment modality. If the patients had relapse of anemia despite retreating with IVIG, conversion of immunosuppressive agent from tacrolimus to cyclosporin should be a part of the treatment in PVB19 induced anemia.

LB-P-082 EXPECTED RELATIONSHIP CHANGES INFLUENCE DECISION MAKING AROUND LIVING KIDNEY TRANSPLANTATION

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Background: Limited data exist on the impact of living kidney donation on the

donor-recipient relationship, including the perspectives of both donor and recipient. Purpose of this study was to explore 1) motivations for living donors to donate a kidney 2) motivations for recipients to pursue living or postmortal kidney transplantation 3) whether expected changes in the donor-recipient relationship influence decision making and 4) whether relationship changes are actually experienced.
Methods: In this retrospective study, we conducted 6 focus groups separately for donors and recipients from a living or a postmortal donor kidney. Of the 114 invited individuals, 47 (41%) participated. We used qualitative and quantitative methods to analyze the focus group transcripts.
Results: Postmortal donor kidney recipients often had a potential living donor available (50%) which they refused or did not want in the first place. They mostly waited for a postmortal donor because of concern for the donor's health (75%) or expected negative relationship changes (75%). They more often expected negative relationship changes than living donor kidney recipients (75% vs. 27%, $p < 0.01$) who also expected positive changes. Living donor kidney recipients accepted the kidney to improve their own quality of life (47%). Donors often reported to donate a kidney, because transplantation would make the recipient less dependent (25%). Donors and living donor kidney recipients reported that their relationship had become closer after transplantation, but 20% also experienced negative relationship changes e.g. the donor being meddlesome regarding "his/her kidney".
Conclusion: Fear of donor-recipient relationship changes leads some kidney patients to wait for a postmortal donor, despite having a potential living donor available. It is vital to take away fears and misunderstandings regarding negative relationship changes if possible, thereby resulting in a more optimal use of available living donors.

LB-P-083 EFFECTIVENESS OF PREOPERATIVE HYDROSTATIC DILATATION OF CONTRACTED BLADDER FOR KIDNEY TRANSPLANTATION

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Background: Chronic renal failure (CRF) patients may have contracted bladder which is the result of disuse atrophy and fibrosis of bladder mucosa and muscle. Contracted bladder brings many difficulties to conduct ureteroneocystostomy in kidney transplantation. So many authors have suggested that preoperative bladder augmentation using intestine and ureter etc. could have increased success rate in kidney transplantation. These methods, however, have been studied in pediatric tansplantation in most cases and known to have many complication associated with medical and surgical treatment.
Since the late 1960s, a hydrostatic dilatation of bladder used as a treatment in patients with urgency, urge incontinence, interstitial cystitis and bladder tumor. We applied this method to dilatate the bladder in recipients who had contracted ones.
Methods: In our hospital, we did 570 kidney transplantations from August, 1990 to April, 2011. Among them, we attempted the hydrostatic dilatation of bladder in 28 patients with contracted bladder less than 100cc in capacity. We inserted 18 Fr-3 way Foley catheter and instilled 50-100cc normal saline gravitationally in 80cmH2O without any kinds of anesthesia. We declamped Foley catheter when patients could not withstand. We repeated it from 5 times to 10 times daily. We started this procedure to the patients 7th day before operation and ceased it at least 2days before operation.
Results: Predilatation volume ranged 60-100ml (average 86.3±15.0ml) and postdilatation volume did 100-250ml (average 192.8±47.0ml).
There was no complication associated with the hydrostatic dilatation of contracted bladder and ureteroneocystostomy. Double J catheter was not applied in our series.
There was no loss of transplanted kidney.
Conclusion: Our results suggest that pretransplant hydrostatic dilatation of contracted bladder can make ureteroneocystostomy more easier and increase success rate of kidney transplantation.

LB-P-084 SUPPORTING YOUNG ADULTS WITH CHRONIC KIDNEY DISEASE – BASELINE SERVICE DATA

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Background: Young Adults with Chronic Kidney Disease (CKD) have been identified as a vulnerable group for poor treatment outcomes. This work, part of a national NHS Kidney Care project, aims to help address the needs of this group.
Methods: Baseline service data was collected to allow later analysis of the impact of this project on young adults. The patients aged 18-25 were under adult nephrology care, with CKD stages 3-5 or on Renal Replacement Therapy. Demographic and treatment data were collected from patient information databases.
Results: 80 young adults met the criteria for the project, 50% were female and 90% were white. The majority had transferred from the regional paediatric service. (41%(33)) of patients had functioning renal transplants, 35%(28) were CKD stages 3-5, 19%(15) were on haemodialysis and 5%(4) on peritoneal dialysis.
During the data collection period, 33%(11) of transplant patients had an inpatient stay totalling 28 separate admissions and 127 bed nights. The most common reasons for admissions for these patients were Kidney Transplant operations, bacterial and viral infections, and medical investigations. The average length of stay was 4.5 days. The clinic non-attendance rate for transplant patients was 20.4%, however the median individual patient non-attendance rate was 11.7% (range 0-75%). The median eGFR for transplant patients was 56 mls/minute.
Conclusion: Collection of these data has allowed a greater insight and understanding of the most pressing issues for this group. These data will be used to design and implement targeted interventions for Young Adults focusing on key areas including increasing clinic attendance rates and reducing hospital admissions. This will hopefully result in improved health and social outcomes for young adults with CKD, including maximising the graft success rate of those who are transplanted, which will lead to financial cost savings for the NHS.

LB-P-086 MOVING OF RIGHT ILIAC VEIN AND SHORT RENAL VEIN IN LIVING DONOR KIDNEY TRANSPLANTATION

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Background: The right renal vein (RRV) is usually short. On graft removed from living donor by laparoscopic nephrectomy (LAPN), it is shorter. There is some procedure to prolong the RRV as making graft by saphene vein, genital vein, ... However we would like introduce a different technique by moving the right iliac vein and prolonging RRV by dissection. We call the Vein Disposition Procedure (VDP).
Methods: This is a case study of CRH (June 2004-Jan 2010). Patients (pts) were selected by its compatibility with the living donor (almost were relative), the graft is right kidney remove by retroperitoneal LAPN. The VDP will be manipulated by 2 steps (Figure 1):
(1) On the, a dissection "ex situ" in the hila of graft vein in 4oC Euro-Collins solution, prolong the renal vein and made a disposition;
(2) On the RIF of recipient, with a Gibson incision, dissect the right iliac vein and move it to the right side of the external iliac artery, it becomes nearer to the graft vein. Then a termino-lateral anastomosis was done.

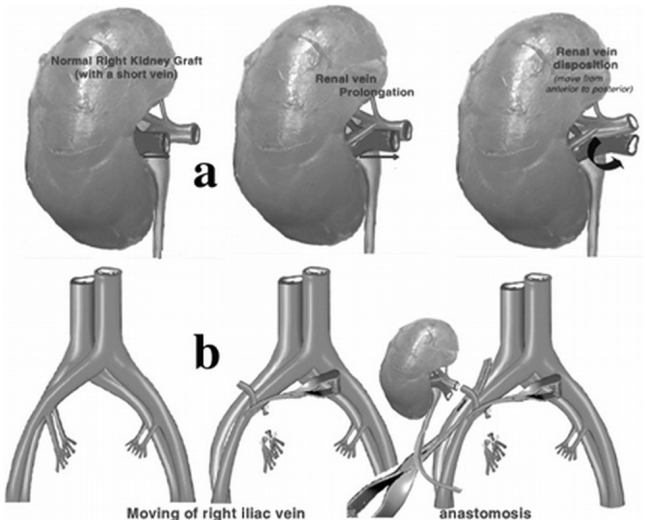

Figure 1

Results: 60 pts undergoing the right kidney transplantation, removed by retroperitoneal LAPN. Mean age is 35.93±8.7 y/o (n=60 pts). 71.67% were males. The average following up time is 49.6±33.8 months, range [3, 144]. The results were satisfactory for all of patients. There were no complications, no arterial stenosis, nor obstructions.
Conclusions: Our VDP based on the surgical anatomy. The anastomosis is

easy and needless other plastic surgery. We performed successfully the technique on 60 right renal grafts removing by retroperitoneal LAPN.

LB-P-087 MONITORING OF STABLE RENAL ALLOGRAFTS IN EARLY POST-TRANSPLANT PERIOD: CAN THE SERUM CREATININE AND GLOMERULAR FILTRATION RATE MEASUREMENT REPLACE THE SEQUENTIAL PROTOCOL BIOPSY?

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Background: The basis of chronic renal allograft damage can be laid in the early post-transplant period due to subclinically ongoing changes to the graft. The purpose of our study was to determine the contribution of repeated measurement of serum creatinine (Scr) and glomerular filtration rate (GFR) in the detection of early subclinical rejective changes and nephrotoxicity of calcineurin inhibitors in the course of the first year after transplantation.
Methods: 424 protocol renal allograft biopsies were conducted in the set of 158 patients. Three groups were detached from the initial cohort - comparison group with normal histology and two groups with clinically silent rejection and toxic changes. All of the studied groups were monitored for the Scr, GFR and histological picture in the course of first-year after transplantation. Test results were labelled as significant where the level of statistical significance $P < 0.05$ was achieved.
Results: In the third week normal histological findings was seen in 30 patients (19.0%). Subclinical rejection changes (subclinical acute rejection and borderline changes) occurred in the third week in 49 (31%) patients, with the persistence in the third month in 36 (25.4%) and in the first year in 20 (16.2%) patients. Subclinical toxicity was present in 17 (10.8%), 14 (9.9%), and 12 (9.7%) grafts, respectively. These subclinical changes were not accompanied by significant changes in Scr and GFR during the one-year follow-up ($P<0.05$).
Conclusion: Scr and GFR do not adequately reflect the degree of the subclinical rejective and toxic damage to the graft in the early post-transplant period. Protocol biopsies seem to be a good tool for the detection of these changes and for the control of its persistence.

