021 ISLET/CELL TRANSPLANT

O25 COMBINED PANCREATIC ISLET–LUNG TRANSPLANTATION: A NOVEL APPROACH TO THE TREATMENT OF END-STAGE CYSTIC FIBROSIS

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Introduction: Cystic fibrosis related-diabetes (CFRD) is a major factor of morbi-mortality in lung transplantation. We report the follow-up of five patients with end-stage CF who were treated with combined pancreatic islet-lung transplantation.
Patients and Method: All CF patients have an end stage respiratory insufficiency and an uncontrolled diabetes with low C peptide levels (<0.5 ng/ml or absence of response after glucagon stimulation). Bipulmonary bloc and pancreas are procured from the same donor. During the lung transplantation, the pancreas is shipped to the laboratory for islet isolation and culture. One week after lung transplantation, the islets are injected by percutaneous transhepatic catheterization of the portal vein under local anesthesia. Immunosuppression associates steroids and basiliximab, tacrolimus and mycofenolate mofetil.
Results: From Oct. 2011 to Oct. 2014, five CF patients (2 F/3M, age: 31 ± 5 years, IMC: 18.8 ± 2 kg/m^2) with respiratory insufficiency (FEV1: 25.6 ± 4%) and brittle diabetes (HbA1c = 8.6 ± 1%, insulin requirement = 43 ± 14 IU/day) underwent combined pancreatic islet-lung transplantation with an amount of 2940 ± 850 IEQ/kg. The follow up is from 6 to 36 months and 4 patients reached 12 months follow up. Improvement in lung function was observed for all patients with a FEV1 reaching 62 ± 16% and 67 ± 15% respectively 3 and 12 months after lung transplantation. The five patients showed immediately islet graft function with an increase in C peptide plasma levels up to 2.34 ± 1 μg/l and 0.86 ± 0.1 μg/l respectively 3 and 12 months after transplantation. No complications related to the islet injection were observed. All patients presented an improvement in the metabolic control with a decrease in HbA1c to 6.4 ± 0.6% at 12 months in absence of hypoglycemic events and a 30 ± 14%decrease in the exogenous insulin needs.
Conclusion: In CF patients, combined transplantation restores both pulmonary and metabolic control without immediate increase in morbidity.

O26 ABSENCE OF AMYLOID DEPOSITION IN HUMAN ISLETS TRANSPLANTATION AFTER 13 YEARS INSULIN INDEPENDENCE

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Long-term insulin independence after islets of Langerhans transplantation is rarely achieved. Amyloid deposition was described around transplanted islets that had lost their function. The aims of this study were to analyze the histological features and the amyloid deposition of transplanted islets in a type 1 diabetic patient who died of a cerebral hemorrhage after >13 years insulin-independence. Insulin-positive islets were found throughout the right and left liver. Two- and three-dimensional analysis showed that islets lost their initial rounded and compact morphology, had a mean diameter of 136 μm and were constituted of an unfolded epithelial band of 39.1 μm. Islets were also present in the pancreas, but were negative for insulin; exceptionally, isolated beta cells could be seen in the pancreatic parenchyma. Glucagon positive cells were present in both organs, and rare somatostatin cells were observed in islets implanted in the liver. Congo red staining revealed near-absent amyloid deposits around the islets in the liver. This data demonstrate that insulin-independence was mediated by the islet graft and not through the regeneration of the native islets favored by chronic immunosuppression. As expected from the literature data, amyloid deposition was only rarely observed in this patient.

O27 INFUSION OF THIRD-PARTY MESENCHYMAL STROMAL CELLS AFTER LIVER TRANSPLANTATION: A PHASE I CLINICAL STUDY

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Background: Mesenchymal stromal cells (MSC) are multipotent bone marrow progenitors that have demonstrated significant immunosuppressive effects in various in vivo and in vitro studies. This study aimed to be the first evaluation of the safety and tolerability of MSC infusion after liver transplantation in a prospective, controlled phase-1 study.
Methods: 10 liver transplant recipients under standard immunosuppression (TAC-MMF-low dose steroids until day 30) received 1.5–3 × 10^6/kg third party MSC on post-operative day 3 ± 2. These patients were prospectively compared to a group of 10 control liver recipients. Primary endpoints were MSC infusion toxicity, and incidence of cancer and opportunistic infections at month 6. Secondary endpoints were patient and graft survivals and rejection at month 6, as well as the effects of MSC on recipients' immune function and on immunohistology of at month 6 graft biopsies.
Results: No MSC infusional toxicity was observed. Both groups were comparable in terms of donor and recipient characteristics. There was no difference in primary end-points between control and MSC groups. No patient developed de novo cancer. There was no statistical difference in patient and graft survivals or in rejection rates. There was no graft rejection in the MSC group. Month-6 graft biopsies were not different according to Banff and fibrosis scores.
Discussion: This phase 1 study showed excellent tolerability and safety of a single infusion of third-party MSC after liver transplantation. There were no graft safety issues and no excess of immunosuppression after MSC injection. Further analyses of consequences of MSC injection on the immune profile are needed. The possibility of avoiding calcineurin-inhibitors with repeated MSC injections as main immunosuppressive therapy and/of tolerance induction by MSC infusion should be investigated by further studies.

This study is in part supported by an ESOT Senior Clinical Research Grant and by the University of Liege.

O28 CHARACTERIZATION AND EFFECTS OF PORCINE ADIPOSE TISSUE MESENCHYMAL STEM CELLS ON KIDNEY GRAFT RECOVERY IN A PRECLINICAL PORCINE MODEL OF RENAL TRANSPLANTATION

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Background: Ischemia reperfusion (IR) is a pathological process involved in acute and chronic renal graft dysfunction. The aim of this study was to characterize mesenchymal stem cells from porcine adipose tissue (pASC) and their role in the graft function recovery in conditions mimicking deceased after cardiac arrest donors.
Methods: In vitro, morphology, proliferative capacities, phenotype by flow cytometry and the metabolic profile with Nuclear Magnetic Resonance (NMR) of pASC were determined. Their resistance to a sequence of hypoxia-reoxygenation (HR) was characterized on their viability and metabolic profile in NMR. In vivo, a porcine preclinical model was used with 1 h of renal warm ischemia followed by 24 h of graft storage at 4°C in UW solution and renal auto-transplantation with contralateral nephrectomy. The effects of autologous injection of 106 pASC/kg in the renal artery after cold preservation were determined on renal blood flow, renal graft function and histological outcomes.
Results: The cell extraction technique was reproducible and allowed a sufficient extraction rate of pASC characterized by mesenchymal stem cells phenotype. The metabolic profile in NMR of pASC was stable during the first passages. The cell viability after a sequence of HR exceeded 70% underlined the feasibility of a direct injection in the renal artery at reperfusion time. The injection of 106 pASC/kg at passage 2 was practicable 15 days after removal of adipose tissue. The function recovery was significantly improved and the histological lesions were reduced at day 7 in the group treated by pASC.

Conclusion: Injection of pASC in renal graft artery at reperfusion of the grafts in a porcine model mimicking deceased after cardiac arrest donor conditions improves graft function recovery and limits tubular damages. These therapeutic potentials will be confirmed by further studies at the end of the follow-up at 3 months.

O29* IMPACT OF TIMING ADMINISTRATION OF MESENCHYMAL STROMAL CELLS ON SERUM CREATININE FOLLOWING RENAL ISCHEMIA/ REPERFUSION IN RATS

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Experimental models of renal ischemia/reperfusion (I/R) have suggested protective effects of mesenchymal stromal cells (MSC) therapy. Still, parameters of MSC injection, including volume, route and timing of cell administration, remain largely debated. Particularly, MSC infusion in mouse has been shown to be beneficial "a priori" but deleterious "a posteriori" of renal I/R injury. In order to further investigate the influence of the timing of MSC administration, we used 10-week-old Lewis rats categorized in 4 groups. Groups 1 (MSC D-7, $n = 10$) and 2 (MSC D + 1, $n = 7$) received caudal i.v. injection of MSC (1.5×10^6 in 1 ml of saline) 7 days before or 1 day after renal I/R, respectively. Control groups 3 (saline D-7, $n = 6$) and 4 (saline D + 1, $n = 6$) received equal volume of saline at similar time points. Left renal ischemia (by clamping of the renal pedicle) lasted 45 min. Right nephrectomy was simultaneously performed. Blood sample was collected from inferior vena cava at 48 h post reperfusion. MSC phenotype was confirmed by FACS analysis. In groups 1 and 3, serum creatinine (SCr) reached 1.4 ± 0.7 versus 2.4 ± 0.8 mg/dl, respectively ($p < 0.05$). In groups 2 and 4, SCr was 4.9 ± 0.7 versus 3.3 ± 0.9 mg/dl, respectively ($p < 0.001$). Furthermore, SCr levels were statistically worse when MSC were administered after renal I/R in comparison to a priori infusion ($p < 0.0001$). In conclusion, MSC administration 7 days prior to renal I/R attenuates kidney injury in comparison to (i) saline infusion or (ii) MSC infusion 1 day after renal I/R. Conversely, on the basis of SCr levels, MSC therapy performed after renal I/R worsens kidney injury in rats.