LB-P-088 EXPLORING THE NEEDS OF YOUNG ADULTS WITH CHRONIC KIDNEY DISEASE

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Background: Young adults with chronic kidney disease (CKD) have been identified as a vulnerable group with poor treatment outcomes. A significant number of people had been found to unexpectedly lose their previously stable kidney transplants following transition from paediatric to adult renal care. Recognition has grown that having CKD as a young adult impacts greatly on many areas of life. As part of a national NHS Kidney Care project, this study aimed to identify their support needs.
Methods: A qualitative approach was used to identify the needs of young adults with CKD and establish whether these differed depending on the treatment undertaken (pre-dialysis, haemodialysis, peritoneal dialysis or transplant) and whether they entered adult renal care directly or transitioned from paediatric renal care. 14 young adults aged 18-25 with CKD in Derby and Nottingham participated in interviews exploring their support needs in different areas of their lives.
Results: Thematic analysis of these interviews identified themes relating to adversity and resilience (ability to adapt to adversity, dependent on an individual's balance of risk and protective factors). Changing treatment modality and entering adult renal services were experienced as acute adversities. Young adults were more likely to adapt to adversity if they had protective factors increasing their resilience, such as support from family and friends.
Conclusion: This research highlighted the need to consider an individual's resilience when a change in treatment modality is required, for example by identifying an individual's risks (e.g. lacking support) and strengthening protective factors before and after kidney transplantation. It provides a useful framework and suggests that transitions should be delayed if a change in treatment modality is required. The provision of ongoing tailored support upon and following entrance to adult renal services would also help to increase young adults' resilience.

Late Breaking – Liver and intestine

LB-P-089 CLINICAL VALUE OF PREOPERATIVE CORONARY RISK ASSESSMENT WITH COMPUTED TOMOGRAPHY CORONARY ARTERIOGRAPHY FOR ADULT LIVING DONOR LIVER TRANSPLANTATION

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Objective: Patients with advanced liver diseases are at increased risk of cardiovascular events, especially following liver transplantation. A combination of non-invasive assessment modalities including EKG, EchoCG and thallium SPECT have been routinely, but percutaneous coronary arteriography is selectively indicated for patients with specific abnormal findings.In this study, we tried to assess the clinical value of computed tomography coronary arteriography in preoperative coronary evaluation in patients scheduled for LDLT.
Methods: A single-center, prospective, observational study of 247 adult patients undergoing assessment for LDLT was performed during 1-year study period from April 2010 to March 2011. CTCAG was additionally performed in patients who showed all-negative findings to routine workup with EKG, EchoCG and thallium SPECT. We evaluated the incidence of major adverse cardiac events during the perioperative period and at 3 months follow-up.
Results: In the cohort of 247 adult patients with advanced liver diseases, 27 patients (10.9%) showed abnormal findings on CTCAG: variable degrees of 1-vessel involvement in 18 (7.3%), 2-vessel involvement in 7 (2.8%), and 3-vessel involvement in 2 (0.8). Coronary artery calcification was frequently identified in patients with significant coronary artery stenosis. No adverse events occurred after CTCAG. Because there was no clinically significant coronary artery stenosis not permitting LDLT surgery, percutaneous CAG was not performed. Severe hypotensive episodes occurred in 5% during surgery, in which most of them were related to massive bleeding or post-perfusion syndrome.
Conclusion: Thallium SPECT does not appear sufficiently powerful to detect subclinical risk of coronary artery diseases although no adverse event occurred in this cohort. Considering the unique serious conditions of LT candidates and its invasive convenience and diagnostic accuracy, it seems to be reasonable to include CTCAG as a routine pretransplant heart function workup.

LB-P-090 THE EFFECTIVENESS OF PLASMAPHERESIS AS A LIVER SUPPORT FOR LIVER GRAFT DYSFUNCTION FOLLOWING ADULT LIVING DONOR LIVER TRANSPLANTATION

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Background: Severe graft dysfunction has been occasionally encountered following adult living donor liver transplantation (LDLT). This study intended to assess the effectiveness of plasmapheresis (PP) as a liver supportive measure in LDLT recipients showing severe graft dysfunction.
Methods: During two years from January 2007 to December 2008, 517 adult LDLTs were performed in our institution. Of them 68 underwent PP therapy as a liver support.
Results: Fifty two underwent PP during the first month following LDLT and another 16 underwent PP after that period. The underlying causes of such liver support were acute and chronic rejections, ischemic damage, viral hepatitis recurrence and unknown causes. A total of 944 sessions of PP were performed for these 68 patients, indicating 13.8 ± 8.2 times per patient for 26.4 ± 31.7 days. Numbers of plasmapheresis sessions per one recipient undergone living donor liver transplantation are depicted in Figure 1. Serum total bilirubin level was significantly reduced following PP therapy: 24.93 ± 5.5 mg/dL before PP and 15.6 ± 4.2 mg/dL at 1 week after completion of PP ($p<0.001$). Other biochemical parameters did not significantly affected by PP. Overall 1-year patient survival rate was 58.6%. Six-month graft survival rate after completion of PP was 72.9% in 52 patients undergoing PP during the first posttransplant month and 32.5% in 16 patients undergoing PP after 1 month ($p=0.021$).
Conclusion: The results of this study implicate that PP has a beneficial effect on the recovery of liver graft function, especially during the early posttransplant period. We suggest to perform active application of PP therapy for liver

recipients showing severe graft dysfunction of total bilirubin greater than 10 mg/dL.

LB-P-091 TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT (TIPS) AFTER LIVER TRANSPLANTATION (LT): VASCULAR COMPLICATIONS (VC) CONSTITUTE A GOOD INDICATION

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Background: TIPS demonstrated a low rate of efficacy in LT recipients compared to cirrhotic patients and confers poor survival without re-transplantation. However, previous studies evaluated mainly patients with recurrence of primary liver disease. The present study evaluated results of TIPS placement in LT recipients with portal hypertension (PH) due to recurrence of primary liver disease compared to transplanted patients with VC.
Methods/Materials: We evaluated LT recipients referred for TIPS placement between 2006 and 2010. Efficacy and outcome were analyzed with respect to the underlying etiology and severity of liver disease.
Results: 13 patients had an indication for TIPS placement (10M/3F, age 24-64 years), 11 for refractory ascites (6/11 with associated hydrothorax) and 2 for portal vein thrombosis (PVT). In those with refractory ascites, four patients had HCV recurrence, 1 had de novo HBV-related cirrhosis, 5 had veno-occlusive disease and 1 had de novo Budd-Chiari syndrome. TIPS was placed without complications. The time between LT and TIPS placement ranged from 1 to 23 months. Mean$\pm$SD MELD score before TIPS placement was 17$\pm$4.7 in patients with allograft dysfunction and 13$\pm$2.4 in those with VC (p=ns). During the follow up (31.5$\pm$33 months), the latter group experienced a complete resolution of ascites and normalization of liver function; only 3/5 patients with underlying liver disease had partial resolution of ascites. There were three deaths out of 5 patients in the group with underlying liver disease compared to 1 death among 8 patients with VC.
Conclusions: LT recipients with PH due to allograft dysfunction had a poor outcome without re-transplantation and portal decompression provides only marginal clinical benefit. On the contrary, TIPS is effective when placed for VC and provide long term-benefit.

LB-P-092 TRANSESOPHAPHAGEAL ECHOCARDIOGRAPHY DURING ORTHOTOPIC LIVER TRANSPLANTATION IN PATIENTS WITH ESOPHAGEAL VARICES

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Background: Hemodynamic monitoring using transesophageal echocardiography (TEE) in patients with signs of portal hypertension undergoing orthotopic liver transplantation (OLT) is still a matter of discussion because of risk of esophageal and gastric variceal bleeding. The aim of our retrospective analysis was to evaluate the safety of intraoperative TEE monitoring during OLT.
Patients and methods: Retrospective analysis of 396 liver transplant recipients at the Medical University Vienna monitored by TEE during OLT between 2002 and 2010. Laboratory parameters and the use of blood products administered during OLT were analyzed, as well as pre-transplant esophago-gastroscopy reports considering portal hypertensive gastropathy, grade and location of varices.
Results: Varices were documented by esophago-gastroscopy in 287 (72.5%) of 396 analyzed patients. Only one major bleeding occured from an esophageal varix under TEE monitoring (Grade II; $>$ 5 mm under insufflation) and was treated with balloon tamponade during OLT. Comparing the bleeding events in patients with and without varices, this result did not reach statistical significance: Chi square Test, P=0.61. All patients received median 2 units of packed red blood cells (range 0 – 70 units), 7 units of fresh frozen plasma (range 0 – 60 units) and 0 platelet concentrate (range 0 – 4 units). Although patients with varices had significantly higher prothrombin time and lower platelet count, the use of blood products did not differ when compared with patients without varices.
Conclusions: TEE represents a generally efficient method for monitoring cardiac performance during OLT, and is safe, even in patients suffering from varices.

LB-P-093 DE NOVO MALIGNANCY IN LIVER TRANSPLANT RECIPIENTS

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Purpose: De novo malignancy is a frequent complication after organ transplantation which requires immunosuppressive therapy. Posttransplant immunosuppressive medications result in decreased immune surveillance against malignant cells and increase the risk of malignancies mediated by various viruses. In this study, we tried to investigate the incidence patterns and treatments of de novo malignancy after liver transplantation (LT).
Methods: Between August 1992 to December 2009, 2519 LTs were performed, living donor LT cases were 2171 and deceased donor LT cases were 348. Medical records of these patients were retrospectively reviewed
Results: Among them, 57 patients (2.3%) revealed de novo malignancies. In this single-center series, the incidence rate of de novo malignancy was rather low. Common malignancies were PTLD (post-transplant lymphoproliferative disorder) (n=4) and poorly differentiated carcinoma of unknown origin (n=3) at the first year; colon cancer (n=4) and gastric cancer (n=4) at the second and third year; gastric cancer (n=6) and colon cancer (n=2) at the fourth and fifth year; colon cancer (n=4) and breast cancer (n=2). The patterns of de novo malignancy were different from those in the western countries. The common malignancies were stomach cancer and colon cancer in this series, but skin cancers were much less frequent comparing with the results from western countries.
Conclusion: The incidence of de novo malignancy after LT requires special attention because their clinical course may determine the patient survival. The results of this study revealed that the common malignancies in Korean general society, such as gastric cancer, are also common in patient who underwent LT. To detect these de novo malignancies in time and to manage them not too late, periodic screening checkup should be performed. Reasonable and repeat education seems to be essential to solve the intractable problem of low compliance for routine cancer screening.

LB-P-094 DIFFERENCE OF REGENERATION POWER BETWEEN HEALTHY AND DISEASED LIVER

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To evaluate total and segmental liver regeneration by comparing preoperative computed tomographic (CT) volumetry and CT volumetry on postoperative day 7 following right hepatectomy and to study liver regeneration estimated by using CT volumetry in patients with different liver status and surgical indication.
Method: 36 patients underwent right lobectomy for living donor liver transplantation (Healthy group), and 29 patients for hepatocellular carcinoma treatment (Disease group). All of disease group patients were Child-Turcotte-Pugh (CTP) class A. Volume regeneration of lateral, medial segment and total remnant liver volume was assessed at postoperative day (POD) 7 using a computed tomography–based volumetry program. Total volumes and segmental volumes were measured for total liver, future liver remnant (FLR), and liver remnant. Total and segmental early regeneration index, defined as [(VLR-VFLR)/VFLR] $\times$ 100, where VLR is volume of the liver remnant and VFLR is volume of the FLR, were calculated.
Result: The liver remnant volume at POD 7 showed a 72.9 in Healthy group and 55% in Disease group, increase in volume from the FLR (p=0.012) In Disease group, segmental volume and regeneration index were also significant lower than Healthy group (59.0% vs. 46.9% in medial segment and 86.8% vs. 57.7% in lateral segment; p=0.023 and p$<$0.001).
Conclusion: In diseased liver, volume regeneration power is significant lower than normal liver. So, we should consider patients liver status and volume profile especially before extensive liver resection. We will assess late regeneration power according to liver function.

LB-P-095 CHARACTERIZATION OF HEPATOCYTE-LIKE CELLS FROM HUMAN BONE MARROW-DERIVED MESENCHYMAL STEM CELLS ON A NOVEL HEPATOGENIC MEDIA

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Objective: Liver transplantation is the final treatment for the end stage of liver

failure due to the hepatic dysfunction. Based on the fact that in recent years stem cell-based therapies have gained importance as a suitable potential substitution for liver transplantation, this project was design to improve the protocol for hepatic differentiation of human mesenchymal stem cells (MSCs) into a population of mature hepatocytes in a novel culture composition media.
Methods: Protocols were performed on human healthy bone marrow samples. The MSCs were cultured and characterized by immunophenotyping and differentiation into osteoblast and adipocytes. To effectively induce hepatic differentiation, we designed a novel protocol based on a combination of insulin-like growth factor1 (TGF-I) combined with cytokines.
Results: To evaluate differentiated MSCs, morphological features, hepatic functions, and cytological staining were assessed. Morphological assessment and evaluation of glycogen storage, albumin and α-feto protein expression as well as albumin and urea secretion revealed statistically significant difference between experimental groups compared to the control.
Conclusion: The current study according to our data, demonstrates that in vitro differentiated MSCs are able to display advanced liver metabolic functions supporting the possibility to develop them as potential alternatives to primary hepatocytes for in vitro settings.

LB-P-096 IMPACT OF PHARMACOLOGICAL PRETREATMENT AND ISCHEMIC PRECONDITIONING IN AN ISCHEMIC REPERFUSION INJURY OF THE LIVER

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Despite many advances in organ transplantation, ischemic-reperfusion injury of the liver remains major problem in liver transplantation.
Aim: of this study was determination of the effectiveness of Essensiale-forte (EF) and ischemic preconditioning on ischemic-reperfusion injury of the liver.
Materials and methods: We have taken 10 weeks old,48 male Sprak-Dawi rats for study purpose. All rats were randomly divided into 6 groups. There were 8 rats in each group. Group 1 was control group. In group 2 rats were received 20mg/kg EF two days before test. In group 3, rats had ischemic-reperfusion assault. In group 4, rats were received 20mg/kg EF and I/R were created. In group5, after intermittent clamping of portal elements ischemic-reperfusion assault was created. In group 6 rats were received EF, ischemic preconditioning was created then I/R were done. Blood biochemical features (ALT, AST, ALP, MDA, NO, TNF-α, IL-6,Il-10) and morphological changes analyzed by hemotoxylin – eosin. Apoptosis were measured by TUNEL staining.
Results: ALT, AST, ALP, TNF α, MDA level were significantly lower in group1, 2, 4, 6 rats than those in 3 and 5 groups. However, NO level was higher in group 2, 4, 6.Histological examination showed amelioration of sinusoidal damage as well as decrease of necrotic areas and apoptotic sinusoidal endothelial cells in the pretreated and preconditioned rat groups.
Conclusio: n. The pretreatment of EF with application of ischemic preconditioning decrease IR injury of the liver, therefore this method could be applied to clinical liver transplantation models.

LB-P-097 COMBINATION THERAPY WITH IBANDRONATE AND CALCITRIOL IS EFFECTIVE IN PATIENTS FOLLOWING LIVER TRANSPLANTATION (LTX): A THREE YEAR PROSPECTIVE CONTROLLED STUDY

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Background: Bone disease is a complication in patients after LTX. This study aimed to investigate the influence of a combination therapy of iv. ibandronate and calcitriol on bone metabolism, bone mineral density and fracture status in patients after LTX.
Methods: 30 osteoporotic patients after LTX were treated with 2 mg IBN quarterly and daily calcitrol, 24 non osteoporotic patients received 1000 mg calcium and 800 IU vitamin D daily and served as a controls. Laboratory analysis and dual energy absorptiometry (DXA) were performed at baseline and every year. All participants underwent an X-ray of the spine at baseline and at study end. Endpoints were BMD decrease and fractures.
Results: IBN patients showed a significant increase in BMD and a lower fracture incidence. At baseline, 57% of IBN patients had sustained vertebral fractures and 0% among the controls. At study end 7% of IBN patients had sustained new vertebral fractures but 23% of the controls. The relative risk to sustain a new in the IBN patients as compared to controls was 3.21 (Confidence Interval 95%, 0.6 to 20.9, p=0.03).
Conclusion: Osteoporosis seems common even after 12 months among patients after LTX and patients who are considered bone healthy are not. Antiresorptive treatment one year following LTX is superior to Vitamin D and calcium supplementation alone.

LB-P-098 INTRAOPERATIVE PLACEMENT OF INFERIOR MESENTERIC VEIN CATHETER: A NOVEL APPROACH FOR PREVENTION OF PORTAL VEIN RETHROMBOSIS IN LIVING DONOR LIVER TRANSPLANTATION

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Introduction: Portal vein thrombosis (PVT) is a major complication after living donor liver transplantation (LDLT), especially in small children with a narrow portal vein. This study is designed to present a novel approach in preventing recurrent PVTin pediatric patients with LDLT.
Patients: We describe three cases of BA who underwent LDLT. All of them were below 10 Kg and received a left lateral segment from their parents. Postoperative PVT occurred during the first 48 hours following transplantation. Early exploration, thrombectomy and revision of the portal vein anastomosis was performed for all of them. In two cases, Inferior Mesenteric Vein (IMV) was dissected and an 8 F catheter was inserted and directed to the portal vein just below the anastomosis in the same procedure, while in the third patient PVT occurred again after the first operation and IMV catheter was inserted in the second exploration. Heparin (28 unit/kg/hour) and normal saline (30 ml/kg/day) were infused via the catheter for 5 to 10 days, postoperatively. The IMV catheters were removed by reoperation in two patients once the patients were well enough and daily color doppler ultrasonography confirmed the portal vein patency. One patient died before removing the catheter due to fungal infection.
Results: In all three patients, a normal flow in portal vein was confirmed by daily color Doppler ultrasonography. Two patients were discharged three days after removing the catheter and PVT was not occurred in one-year follow-up period. The portal vein flow was also normal in the third patient, but he died because of unrelated complication.
Conclusion: Inserting an IMV catheter is a good way to prevent PVT, especially in small patients who have a narrow portal vein. The only problem of this intervention is imposing another operation to the patient for removing the catheter.

LB-P-099 SMALL BOWEL AUTOTRANSPLANTATION FOR LOCALLY ADVANCED CARCINOMA OF THE PANCREAS

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Introduction: Resection is the treatment of choice for adenocarcinomas of the pancreas and some other retroperitoneal tumors, but once the mesenteric pedicle is involved by the tumor it is impossible to perform a free margin resection. Total abdominal exenteration and ex-vivo resection of the tumor is a new technique for treatment of these locally advanced tumors.
Patients and Methods: From Aug 2010 to Apr 2011, 6 patients with preoperative diagnosis of locally advanced pancreatic carcinoma and one patient with retroperitoneal rhabdomyosarcoma treated with en-bloc resection of the tumor and small bowel autotransplantation following ex-vivo resection of the tumor. The resected organs were flushed with chilled university of Wisconsin (UW) solution, and tumor and other organ resections were done in an ice-cold basin.
Results: Tumor margin was free an all cases. Mean duration of operation was between 11.5±1.2 hours. 5 patients need additional gastrectomy and splenectomy. Right hemicolectomy was done in 2 patients and left nephrectomy in 1 patient.The first case died 8 months after transplantation because of sepsis. One patient died in hospital because of postoperative multi-organ failure. Other patients survived the procedure and are followed for 3 to 11 months. Postoperative ascites and diarrhea continue for at least 2 weeks in all patients.
Discussion: Although small bowel autotransplantation following ex-vivo resection of the locally advanced pancreatic carcinomas and some retroperitoneal tumors may increase the resectability rate, the effect of this technical advance on the survival rate of the patients is not clear.