O30 A "FIRST-IN-HUMAN STUDY" OF IMPLANTATION OF NEO-KIDNEY AUGMENT, AN AUTOLOGOUS SELECTED RENAL CELL POPULATION, IN TYPE-2 DIABETIC CKD STAGE 3–4 PATIENTS

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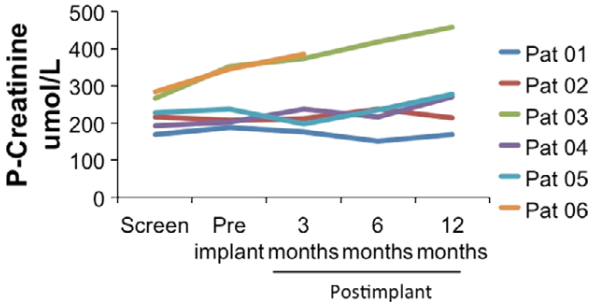
Background: Animal models of CKD show that a selected population of bioactive renal cells (SRC) can be delivered through parenchymal injection resulting in a decrease in disease progression. It has been shown to 1) reduce chronic infiltration by monocytes/macrophages and T-lymphocytes and attenuate the NFκB response 2) promote tubular cell expansion. We used a laparoscopic technique to perform a study with Neo-Kidney Augment (NKA).
Methods: Six type-2 diabetic (108 ± 11 kg) patients (64 ± 6 years) with CKD 3–4 were selected. After evaluation of iohexol clearance, MRI, renal scintigraphy and albumine-creatinine ratio (ACR) patients underwent a regular renal biopsy. Two cores were shipped to the Tengion (Winston Salem, NC, USA) for tissue separation, cell isolation and product preparation. NKA was shipped back to Karolinska (range 59–87 days after biopsy) for intracortical injection using a laparoscopic hand-assisted retroperitoneal technique (HARS).
Results: No complications occurred at biopsies. All resulted in material being used to obtain NKA. Implantation of 8 ml NKA into the left kidney was uneventful. No bleeding occurred at the site. A postoperative complication was observed in one patient (ileocecal volvolus, leading to a right-sided hemicolectomy). Infectious complications (hospitalizations) were observed in three patients in the first three months. Antihypertensive medication has been reduced 3/6 patients during the first 6 m following implant. S-creatinine has remained stable at 6 and 12 months after autologous renal cell implantation in four out of the five first patients. In patient 03 the rise in s-creatinine has been related to postrenal obstruction.
Conclusion: NKA was safely implanted in six T2DM patients. In this population complications after the implantations were related to the surgical procedure. Longer follow-up and more patients are needed to reveal if this technique can arrest porogression of CKD and delay the start of renal replacenent therapy.



025 LIVER

O102*

EUROPEAN ELITA ELTRE MULTICENTER SURVEY ON THE MANAGEMENT OF BILE DUCT DURING LIVER PROCUREMENT, PRESERVATION AND TRANSPLANTATION