LB-P-100 LDLT USING A GRAFT FROM A DONOR WITH SITUS INVERSUS TOTALIS

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Even in the situs inversus totalis, which has complete 180°mirror image, to procure and even more to implant the graft into the recipient, in which the graft should be rotated along the axis of IVC groove, could be very difficult. Therefore, appropriate technical modification is necessary in the reconstruction of the graft from the donor with situs inversus. In this video, we introduce a case of LDLT which we performed from a donor with situs inversus totalis. The recipient was 50 years-old male patient, who had been diagnosed as alcoholic liver cirrhosis and taken EVL (endoscopic variceal ligation) due to varix bleeding. There was no accompanying hepatocellular carcinoma or specific anatomic abnormalities. The donor was 43 years-old female with situs inversus totalis, and had no another anatomic abnormality. Estimated liver volume by CT were 687g in the right lobe and 406g in the left lobe with caudate lobe. The surgery for donor was processed with standard procedures and reversed right lobe without midhepatic vein (MHV) was procured. During the surgery for recipient following total hepatectomy, the implantation of the graft into the right upper quadrant of recipient was performed with the piggyback technique after 180 degree rotation. Right hepatic vein of the graft was directly anastomosed to the right hepatic vein of recipient. We used cryopreserved vessel as interposition graft for branch of MHV, and anastomosed to the IVC of recipient. Because bile duct was located under portal vein, we reconstructed bile duct first using duct to duct method, and then reconstructed portal vein using end to end anastomosis to the portal vein of the recipient. With adequate technical modification, LDLT using a graft from a donor with situs inversus can be performed successfully.

LB-P-101 IS MICROSURGICAL TECHNIQUE USEFUL IN BILIARY RECONSTRUCTION OF LIVING DONOR LIVER TRANSPLANTATION?

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Biliary reconstruction remains the Achilles'heel of living donor liver transplantation (LDLT). In the last decades, the technical aspects of biliary reconstruction have been debated for their impact on biliary complications in LDLT. A microsurgical technique in biliary reconstruction is more attractive.

Patients and Methods: From October, 2009 to May, 2011, twelve primary LDLTs were received duct-to-duct biliary reconstruction by microscopic technique. External stents in all patients was inserted. All procedures were performed under a microscope by single transplant microsurgeon.

Results: The consuming time for bile duct reconstruction by microscopic technique is 55 minutes. The average duct size was 3.5mm. The graft with single bile duct orifice was 6, two orifices 5, and three orifice 1. The overall biliary complication rate was 9.01%. There was no bile leak in all enrolled patients. Anastomotic site stricture was observed in 1 case with 3 orifices of small diameter (<2mm).

Conclusion: There was only one early biliary complication for median 8 months. The current microscopic technique reduced biliary complications as expected. Further technical advancement and studies are needed for decreasing for the time consuming and better long term results.

LB-P-102 CLINICAL CONSEQUENCE OF HEPATIC PARENCHYMAL INFARCT OF NON-VASCULAR ORIGIN FOLLOWING LIVER TRANSPLANTATION

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Purpose: To evaluate the clinical finding and course of non vascular liver ischemia after liver transplantation and to classify the hepatic parenchymal infarct as the configuration of the infracted area and extent.

Materials and method: The retrospective study was performed about the 1782 patients received living liver transplantation between January 2003 and September 2010 in our institution. 9 (0.39%) patients was showed non-vascular liver infract. They were classified as the location and their configuration, and then their clinical course and outcome were compared.

By performing the dynamic liver CT scan and Doppler, we have ruled out liver infarct associated with hepatic artery problem, portal vein narrowing and hepatic outlet obstruction. From the previous chart review, we also excluded liver infarct with shock and hypoglycemia, For excluding prolonged ischemic time, we excluded all cases of deceased donor liver transplantation.

Result: The hepatic parenchymal infarct of non-vascular origin is found routinely with liver enzyme elevation. Liver cell damage is correlated with the extent of the infracted area. Almost of the patients with non-vascular liver ischemia have good recovery, sometimes it required with plasmapheresis or long recovery period. On classification, patients on non-vascular infracted liver with central focal type and central diffuse type had bad prognosis with more advanced hepatic failure and more increased infracted area.

Conclusion: The hepatic parenchymal infarct of non-vascular origin following liver transplantation is very rare event. We can manage the patients who have peripheral focal or geographic infracted liver with conservative management, but they are sometimes required of intensive care and plasmapheresis. On otherwise, if the patients whose configuration of infracted area were cental type (focal, or diffuse), they must be care with attention because of more increasing extent of infracted area and the risk of hepatic failure.

LB-P-103 CHANGES IN CORE TEMPERATURE DURING GRAFT WARM ISCHEMIA AND REPERFUSION PHASES IN LIVING DONOR LIVER TRANSPLANT

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Background: Maintaining normothermia is now essentially a standard-of-care during liver transplant where the risk of hypothermia is substantial. Serious adverse outcomes from perioperative hypothermia are well documented.

Aim of the work: Evaluation the core temperature changes during graft warm ischemia and reperfusion periods in adult and pediatric cases.

Method: 30 recipients, categorized into 2 groups (adult n=15 and pediatric n=15) were enrolled in this study. Nasopharyngeal core temperature (NCT) was recorded at the following points: 5, 30 minutes after induction of anesthesia (temp1&2), the Lowest NCT during dissection phase (temp3),the Lowest NCT during the anhepatic phase and before implantation of the graft (temp4), Lowest NCT during warm ischemia (putting the graft at its bed till reperfusion) (temp5), also at 5 (temp6), and 30 minutes (temp7) after reperfusion, then before the end of surgery (temp8).

Results: Both groups experienced a significant decrease in core temperature during the anhepatic phase (temp4), warm ischemia time (temp5), 5 minutes after reperfusion (temp6) and 30 minutes after reperfusion (temp7) with mean values of 36.4±0.47°C, 35.4±0.45°C, 35.2±0.50°C and 35.2±0.52°C respectively in the pediatric group, while in adult group the mean values36.3±0.33°C, 36.1±0.38 °C, 36.1±0.61°C and 35.9±0.34°C respectively.

Conclusion: A sudden significant drop in NTC was observed at the beginning of the warm ischemia period that persists all through the reperfusion phase in the pediatric Recipients. Several heat conservation and preservation strategies should be used to reduce such risk during living liver transplant.

LB-P-104 RIGHT POSTERIOR PORTAL VEIN STENOSIS DEVELOPED AFTER LIVING DONOR LIVER TRANSPLANTATION USING A MODIFIED RIGHT LOBE GRAFT WITH A TYPE 2 PORTAL VEIN

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Introduction: We present a case where stenosis developed in the right posterior branch of the portal vein of the graft liver with the type 2 portal vein after living donor liver transplantation.

Case: A sixty one year-old female who was a HBV carrier for 20 years was diagnosed with liver cirrhosis and HCC after being admitted due to depressed mentality. The MELD score was 16 and CTP score was 10 (Child B). At the back table while evaluating the graft, the cut surface of portal vein of the liver graft (type 2 portal vein) revealed a single lumen divided by a septum instead of 2 lumens as would be expected. The portal vein was anastomosed to the recipient portal vein without further venoplasty since the septum lied slightly above (or proximal to) the future anastomotic line. Postoperative Doppler sonogram revealed no detection of portal venous flow in right posterior segmental portal vein with compensatory hepatic arterial hyperperfusion. The postoperative abdominal CT revealed narrowing of the proximal part of the right posterior portal vein with extensive periportal tracking without a definite intraluminal thrombus. Eventually the liver enzyme and bilirubin levels decreased to normal and the follow up CT scan showed decreased periportal tracking.

Discussion: Although there was no major complication due to the posterior portal vein stenosis in our patient, we suggest when using right lobe grafts with a type 2 portal vein, even though a single lumen is present and there is a margin for direct anastomosis, venoplasty using a portion of a the patient's great saphenous vein or of a cryopreserved vein is needed to prevent portal vein stenosis.

LB-P-105 LIVER ABSCESS DEVELOPED AFTER CADAVERIC LIVER TRANSPLANTATION DUE TO LIGATION OF A ACCESSORY RIGHT HEPATIC ARTERY OF THE DONOR GRAFT

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Introduction: It is important that extrahepatic arteries are identified precisely at the time of graft procurement to avoid injuries that might compromise the liver function. We present a case where the accessory right hepatic artery of the liver was ligated which led to postoperative liver abscess formation in the posterior section of the liver graft.
Case: A forty seven year-old female patient with a history of DM developed ascites and jaundice 3 weeks prior to admission to our center. She was diagnosed with cryptogenic LC and was treated with steroids. On January 25th 2011, She underwent Orthotopic cadaveric liver transplantation. During the operation, the donor graft showed a variant of the hepatic artery anatomy where a accessory right hepatic artery arose from the SMA. This artery was accidentally transected during procurement. At the back table, anastomosis of the accessory artery, size of which was 1-2mm, with the GDA was not possible due to size discrepancy. Since the back bleeding tested using perfusion fluid was good, the artery was ligated. Postoperatively, due to increasing levels of serum AST and ALT (both $>$ 1000IU/L), abdominal CT was performed. The CT revealed a 6cm multilobulating low attenuating lesion in the posterior section of the liver. With an impression of liver abscess, the patient underwent conservative treatment. On follow up CT scans the size of the lesion decreased as well as the liver enzymes.
Discussion: Although the liver abscess subsided in our patient, we believe that even small accessory arteries (1-2mm) should be reconstructed whenever possible even if good back bleeding exists to avoid postoperative complications such as liver abscess.