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Background: Only scarce data are described on what is the best practice to manage the bile duct during procurement/preservation/LTx.
Aim: To characterize the different techniques used among European transplant centers in terms of bile duct management in case of donation after brain death (DBD) and circulatory death (DCD).
Method: an anonymous European web-survey has been sent to surgeons procuring and/or transplanting livers.
Results: 44% responded ($N = 210/475$). 53% of respondent worked as procurement and transplant surgeon in large transplant centers (>50 procurements/year). 5% of surgeons never flush bile duct before cold preservation. If flushed, the bile duct is rinsed-out through both the common bile duct (CBD) and the gallbladder by only 21% and 25% of surgeons in case of DBD and DCD, respectively. The cystic duct is ligated during the procurement of DBD/DCD donors in 33%, whatever the decision concerning cholecystectomy. 46% of surgeons prefer to do a cholecystectomy before implantation in case of DBD/DCD. An arterial back table pressure perfusion is performed by 48% and 54% of surgeons in DBD and DCD LTx, respectively. 2% and 7% of surgeons prefer to perform a hepatic artery reperfusion first in case of DBD and DCD LTx, respectively. 16% do not shorten the CBD (until bleeding) before biliary anastomosis. Protective interventions as donor pretreatment with steroids, fibrinolytics or heparin, prostacyclin analogue in cold preservation solution and recipient treatment with fibrinolytics are described.
Conclusion: Obvious heterogeneity management of bile duct during procurement/preservation/LTx is observed among respondent surgeons in Europe. Internationally recognized guidelines with validated maneuvers to better preserve bile duct are urgently needed, especially with use of less-than optimal livers.

Mean S/creat	Control [95% CI] (n = 294)	Risk [95% CI] (n = 28)	Injury [95% CI] (n = 10)	Sig p value
3-months	148.5 [139.7–157.4]	156.3 [130.1–182.6]	136.4 [104.6–168.2]	0.755
12-months	138.2 [128.6–147.7]	139.8 [117.2–162.1]	120.7 [98.0–142]	0.764
24-months	140.4 [127.2–153.5]	161.4 [118.4–204.5]	122.4 [95–155]	0.555

O117 EARLY RESULTS OF DUAL KIDNEY TRANSPLANTATION – EXPANDING THE DONOR POOL

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Background: The most common reason for declining potential kidney donors is age coupled with Diabetes Mellitus (DM) and/or Hypertension (HTN). The implantation of both kidneys from such donors into a single patient can provide a positive result. Materials & Methods

Donors considered for DKT included: 1) DBDs older than 70 with DM, HTN or both, 2) DCDs older than 65 with DM, HTN or both, and 2) all DCD donors older than 70. Recipient exclusion criteria included: history of DM, Adult Polycystic Kidney Disease, severe Cardiovascular Disease, Clopidogrel/ Warfarin therapy and BMI >31. Both kidneys were implanted on the same side. We compared outcomes of consecutive DKT performed between 6/2010 and 5/2014 with single kidney transplants from matched donors. Data was collected prospectively in a computerised database and function, survival and complication rates were calculated.

Results: 34 recipients received DKTs (88% DCDs) and 51 ECDs were transplanted over that period. The median recipient age for DKTs was 67.5 (52 – 80) compared to 65 (38 – 75) in the control (p = 0.02). Mean eGFR was significantly higher at six months (44.6 vs 35.4, p = 0.005) and one year (46.7 vs 34.9, p = 0.0009). This difference increases when comparing the donors over 70 years of age (at 6 months 46.4 vs 35.6, p = 0.006, & at 12 months 46.5 vs 34.3, p = 0.0005). The DKT group had lower Delayed Graft Function rate (79% vs 82%, p = 0.73), though Primary non-function had a higher incidence (9% vs 2%, p = 0.14). One-year graft survivals for the DKT and matched groups was 88% and 96%, whereas 4-year graft survival 88% and 87% (p = 0.47). One-year patient survival 93% and 98%, while 4-year survival was 75% and 86% (p = 0.13).

Conclusion: Function of grafts from older donors with HTN and DM, which are still considered 'not suitable for transplant' is significantly superior if performed as DKT. Graft function and survival are also improved.

O118 INCREASED RISK OF INTERSTITIAL FIBROSIS AND TUBULAR ATROPHY IN CONTROLLED DONATION AFTER CIRCULATORY DEATH KIDNEY TRANSPLANTATION

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Introduction: Comparable transplant outcomes between controlled donation after circulatory death (cDCD) and donation after brain death (DBD) kidney transplantation (KT) have been confirmed. However, few data describes the histology of cDCD-KT which is subjected to prolonged procurement warm ischemia. This study aimed to evaluate the rate of interstitial fibrosis (IF) and tubular atrophy (TA) on the surveillance biopsy performed in our unit between the 2 and 6 months post KT. Acute rejection was considered as secondary endpoint.