LB-P-106 ESOPHAGOGASTRIC VARICES CORRELATE WITH THE DEGREE OF LIVER DISEASE IN LIVER TRANSPLANT RECIPIENTS

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Background: Esophagogastric varices develop as a result of portal hypertension often seen in patients suffering from end-stage liver disease (ESLD). The aim of this study was to investigate the presence of esophagogastric varices and their correlation with the degree of ESLD in patients undergoing orthotopic liver transplantation (OLT).
Patients and Methods: We retrospectively analyzed data of 512 patients who underwent OLT at the Medical University Vienna between 2002 and 2010. After excluding patients with acute liver failure and patients with missing esophagogastroscopy report, 396 (77%) patients were included into the final analysis. Data are expressed as median with 25th-75th percentile.
Results: The median age was 54 (48 - 60) years. The median time between the esophagogastroscopy and the OLT were 227 (125 - 368) days. 287 (72.5%) patients presented with varices: 130 (32.8%) varices grade I ($<$ 5mm under insufflation) and 157 (39.6%) varices grade II ($>$ 5mm under insufflation). Red spot signs were identified in 40 patients (10.1%). The majority of varices (82.2%) were seen in esophagus, 4.2% in stomach and 13.6% in esophagus and stomach. Liver transplant recipients with diagnosed esophagogastric varices presented with significantly lower serum sodium, platelet count and significantly higher ammonia levels, prothrombin time and MELD score than those without varices.
Conclusion: Esophagogastric varices are a very common finding in patients undergoing OLT and their presence is reflected in deterioration of laboratory parameters and MELD score.

LB-P-107 LIVING DONOR LIVER TRANSPLANTATION FOR TYPE II CITRULLINEMIA IN THE KOREAN PATIENT

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Introduction: Citrullinemia is an autosomal recessive disease caused by a deficiency of argininosuccinate synthetase.
Type II citrullinemia is clinically characterized by a sudden onset of consciousness disturbance, a high serum citrulline concentration, a slightly increased serum arginine concentration, and hyperammonemia.
Although no effective treatment for type II citrullinemia have been available, liver transplantation was recently performed and proved to be effective in elimination of hyperammonemia and plasma amino acid abnormalities.
Many cases of liver transplantation have been reported in the Japanese citrullinemia patient, but there is no report in the Korean citrullinemia patient. This is the first report of a Korean patient with living donor liver transplantation on citrullinemia type II.
Case Report: 19 years old male was first admitteed to a hospital because of loss of consciousness in February 8, 2009. He had been healthy until 2008. hyperammonemia was found, he was given a conservative treatment of lactulose enema, and the consciousness improved. However, similar symptom reappeared more and more. He was transferred to our hospital for further evaluation and treatment on February 23, 2010. On admission, he was alert and almost normal neurologically.
Since the causative genetic disorder of type II citrullinemia has now been elucidated the introduction of a functional complementary DNA into hepatocyte by virus-mediated transfer may be a useful therapeutic option in the near future. In fact, hepatocyte gene therapy was reported to be successful in a neonatal bovine model of citrullinemia. However, until the clinical application of this modality, the use of liver transplantation would seem to be the only useful therapeutic approach for this disorder.

LB-P-108 BENEFITS OF EARLY ENTERAL NUTRITION AFTER LIVER TRANSPLANT SURGERY

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background: Many think that nutritional support after liver transplant surgery is unnecessary due to the early beginning of oral feeding and nutritional improving effect of transplantation itself. However, more than moderate malnutrition before transplantation is common and many damages related to transplantation easily deteriorate the graft function, so nutritional therapy should be considered seriously in many cases. Even enteral feeding (EN) is more physiologic and effective method, many regard “nil to mouth” until gas-out is common sense and early EN before “gas out” is not secure and safe.
Methods and Materials: From June 2006 to July 2008, total 19 patients received liver transplantation in our hospital. Early EN is applied to all the transplants. Naso-intestinal feeding tube is inserted during operation and EN is started from first postoperative day. Continuous EN infusion with 20 hour per day with increasing concentration and amount. At begining of oral diet, EN is decreasing and ceased when the 80% purpose calorie is reached by oral diet.
Results: EN can be started 15 hours after extubation. On 3rd day of postoperation, EN feeding reaches to needed calories. Oral diet is beginning 4 days after transplantation. There is no complication including wound problems and postoperative infection. Antibiotics is used until 1$\sim$2 days after operation. No GI motility problem is provoked and all the scheduled EN can be performed successfully. Average stay in ICU is 9.37 days. No postoperative mortality is occurred.
Conclusions: Early EN after liver transplantation surgery is safe and effective. All the patients are tolerable to the early EN. No delayed wound healing and severe infectious complications are occurred even for the more than moderate malnourished patients. Early EN after liver transplantation seem to be the safe and effective nutritional therapy and recommended to all the liver transplant patients.

Late Breaking – Lung

LB-P-109 EARLY CLINICAL EXPERIANCE OF LUNG TRANSPLANTATION AFTER EX-VIVO LUNG PERFUSION

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Background: Ex vivo lung perfusion (EVLP) has the potential to increase the number of patients treated with lung transplantation (LTx). We report early clinical outcome in patients transplanted with initially rejected lungs reconditioned and evaluated with EVLP.
Material and Methods:
Four donor lungs deemed unsuitable for transplantation underwent EVLP in the Vivoline® system with Steen solution and packed red blood cells to an EVF of 10-15%. After re-warming and reconditioning, lung function was evaluated. Four recipients from the regular waiting list (4 female, 18-57 y/o. 3 COPD. 1 Kartageners syndrome) were subsequently transplanted, without extracorporeal circulation, with single lung transplantation (SLTx, n=1) or double lung transplantations (DLTx, n=3).

Results: Donor lungs were initially rejected due to inferior PaO2/FiO2 (n=3, mean 21.4 KPa, range 16.7-29.8 kPa) or bilateral infiltrate on chest x-ray (n=1, Pao2/FiO2 41.8). PaO2 under EVLP improved compared to donor values in all four cases (medium improvement in PaO2/FiO2: 32.4 kPa, range 23.6-50.7 kPa).
All four patients are discharged from hospital and alive after a total of 360 days (range 49-119). The patients treated with DLTx were extubated after a medium of 5.5 hours (range 3-7) and stayed in the ICU $<$ 72 hours. The SLTx patient had a complicated perioperative course due to lung adhesions and also suffered from primary graft dysfunction postoperatively. This patient had ventilator support for 25 days after surgery and was discharged from ICU and from hospital at 26 and 44 days, respectively.
Conclusion: The use of EVLP in this small series seems safe and shows that lungs refused for LTx can be recovered and subsequently used for transplantation. Larger series of patients as well as long-term data is required before EVLP can properly be determined as an important adjunct to LTx.

Late Breaking – Pancreas

LB-P-110 SINGLE CENTER EXPERIENCE OF PANCREAS TRANSPLANTATION

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Background: Pancreas transplantation (PT) is a treatment of choice for insulin dependent diabetes. Currently much improvement in patient and graft survival, and decrease of post-operative morbidity have been brought by technical refinement, better immunosuppressants, and better post-operative management. Herein we analyzed the outcomes of pancreas transplantation of 19 years experiences in a single center.
Methods: All the recipients who underwent deceased donor or living donor PT from July 1992 to April 2011 were enrolled in this study. We reviewed the medical records and analyzed graft and patient survival with Kaplan-Meier method.
Results: 149 cases of pancreas transplantation have been performed from July 1992 to May 2011. Indication for pancreas transplantation was type I diabetes in 122 (81.9%) patients and type II diabetes in 27 (18.1%) patients. Pancreas donor was deceased donor in 136 cases (91.3%) and living donor in 13 cases (8.7%). Type of pancreas transplantation was simultaneous pancreas kidney transplantation in 89 recipients (59.7%), pancreas after kidney transplantation in 13 (8.7%) and pancreas transplantation alone in 47 (31.5%). Type of initial pancreatic exocrine drainage was bladder drainage in 89 (59.7%) and enteric drainage in 60 (40.3%). Median follow-up duration was 46.0 months post-transplantation (range 0-226 months). Overall graft survival rates at 1, 5, and 10 years were 82.0%, 63.6%, and 57.9% respectively and patient survival at 1, 5, and 10 years were 92.8%, 88.9%, and 86.1% respectively. Following the introduction of tacrolimus and mycophenolate mofetil as an immunosuppressant from 1999 (n=126), graft survival at 1, 5, and 10 years were 89.8%, 73.2%, and 68.0%, and patient survival at 1, 5, and 10 years were 95.8%, 92.4%, and 92.4% respectively.
Conclusion: Considering the improving quality of life and long-term patient survival, PT can be an effective treatment strategy in diabetic patients requiring insulin regardless of type of diabetes.

LB-P-111 SIMULTANEOUS PANCREAS KIDNEY TRANSPLANTATION IN PATIENTS WITH TYPE 2 DIABETIC END-STAGE RENAL DISEASE

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Background: Simultaneous pancreas kidney transplantation (SPK) is an established treatment option in type 1 diabetic patients with end-stage renal disease (ESRD). However SPK in type 2 diabetic patients has been debatable. We analyzed the outcomes of SPK in type 2 diabetic patients with ESRD, compared with those in type 1 diabetes.
Patients and Methods: Out of 114 recipients who underwent pancreas transplantation from Jan 1999 to December 2010 in our center, recipients who underwent SPK (n=66) from deceased donor were enrolled in this study. Recipients of PTA (n=26), PAK (n=10) and living donor SPK (n=12) were excluded in order to analyze the impact of diabetes type on graft outcomes in homogenous group. We reviewed the medical records retrospectively, analyzing graft and patient survival with Kaplan-Meier method.
Results: Among 66 SPK recipients, 48 were type 1 and 18 were type 2 diabetes. Mean recipient age was 33.4$\pm$6.0 years in type 1 diabetes and 42.7$\pm$7.3 in type 2 diabetes ($p<0.001$). Body mass index (BMI) of recipients was 20.4$\pm$1.8 in type 1 and 20.6$\pm$2.0 in type 2. Insulin daily requirement was 29.6$\pm$13.482 U/day in type 1 diabetes and 19.8$\pm$13.7 U/day in type 2 ($p=0.013$). Pancreas and kidney graft survival at 5-year post-transplantation was 93.7% in type 1 diabetes and 100% in type 2 diabetes. Kidney graft survival at 5-year post-transplantation was 89.9% in type 1 diabetes and 100% in type 2 diabetes.
Conclusion: Pancreas and kidney graft survival rates were higher in type 2 diabetic recipients than type 1 recipients. Although this was a small series in a single center, SPK can be a recommendable treatment option in type 2 diabetes patients with ESRD who is under insulin treatment and without high BMI.