Patients and Methods: 330 KT (226 DBD and 104 DCD) have been performed between 2008 and 2014. Surveillance or per-cause biopsy was performed in 272 recipients. Among them, the rate of adequate (≥8 glomeruli and ≥1 large-sized artery) was 76.8%.

Results: IFTA was found in 11.5% and 25.7% of DBD and cDCD-KT, respectively (p = 0.004). Considering IF and TA separately, the corresponding rates were 20.4% vs 32% (p = 0.04) and 23% vs 36% (p = 0.03), respectively. If acute rejection before routine biopsy was excluded, either IF or TA rate was significantly higher in cDCD- than DBD-KT (12.6% vs 27.1%, p = 0.006; 17.6% vs 31.4%, p = 0.016; and 20.9% vs 35.7%, p = 0.015 in case of IF-TA, IF, and TA, respectively). A cDCD-KT compared to a DBD-KT was 3.11 (95%CI 1.51–6.43, p = 0.002), 2.34 (95%CI 1.21–4.53, p = 0.011) and 2.29 (95%CI 1.23–4.27, p = 0.009) times more likely to have IFTA, IF, and TA, respectively. Extended criteria donor (ECD) vs standard criteria donor (SCD) was also an independent risk factor for IFTA (OR = 3.11, 95%CI 1.51–6.43, p = 0.002), IF (OR = 4.86, 95%CI 1.96–12.05, p = 0.001), and TA (OR = 4.09, 95%CI 1.68–9.93, p = 0.002). The rate of acute rejection diagnosed by SB was 7.1% and 8.9% in DBD and cDCD kidney grafts (p = ns), respectively.

Conclusion: KT from cDCD increased the risk of IF-TA between 3 and 6 months post-transplant. Further studies are warranted to investigate the evolution of this phenomenon over time and its effect on graft function.

O119 CAPILLARY C4D PREDICTS ADVERSE KIDNEY TRANSPLANT PERFORMANCE INDEPENDENTLY OF MORPHOLOGICAL LESIONS SUGGESTIVE OF ANTIBODY-MEDIATED REJECTION

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Background: Recent data supporting a role of C4d-negative antibody-mediated rejection (AMR) have questioned the diagnostic significance of C4d staining as an independent rejection marker. Nevertheless, considering the presumed role of complement as an important effector of humoral rejection, C4d staining, in addition to a histomorphological biopsy work-up, could help identify a more severe form of AMR.

Methods: This large retrospective clinico-pathological study sought to assess the predictive value of C4d staining on graft survival and function in relation to AMR morphology. Overall, 885 renal transplant recipients subjected to one or more indication biopsies (n = 1976) were re-evaluated for linear capillary C4d staining and the presence of distinct morphological lesions suggestive of AMR, icluding glomerulitis, peritubular capillaritis, capillary microthrombi, transplant glomerulopathy, and severe intimal arteritis.

Results: C4d-positive patients, with or without AMR features, had worse death-censored eight-year graft survival (53% or 67%) than C4d-negative patients (67% or 81%; p < 0.001). In Cox regression analysis, C4d posed a risk of graft loss independently of baseline confounders and AMR morphology [hazard ratio: 1.85 (95% confidence interval: 1.34–2.57), p < 0.001]. Moreover, in a mixed model, C4d was independently associated with a steeper decline of estimated glomerular filtration rate (slope per year: -8.23 ± 3.97 ml/min/1.73 m2, p < 0.001). As shown in a multivariable spline interaction model, C4d conferred a particular risk of graft loss, additively to the effects of AMR morphology.

Conclusions: Our study supports the concept that detection of intragraft complement activation represents a specific AMR marker indicating adverse kidney transplant outcomes.

O120 DIFFUSE PERITUBULAR CAPILLARITIS IN RENAL ALLOGRAFT REJECTION: AN INDEPENDENT RISK FACTOR FOR GRAFT LOSS

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Background: According to the Banff classification the score of peritubular capillaritis (ptc), its extent and its cellular composition should be routinely reported in renal allograft pathology. While ptc score represents an important diagnostic and prognostic variable, the clinical value of ptc extent or composition has yet to be determined.

Methods: This retrospective study included 749 renal transplant recipients subjected to 1322 indication biopsies. The effect of ptc and its qualities on graft loss was estimated using proportional hazards Cox regression models. Potential confounders for multivariate analysis were: baseline immunosuppression, C4d positive graft dysfunction, acute T-cell mediated rejection = Banff ≥Ia, re-transplantation, HLA mismatch and pre-sensitization (CDC PRA >10%).

Results: The prevalence of ptc scores 1, 2 or 3 in biopsy specimens was 10.7%, 11.6% and 2.6%, while focal and diffuse ptc (inflammation of >50% of cortical PTC in the biopsy core) was diagnosed in 10.5% vs. 14.4%, respectively. Mononuclear, granulocytic and mixed ptc was present in 13.1%, 3.3% and 8.5%, respectively. While ptc without further sub-classification was not related to higher allograft loss rates, ptc 3 [HR = 2.57 (CI: 1.25–5.28), p

20. The comparison of the results with the patients who had a GRWR ≥0.8 has shown no significant difference but MELD-score and BMI, which were both significantly higher.
Conclusion: Based on the results of our study, we conclude that the GRWR can be reduced safely even to 0.6 in patients with low MELD-score. More criteria are needed in order to individualize the GRWR threshold.

	GRWR < 0.8 (n = 43)	GRWR ≥0.8 (n = 403)	p-Value
Age (mean)	51 years	50 years	0.9
BMI (mean)	29	26	0.0001*
MELD-score (mean)	14	19	0.01*
Hospital stay (mean)	18 days	20 days	0.4
Postop. complications	10 (23%)	128 (31%)	0.2
Periop. mortality	3 (7%)	40 (9%)	0.8
Re-Transplantation	1 (2%)	11 (2%)	1.0
One-year-survival	93%	91%	0.5

O296 A CONSECUTIVE SERIES OF 100 CONTROLLED DCD-LIVER TRANSPLANTATIONS

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Introduction: Donation after circulatory death (DCD) have been proposed to partially overcome the organ donor shortage. DCD-LT remains controversial, with reported increased risk of graft loss and retransplantation. The authors retrospectively reviewed a single centre experience with controlled DCD-LT in a 12-year period.
Patients and Methods: 100 DCD-LT were consecutively performed between 2003 and 2014. All donation and procurement procedures were performed as controlled DCD in operative rooms. Data are presented as median (ranges). Median donor age was 57 years (16–83). Median DRI was 2.16 (1.4–3.4). Most grafts were flushed with HTK solution. Allocation was centre-based. Median recipient MELD score at LT was 15 (7–40). Mean follow-up was 35 months. No patient was lost to follow-up.
Results: Median total DCD warm ischemia was 19 min (10–39). Median cold ischemia was 235 min (113–576). Median peak AST was 1132 U/l (282–21 928). Median peak bilirubin was 28 mg/dL. Patient survivals were 90.7%, 75.5% and 70.7% at 1.3 and 5 years, respectively. Graft survivals were 88.7%, 72.1% and 67.1% at 1.3 and 5 years, respectively. Biliary complications included mainly anastomotic strictures and extrahepatic main bile duct ischemic obstruction, that were managed either by endoscopy or hepatico-jejunostomy. No PNF or graft loss due to ischemic cholangiopathy was observed in this series.
Discussion: In this series, DCD LT appears to provide results similar to classical LT. Short cold ischemia and recipient selection with low MELD score may be the keys to good results in DCD LT, in terms of graft survival and avoidance of ischemic cholangiopathy. If symptomatic ischemic cholangiopathy is diagnosed, adequate management with endoscopy and surgical hepaticojejunostomy may avoid graft loss and retransplantation.

O297 UTILITY OF INTERPOSITION DACRON GRAFTS FOR RECONSTRUCTION OF ANTERIOR SECTOR DRAINAGE VEINS IN RIGHT LOBE LIVING DONOR LIVER TRANSPLANTATION

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Reconstruction of anterior sector (AS) drainage veins using interposition homologous or prosthetic grafts has been an established technique in right lobe (RL) living donor liver transplantation (LDLT). Material of choice used for this type of reconstruction have been cryopreserved homologous grafts, because of lower patency rates reported for prosthetic grafts. However, with relative shortage of cryopreserved grafts, prosthetic grafts have the advantage of their unlimited availability. This study investigates short-term patency rate of polyester (Dacron®) grafts used as venous conduit for AS drainage of RL grafts.