LB-P-112 A NOVEL TECHNIQUE OF COMBINED EN-BLOC PANCREAS KIDNEY TRANSPLANTATION

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Background: Simultaneous kidney pancreas transplantation (SPK) is the most effective way of treatment for patients with renal failure due to diabetes mellitus. For reducing the duration of operation and facilitating the access of the pancreas for percutaneous biopsy, we invented a new technique in 2009.
Methods: We performed this new technique in 7 patients (6 female, 1 male) with mean age 30. After standard cold perfusion of abdominal organs with University of Wisconsin (UW) solution and removing the liver and right kidney, an en-bloc graft containing pancreas, C-loop of duodenum, and left kidney is harvested on a common conduit of abdominal aorta 2 cm above celiac origin superiorly and just above iliac bifurcation inferiorly. In a 2 hour back-table procedure, proximal end of aorta and all lumbar branches repaired. An interposition graft was placed between origin of hepatic artery on celiac trunk and gastroduodenal artery to increase the arterial supply of the head of pancreas and duodenum. Portal vein anastomosed end to side to left renal vein. The arterial inflow will be distal end of aorta and the venous outflow is left renal vein, which were anastomosed to recipient IVC and aorta above iliac bifurcation respectively. Enteric drainage modified as loop duodeno-jejunonostomy. End-to-side transuretero-ureterostomy (donor's ureter to recipient's right ureter) on a double J stent was performed.
Results: No mortality was seen, in one case abdomen closed with silo for 2 days because of transient bowel edema. Mean duration of operation was 2.5$\pm$0.7 hours. Blood sugar and creatinine normalized in a few days, but in one case.
Conclusion: In this technique we only had 2 vascular anastomoses in comparison to standard SPK. Retroperitoneal position of the pancreas makes it available for future percutaneous biopsies.

LB-P-113 PERIOPERATIVE TRANSFUSION REQUIREMENTS AND GRAFT SURVIVAL IN PATIENTS WITH PANCREAS RETRANSPLANTATION – A RETROSPECTIVE STUDY

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Introduction: Blood transfusion is a negative predictive factor for graft and patient survival in liver transplantation. Preoperative variables are known to have limited predictive power for red blood cell transfusion requirements. Pancreatic retransplantation (rePTX) is sometimes technically challenging, and can be related to increased transfusion requirements. This retrospective study evaluates the long-term results of perioperative blood transfusions on graft survival after rePTX.
Methods: Between 1994 and 2005, 31 consecutive patients received rePTX (PAK or PTA). Patients were retrospectively divided in two groups, one receiving $<$4 erythrocyte concentrates (ECs) perioperatively (n=18, PTA=5, second/third TX=13). The other group included patients receiving $\geq$4 ECs (n=13, PTA=1, second/third Tx=11). Daily blood sampling was performed during 5 postoperative days. Groups were compared regarding demographic parameters, postoperative laboratory changes, and graft survival.
Results: Demographic and preoperative laboratory parameters did not discriminate between groups. There was a tendency towards reduced lipase release in patients receiving $\geq$4 ECs. Hemoglobin levels and aPTT/INRs did not statistically differ. From 18 patients receiving $<$4 ECs, 7=33% were managed without perioperative ECs whereas the mean number of ECs applied was 1.3$\pm$1.2. Hemoglobin levels remained stable about 10g/dl in both groups over 5ds. Graft survival was significantly reduced in the ECs $\geq$4 group with a median survival time of 479.3ds versus 915.8ds in the ECs $<$4 group.
Conclusion: Increased necessity of perioperative blood transfusion is related to decreased graft survival after rePTX. It is difficult to analyse whether in-

creased transfusion requirements reflect a higher rate of bleeding in patients at elevated risk, or whether EC transfusion directly interferes with graft survival. Blood transfusion in Tx-patients includes potential risks in terms of transfusion-induced sepsis, immunology (soluble HLA's) and transfusion-related acute lung injury. Therefore, a more restricted use of perioperative blood transfusions may be advocated.

Late Breaking – Pediatric transplantation

LB-P-114 PEDIATRIC LIVER TRANSPLANTATION USING GRAFTS FROM DONORS AFTER CARDIAC DEATH: A FEASIBLE OPTION WITH EXCELLENT RESULTS

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Introduction: Pediatric liver transplantation (PLT) is a common indication with high rates of death on waiting list. Donation after cardiac death (DCD) is becoming an increasing source of grafts.
Patients and Methods: Retrospective analysis of King's College hospital experience in PLT (<16 years) with grafts from DCD. Descriptive comparisons: proportions (chi-square-Fisher), medians-range (U-Mann-Whitney). Statistical significance:$P<0.05$
Results: Nineteen PLT with DCD have been performed in our Institution. Median recipient age and weight were 3.4 years (9months-14years) and 16.29 kg (4.9-56). Etiologies were: acute liver failure-ALF (2), extrahepatic biliary atresia (7), hemangioendothelioma (1), primary familial intrahepatic cholestasis (2), Langerhans cell histiocytosis (1), Factor VIII deficiency (2), Primary hyperoxaluria (1), neonatal sclerosing cholangitis (2) and unresectable hepatoblastoma (1). Graft distribution was: 6 whole, 10 left-lateral-segment (1-split and 9-reduced), 2 left-lobes and 1 right-lobe (auxiliary graft). Median cold, donor-warm and recipient-warm ischemia times were 7.3 hours (4.4-12), 14 minutes (10-29) and 36 minutes (24-80), respectively. Median Graft-recipient-weight-ratio (GRWR) was 3.58 (1.38-7.03). Median operation time was 4.8 hours (3.5-7.5). Donor age, weight, ITU stay and inotropes-use were 16 years (10-64), 56 kg (28-85), 4 days (0-14) and 47.4%, respectively. Five-years patient survival is 94.7%. Portal and arterial reperfusion was performed in 15 and 4 cases, respectively. Statistically significant differences were detected in AST in the second (908 [179-2100] vs 285 [263-355]; P=0.037) and third (301 [109-1579] vs 154 [123-185]; P=0.037) post-transplant days and in INR in the second post-transplant day (1.5 [1.3-2] vs (1.2 [1.1-1.3]; P=0.006) in the portal vs arterial reperfusion groups, suggesting better early graft function with arterial reperfusion. One patient needed late biliary reconstruction.
Conclusions: PLT using DCD is a feasible therapeutic option in experienced units able to perform partial transplants with excellent results after a proper donor and recipient selection criteria.

LB-P-115 PEDIATRIC EXPERIENCE FOR THE USE OF SIROLIMUS IN RENAL TRANSPLANTATION PATIENT WITH CALCINEURIN INHIBITOR (CNI) TOXICITY

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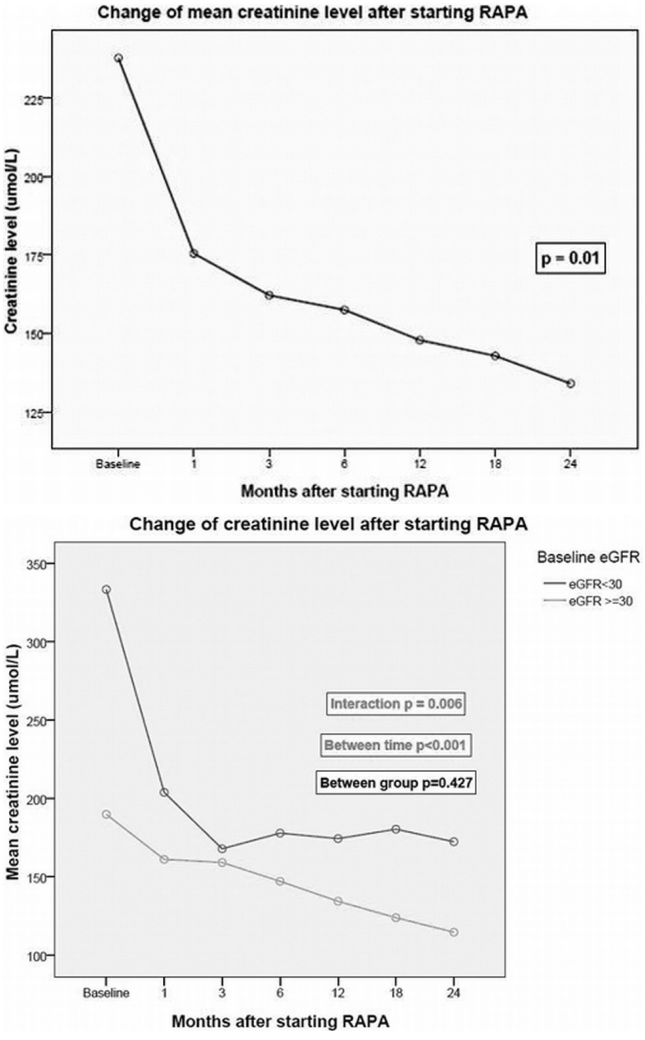
Objective: To study the efficacy and safety of Sirolimus in Pediatric renal transplantation patients with CNI toxicity.
Methods: Pediatric renal transplantation patients (< 19-year-old) converted to Sirolimus from CNI because of suspected or biopsy-proven CNI toxicity from January 2006 till December 2010 were included for study. Their serum creatinine, eGFR, cholesterol, LDL, proteinuria, full blood counts and liver function were profiled to compare the pre-/post-conversion changes. Common adverse effects, acute rejection, opportunistic infection, hypercholesterolaemia and proteinuria were investigated.
Results: We have 12 eligible patients with M:F = 5:7. Mean age at renal transplantation was 13±5 year-old. Immunosuppressant conversion because of increasing serum creatinine. CNI toxicity with biopsy-proven in 9 out of 12 (75%). Sirolimus started at a mean age of 16.4±4.6, with a mean duration of 3.4±2.6 years after renal transplantation, and used for a mean duration of 2.6±1.2 years. The mean dose of Sirolimus was 2.08 mg/day (1.5mg/m^2/day, median 2mg).
Drugs tolerance was good with no significant adverse reaction. Mean baseline creatinine and eGFR were 188 umol/L and 51 ml/min/1.73m^2, improved to 145, 136, 133, 128, 130 and 62, 67, 69, 75, 75 ml/min/1.73m^2 at 1m, 3m, 6m, 12m, 18m respectively (p=0.001, 0.014) after conversion.
For those with eGFR < 30ml/min/1.73m^2 behaved similar to those with eGFR > 30ml/min/1.73m^2 (p=0.427) and with a faster initial improvement.
Hyperlipidaemia in 7 patients (58%, p=0.101) need statin treatment. Significant proteinuria in 6 (50%) patients and needed ACEI. There was no adverse



effect on blood counts and liver function. There was one acute rejection after conversion to Sirolimus reverted by steroid treatment.
Conclusion: Converting Sirolimus was effective and safe in our Pediatric renal transplantation patients. Benefit was observed even for those with already low eGFR.