Between January 2014 and December 2014, 51 of 80 (63%) patients who underwent LDLT in our institution received a RL graft with AS venous reconstruction including isolated segment 5 (n = 5), isolated segment 8 (n = 6), or combined segment 5 and 8 (n = 40) drainage. A separate accessory inferior right hepatic vein reconstruction was also performed in 16 (31%) patients. All reconstructions were performed using Dacron grafts.

Dacron graft patency was investigated in 75% (n = 38) of the patients using either Doppler ultrasound (n = 25) or computed tomography (n = 29). Dacron graft was patent in 32 of 38 patients (84.2%) in a median time of 37 (10.0–97.5) days after LDLT. In 6 patients with AS venous outflow obstruction, no significant clinical consequence was observed. There was 1 perioperative mortality due to sepsis and 1 graft loss due to initial poor function, which needed retransplantation. In a median follow-up of 7 (5–10) months, 49/51 (96%) patients were alive. Dacron grafts have high short-term patency rates comparable to those of cryopreserved homologous grafts; thus, they offer an excellent source of interposition material for reconstruction of AS drainage veins in RL LDLT.

O298 OUTCOMES FOLLOWING LIVER TRANSPLANTATION FOR HEPATOCELLULAR CARCINOMA USING DONOR AFTER CIRCULATORY ARREST VERSUS DECEASED BRAIN DEAD DONOR GRAFTS

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Background: Transplantation of liver grafts from donors after circulatory death (DCD) is now an accepted practice with equivalent outcomes when compared with standard deceased brain dead (DBD) donors. The outcomes of patients transplanted in the setting of hepatocellular cancer (HCC) with DCD versus DBD still remain controversial due to questionable poorer outcomes with DCD donors. However, prior studies have focused only on overall survival and ignored the impact of recurrence on survival.
Methods: A multicenter review of a combined HCC database (Ochsner Medical Center and Toronto General Hospital) was performed from 1/2008 to 12/2013.
Results: 385 patients (41 DCD and 344 DBD) were identified and included in the analysis. There were 49 recurrences (14%) in the DBD group versus 6 recurrences (14%) in the DCD group (p = 0.946). The recurrence-free survival was equivalent for the DCD versus DBD groups (p = 0.819). Similarly, overall 1/3 year survival was 94%/85% and 92%/83% for the DBD versus the DCD groups, respectively. In multivariate regression analysis, lymphovascular invasion, tumor number (>5), and tumor size (>5 cm) were shown to be significant predictors of tumor recurrence not donor type.
Conclusion: DCD liver transplants when performed in experienced centers yield equivalent oncologic outcomes for patients transplanted with HCC.

O299 BILIARY RECONSTRUCTION IN LIVER TRANSPLANT PATIENTS WITH PRIMARY SCLEROSIS CHOLANGITIS

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Objectives: Traditionally Roux-en-Y hepaticojujenostomywas the method of choice for biliary reconstruction in primary sclerosingchollangitis (PSC) in patients undergoing orthotopic liver transplantation. In this study, we compared the result of duct to duct anastomosis versus Roux-en-Y hepaticojujenostomy as biliary reconstruction in patients with primary sclerosingchollangitis who underwent liver transplant in Shiraz organ transplant center.
Methodsand Materials: There were 69 patients with primary sclerosingchol-langitis who underwent liver transplant. Mean follow up period was 36.5 months (18–55 months). We performed duct to duct reconstruction in those patients who had grossly normal bile duct during hepatectomy. In 29 cases duct to duct reconstruction was done and Roux-en-Y hepaticojujenos-tomy reconstruction in 40 cases. Data collecting form contained biliary complications (leak, stricture, and cancer in the remnant bile duct), docu-mented episodes of rejection, and morbidity.
Results: In duct to duct group, two patients presented with anastomotic site stricture and one patient developed chollangiocarcinoma in distal bile duct which underwent pancreaticoduodenectomy (3/29). In Roux-en-Y group, five patients developed anastomotic stricture in the follow up (5/40). This difference was not significant (p value = 0.999). Also documented episodes of rejection were similar between two groups (Chi square test, p value = 0.66) and there was no significant difference.
Discussion: We concluded that duct to duct reconstruction is safe and maybe the choice method for biliary reconstruction in some patients with PSC. In addition, due to innovations in ERCP, management of strictures in duct to duct group was more easy and feasible in comparison to revision of Roux-en-Y hepaticojujenostomy

All 16 recipients had primary function post-transplant and are dialysis independent. The mean sCr measured at a median 11.5 months (range 6–24 months) decreased from 696 to 122 (82%). For more recent transplants at a median 1 month follow up (range 1–3 months) the mean sCr decreased from 697 to 101 (86%).