LB-P-116 PREDICTORS OF EARLY GRAFT SURVIVAL IN PEDIATRIC LIVER TRANSPLANTATION

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Background: There is little reported experience regarding pre- and peri-transplant predictors of early graft survival (EGS) after pediatric liver transplantation (PLT).
Methods: Retrospective analysis of King's College Hospital PLT program. EGS was divided in three strata: <30-, <60-, and <90-days. Several peri-transplant factors and daily post-PLT bilirubin, AST and INR were analyzed (T-test and chi-square). Univariate-Kaplan-Meier test and multivariate-Cox-regression models were performed.
Results: Since 2000, we have performed 422 PLT [Mean age=4.65 years (SD=4.85)], 88.2% of which were primary PLT. Acute liver failure (ALF) was the cause for PLT in 18,7% of the cases. Grafts from donation after brain death, after cardiac death and living related were used in 81.3%, 4.3% and 14.5% of the cases, using partial grafts in 82%, of which 65% were left-lateral-segments (LLS). Arterial reperfusion was performed in 4.8% of the cases. Overall 30-, 60-, and 90-days survival was 93.6%, 92.6% and 90.7%, respectively. Kaplan-Meier 30-, 60- and 90- days univariate graft survival was 98.2%, 97.1% and 95% vs 52.4% when day-7 bilirubin was >200 μmol/L (11.7 mg/dL) (P=0.001) respectively; 95.4%, 94.5% and 93.6%, vs. 85.3%, 84% and 80% when ALF was the cause of the transplant, respectively (P=0.001) and 66.7%, 80% and >90% for monosegmental, left lobe and the rest (whole,

right lobe or LLS), respectively (P=0.004). Cox-model showed that day-7 bilirubin (OR=36.81 [12.97-104.44]; OR=24.43 [9.81-60.84]; OR=16.67 [7.28-38.18]) and the presence of ALF (OR=3.078 [1.08-8.73]; OR=1.82 [1.1-7.21]; OR=4.43 [1.84-10.64]) were persistent independent factor for graft survival in the three strata. In the 90-days period, age over 6-years emerged as a protective factor (OR=0.32 [0.11-0.92]).
Conclusions: Day-7 bilirubin remains as a stable and clinically valuable predictor of EGS. ALF and recipient age are independently associated with survival. Perioperative PLT factors would be useful in whether to commit the patient to retransplantation.

LB-P-117 BILIARY COMPLICATIONS IN PEDIATRIC LIVER TRANSPLANTATION: A 18 YEAR SINGLE CENTER EXPERIENCE IN 429 CASES

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Background: Biliary complications (BC) still constitute the "Achilles heel" of pediatric liver transplantation (LTx). The aim of this study was to describe the incidence of BC and analyze the impact of surgical treatment of BC on long-term patient and graft survival.
Patients and Methods: We retrospectively reviewed 429 primary LTx performed between 01/07/1993 and 01/12/2010 (226 post-mortem and 203 living donors). The median recipient age was 1.6 years (range: 0.2 – 17.5). The main indications for LTx were biliary atresia (58%) and progressive familial intra-hepatic cholestasis (8%). The median follow-up was 7.6 years.
Results: The 1, 5, and 10-year patient and graft survivals were 98%, 95% and 94%, and 97%, 94% and 92%, respectively. The 1 and 5-year survival without BC was 81.2% and 75.5%, respectively. At 5 years, the overall incidence of BC was 23% (n=98), including 60 anastomotic complications (47 strictures and 13 fistulae). Among these 60 BC, surgically treatment was done in 59 cases (98.3%). The recurrence rate of surgical treated BC was 20% (n=12). The 1, 5 and 10-year patient and graft survival of surgically treated BC were comparable with recipients without BC (p=0.553 and p=0.398, respectively).
Conclusion: Despite the favorable outcome of pediatric LTx, BC still represent a major source of morbidity, the majority being anastomotic complications. Our results suggest that surgical management of anastomotic BC may constitute the best therapeutic option in terms of subsequent patient/graft survival.

LB-P-118 NOVEL HISTOLOGICAL SCORING SYSTEM FOR LONG-TERM ALLOGRAFT FIBROSIS AFTER LIVER TRANSPLANTATION IN CHILDREN

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In pediatric liver transplantation (LT) recipients there is an increasing concern for long-term liver allograft fibrosis (LAF). METAVIR and Ishak scoring, designed specifically for viral and chronic hepatitis on native livers, might not reflect adequately LAF. Our aim was to design and test a novel fibrosis scoring system specifically adapted to assess LAF.
Method: Clinical data, histology, transient elastometry (FibroScan) and APRI score (AST/platelet ratio index) were retrospectively reviewed in 38 primary LT recipients that achieved 7 years of follow-up. Protocol liver biopsies performed at 6 months and 7 years post-LT (n 76) were reviewed independently by three pathologists assessing LAF by METAVIR and Ishak systems and scoring separately portal tract fibrosis (0-3), sinusoidal fibrosis (0-3), and centrolobular fibrosis (0-3). Scoring evaluations were correlated with fibrosis quantification by morphometry using Sirius Red staining (SR) and with FibroScan and APRI score.
Results: A trend towards progressive LAF was found in long-term follow-up using scoring evaluation and morphometry (mean SR: 15.2±8.0 at 6 months and 21.1±9.6 at 7 years. The statistical correlation between METAVIR, Ishak and morphometry was 0.572 ($p<0.000$) and 0.564 ($p<0.000$), respectively. The compiled score for separate assessment of portal, sinusoidal and centrolobular fibrosis, that we called liver allograft fibrosis score (LAFS) showed a high level of intra/interobserver agreement 0.964 ($p<0.000$), and 0.806 ($p<0.000$), respectively. LAFS also showed better correlation with morphometrical data than METAVIR and Ishak scoring 0.729 ($p<0.000$), probably because of taking into account sinusoidal and centrolobular areas. FibroScan or APRI score did not show any correlation neither with histological scoring nor with morphometry.

Clinical data

Number of Children / Number of Liver Biopsies (n)	38 / 76
Median age at LT (years)	1.6 (0.4–14)
Graft Indication: Biliary Atresia / Metabolic diseases / Cholestasis Diseases / Tumor	21 / 8 / 8 / 1
Living Related Donor / Cadaveric Donor	23 / 15
Immunoprofilaxis: TAC+ Steroids / TAC monotherapy / TAC+ Basiliximab	18 / 6 / 14
Acute Rejection Episodes (0 to 6 months post-LT)	28 (73%)
Median ALT level at Liver biopsy 6 months and 7 yrs (IU/l)	31 (11–180) / 28 (12–213)
Current Immunosuppression: TAC / Csa / Steroids+TAC / Steroids+Csa+MMF	35 / 3 / 3 / 1
Mean TAC Blood level 6 months and 7 yrs (ng/dl)	9.6±1.8 / 3±1.2
Mean Csa Blood level 7 yrs (ng/dl)	80±22

TAC, Tacrolimus; Csa, Cyclosporine; MMF, Mycophenolate Mofetil.

Conclusion: This novel semiquantitative fibrosis scoring system seems to reflect more accurately LAF than METAVIR and Ishak score and may become a practical tool for LAF staging in pediatric liver transplantation.

LB-P-119 PEDIATRIC ORGAN DONORS AND RECIPIENTS: FACTS AND POTENTIALS

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Introduction: The situation of children waiting for an organ is not comparable to adults. In a lot of cases only organs from pediatric donors are suitable for this special patient group. Furthermore, besides the risk to die on the waiting list children suffer additionally from severe impairment in their somatically and cognitively development.
Since very little is known about pediatric organ donors and recipients it was the task of this work to increase the knowledge in this field.
Methods: We searched within the DSO-data base for all pediatric donors (age 0-15 yrs.) and recipients in Germany from 2007 until 2010. We analyzed the number of donors, the causes of brain death within the different age groups and the number of organs transplanted. The organs, which could be harvested, were opposed to the organs, which were transplanted. Data for the number of pediatric patients on the waiting list were received from Eurotransplant (Leiden).
Results: We found an average of 40 pediatric organ donors per year from 2007 to 2010 in Germany. The highest donation rate was in the age groups 0-2 yrs and 14-15 yrs. Although the overall number of pediatric donors stayed constant, a significant increase of organs harvested could be observed (149 organs in 2007 versus 181 organs 2010). The two major causes for brain death were craniocerebral injury and intracranial bleedings. Interestingly, the ratio of these two diseases reversed within the time period.
From 2007 until 2010, 707 children were transplanted in Germany (liver 333, kidney 240, hearts 107). The number of patients on the waiting list increased dramatically in 2010 (453 patients), in the years before the number was around 212 on average per year.
Viewing the Eurotransplant community, there was a significant number of pediatric patients receiving an organ within less than 6 months: heart: 73%, liver 77%, lungs 50%, kidneys 38%.
Conclusion: Although the average waiting time is shorter compared with adults, there is probably further potential for improvement.
It should be a standard that in all children with braindeath the question for donation must be asked. One way is to inform the attending pediatrician, that posing the question of consent to organ transplantation does not increase grieving family members. Furthermore the allocation rules for pediatric recipients within Eurotransplant should be reviewed (e.g. liver splitting, if possible, should be mandatory). An interdisciplinary expert group would be helpful to support children donation in general.

Late Breaking – Tissue injury / preservation

LB-P-120 ONLINE RAPID SAMPLING MICRODIALYSIS (rsMD) FOR VIABILITY ASSESSMENT, COMPARING STATIC COLD STORAGE VERSUS HYPOTHERMIC MACHINE PERFUSION IN MARGINAL ALLOGRAFTS

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Viability assessment of the renal allograft during preservation is imperative. Preservation techniques, static cold storage (SCS) and hypothermic machine

perfusion (HMP), aim to ameliorate the effects of ischaemia. We have developed a clinically validated system that allows continuous tissue monitoring with rapid measurements of the metabolic markers of ischaemia.
We aim to monitor real-time lactate concentrations in kidneys preserved by SCS and HMP, comparing effects of each technique on ischaemic injury and its potential as a tool for viability assessment.
12 porcine kidneys were retrieved, subjected to 15mins of warm ischaemia and then placed upon clinical models of SCS (n=6) or HMP (n=6) for 24 or 10hrs respectively. HMP Kidneys displayed excellent perfusion parameters. A microdialysis catheter was tunnelled into the renal cortex and connected to the analyser producing real-time lactate concentrations every 60 seconds. Following preservation each kidney was warmed for 2hrs.
The analyser reliably detected lactate, calculating quantifiable concentrations. The initial lactate concentration of kidneys using SCS was significantly higher than that of HMP (332.8μM (255.0 - 388.0) and 105.5μM (66.9 - 180.2), P=0.010), dropping to steady state in both groups. During warming, we identified a rapid rise and fall in lactate in the SCS group. In contrast the HMP group exhibited a linear increase in lactate with no observable decrease.
This is the first study utilising microdialysis, comparing preservation techniques by examining metabolic activity and ischaemic injury in real time. The different lactate profiles of kidneys between preservation groups, and hence anaerobic metabolic rates, confirms that HMP is more effective than SCS at attenuating ischaemic injury. The contrasting rewarming profile may indicate that HMP has a protective affect on the parenchyma and is more resilient to ischaemia-reperfusion injury.

LB-P-121 HIGH INCIDENCE OF DELAYED RENAL GRAFT FUNCTION AFTER PROLONGED COLD ISCHEMIA ASSOCIATES WITH 4G/4G PLASMINOGEN ACTIVATOR INHIBITOR (PAI-1) GENE POLYMORPHISM

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Introduction: Delayed renal graft function (DGF) is believed to be strongly associated with ischemia induced injury. The 4G/4G genotype of the PAI-1 gene was associated with increased PAI-1 plasma levels in carriers. Thrombophilia due to increased concentration of PAI-1 was described. We aimed to determine the impact of renal allograft donor 4G/4G PAI-1 genotype on the manifestation of DGF depending on the length of cold ischemia time (CIT).
Methods: All deceased donor kidney (DDK) transplants studied (n=206) were performed in our clinic. Retrieved DDK were stored before transplantation by static cold storage on ice in HTK solution. The DDK PAI-1 4G/5G genotypes were determined by Taqman allelic discrimination real time PCR. DGF was equivalent to the need for dialysis during the first week posttransplant. The chi-square test was used to evaluate the relationship between variables.
Results: There were 126 transplants after short (7-17 hrs) and 80 transplants after prolonged (18-30 hrs) CIT. The DGF rates were 29 and 28%, respectively (p=NS). Distribution of the PAI-1 alleles fitted expected values based on the Hardy-Weinberg postulate. The frequencies of homozygous 4G/4G genotype were 36 and 35%, respectively (p=NS). With CIT exceeded 17 hours, the rates of DGF were as high as 44% for 4G/4G grafts and 21% for 4G/5G or 5G/5G grafts (p=0.0056). With shorter CIT, the rates of DGF were 29 and 24%, respectively (p=NS).
Conclusion: Our study demonstrates that renal grafts retrieved from homozygous for 4G PAI-1 gene deceased donors are disposed to the development of DGF after prolonged static cold storage.

LB-P-122 PRETREATMENT WITH MANGAFODIPIR IMPROVES LIVER GRAFT TOLERANCE TO ISCHEMIA/REPERFUSION INJURY

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Background: In liver transplantation, ischemia/reperfusion injury (I/R) is mainly due to the generation of cellular reactive oxygen species (ROS) following reoxygenating process at time of revascularization. Delivery of antioxidant enzymes might reduce the deleterious effect of ROS on cell membranes and improve liver function. Mangafodipir trisodium (MnDPDP), a contrast agent currently used in magnetic resonance imaging of the liver, has been shown to be endowed with powerful antioxidant properties. We hypothesized that MnDPDP could express a beneficial effect against I/R injury of the liver when administered to the donor.
Methods: Livers were harvested on male Sprague Dawley rats that had been pretreated or not (n=7) with MnDPDP (5 μmol/kg) and subsequently preserved for 24 hours in Celsior solution at 4°C. Livers were then reperfused for 120 minutes at 37°C with Krebs Henseleit solution, using an isolated perfused rat liver model.
Results: During reperfusion, hepatocellular injury was significantly decreased in the MnDPDP group. Livers from MnDPDP- treated rats produced larger amounts of bile than those in the control group (9.67±1.87 μL/g/120min vs. 3.87±0.69 μL/g/120min, $p<0.05$). ATP content at the end of reperfusion was higher in the MnDPDP group. ($p<0.05$). The protective effect of MnDPDP was associated with i) a attenuation of oxidative stress, ii) a tendency to limit mitochondrial damages, iii) a reduction in apoptosis (% TUNEL-positive cells) and a better preservation of liver integrity at histological examination, as compared to untreated group.
Conclusion: Donor pretreatment with MnDPDP is effective for protecting the liver from post-ischemic reperfusion injury. This is the first study to show the potential interest of this molecule in the field of transplantation. Since MnDPDP is safely used in liver imaging, this preservation strategy holds great promise for translation to clinical liver transplantation.

LB-P-123 A CHEMICAL CHAPERONE INHIBITS ENDOPLASMIC RETICULUM STRESS AND PROTECTS STEATOTIC AND NON-STEATOTIC LIVERS IN PARTIAL HEPATECTOMY UNDER ISCHEMIA-REPERFUSION

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Background: Therapeutic strategies to inhibit cell death in liver injury have the potential to provide a powerful tool for the treatment of liver disease characterized by cell loss, such as ischemia–reperfusion (I/R), alcoholic or non-alcoholic fatty liver disease. In clinical situations, partial hepatectomy is usually performed under I/R to control bleeding during parenchymal dissection. Steatotic livers show impaired regenerative response and reduced tolerance to hepatic injury. Here we examined the effects of tauroursodeoxycholic acid (TUDCA) and 4-phenyl butyric acid (PBA) in steatotic and non-steatotic livers during partial hepatectomy under I/R (PH+I/R).
Methods: Homozygous (obese) and heterozygous (lean) Zucker rats were used in the experiments. The effects of TUDCA and PBA treatment on the induction of unfolded protein response (UPR) and endoplasmic reticulum (ER) stress were also evaluated.
Results: We report that PBA, and especially TUDCA, reduced inflammation, apoptosis and necrosis, and improved liver regeneration in both liver types. Both compounds, especially TUDCA, protected both liver types against ER damage, as they reduced the activation of two of the three pathways of UPR (namely inositol-requiring enzyme and PKR-like ER kinase) and their target molecules caspase 12, c-Jun N-terminal kinase and C/EBP homologous protein-10. Only TUDCA, possibly mediated by extracellular signal-regulated kinase upregulation, inactivated glycogen synthase kinase-3β. This is turn, inactivated mitochondrial voltage-dependent anion channel, reduced cytochrome *c* release from the mitochondria and caspase 9 activation and protected both liver types against mitochondrial damage.
Conclusion: These findings indicate that chemical chaperones, especially TUDCA, could protect steatotic and non-steatotic livers against injury and regeneration failure after PH+I/R.

Late Breaking – Xenotransplantation

LB-P-124 PORCINE ENDOGENOUS RETROVIRUS (PERV) INTEGRATION IN THE PIG GENOME

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Introduction: Porcine endogenous retroviruses (PERV) inherited as proviruses in the pig genome can infect human cells, posing a potential risk of zoonosis in pig-to-human xenotransplantation. Introduction of PERV into the pig genome is relatively recent and integration sites are highly polymorphic. It is predicted that only a limited number of PERV loci are active and can direct production of infectious viruses. Identification of such active PERV loci and determination of their distribution in the pig population would help identify, breed or genetically engineer pigs free from problematic PERV.

Methods: We have investigated PERV integration sites via a search for PERV integration in the swine whole genome sequence (SWGS) Build 10 assembly (Archibald et al. BMC Genomics. 2010;11:438). by the RetroTector program (Sperber et al. NAR 2007;35:4064) as well as manual BLAT/BLAST analyses. **Results:** About 20 loci were identified to harbour PERV proviruses of more than 7kb length in the Duroc sow genome. The fact that only 4 out of these 20 loci have been found to be shared by a Large White BAC library (Rogel-Gaillard et al. Cytogenet Cell Genet. 1999;85:205-11) highlights the highly polymorphic nature of PERV integration. None were found to have complete and/or intact open reading frames for PERV genes. Validation of each of these loci has been carried out and their distribution analysed in a number of different breeds. **Conclusion:** Distribution of these integrations is clearly different in both individual pigs and between breeds. In addition, PERV sequence information in SWGS has its limitations in revealing the PERV integration pattern in pigs as a population, but supports previous estimations that majority of PERV proviruses are defective.