Discussion: Altruistic kidney donation greatly benefits transplant recipients. Donors retain satisfactory renal function and age does not appear to be a risk factor for donors. To maximise the benefits, non-directed donors should be encouraged to participate in the living donor sharing scheme.

O313 ORGAN DONATION AFTER EUTHANASIA ON SPECIFIC PATIENTS' REQUEST IN BELGIUM

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Euthanasia is since 2002 legalized in Belgium for adults under strict conditions. The patient must be in a medically futile condition, of constant and unbearable physical or mental suffering that cannot be alleviated, resulting from a serious and incurable disorder caused by illness. This implies that also non-terminal not-cancer patients can request for euthanasia for instance in case of debilitating neurological disorder.

From 2005 till 2015 more than 25 patients, suffering from diverse neuropsychiatric diseases, got their request for euthanasia granted, and subsequently asked spontaneously for the possibility of organ donation. The involved physicians, the transplant teams and the Institutional Ethics Committees, had the well-discussed opinion that this strong request for organ donation after euthanasia could not be denied. A clear separation between the euthanasia request, the euthanasia procedure and the organ procurement procedure was judged necessary. After extensive preparation, finally, in Belgium, 17 patients got their wish for organ donation after euthanasia fulfilled, in several academic or non-academic hospitals and in different regions. Several requests and preparations were started for other patients but ultimately did not lead to organ donation due to patients' personal choices or logistically reasons. The euthanasia procedure was carried out by three physicians involved in the euthanasia granting. After clinical diagnosis of cardiac death, the procurement team came in and performed the organ procurement similar as in a DCD type III procedure. Almost always, liver, two kidneys and sometimes lungs and pancreatic islets were successfully recovered and transplanted, after allocation by Eurotransplant.

The possibility of organ donation after their euthanasia provides a very much improved self-image of these patients, and adds something really positive to the unfortunate end-of-life of these patients.

023 KIDNEY

BO185 ECHOCARDIOGRAPHY AND CARDIOVASCULAR RISK: WHAT'S THE RELATIONSHIP IN THE RENAL TRANSPLANT RECIPIENT?

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Introduction: Cardiovascular (CV) disease is the major cause of death among renal transplant recipients (RTR). Unlike end stage renal disease, it is unknown whether echocardiographic abnormalities are useful to identify RTR with high cardiovascular and risk of death.
Objectives: To characterize the metabolic profile, risk of major adverse cardiac events (MACE) and death in a population of RTR. Characterize cardiac function and morphology. Determine which echocardiographic abnormalities predict the risk of MACE and death.
Methods: Retrospective review of 107 RTR in follow-up at our institution, with a functioning and stable graft for longer than 12 months and an echocardiography performed in the last year. Risk of MACE and death using a CV risk calculator specific for RTR and echocardiographic parameters were analysed.
Results: Among 107 patients followed at our institution (57.9% males, 50.4 ± 13.9 years old), 7-years risk for MACE was >10% in 30.9% of patients and 7-years risk for death >10% in 56.1%. Left ventricular hypertrophy (LVH) was present in 55.1%, diastolic dysfunction in 39.3%, dilated left atrium (LA) in 53.3%, high pulmonary artery systolic pressure (PASP) in 29.0%, valvular calcifications in 22.4% and moderate to severe mitral regurgitation (MR) in 3.7%. Mean Ejection fraction was 68.36 ± 6.87%. Univariate analysis showed an increased risk of MACE in patients with LVH [6.9% vs. 14.5% (p 10% and valvular calcifications [OR 3.499 (1.115–10.982, p = 0.032)] and elevated PASP [OR 7.954 (2.412–26.238, p = 0.001)]. Risk for death>10% in multivariate analysis had an independent association with diastolic dysfunction [OR 3.909 (1.261–12.115, p = 0.018)] and with elevated PASP [OR 4.319 (1.201–15.535, p = 0.025)].
Conclusion: Echocardiographic abnormalities identify RTR at increased risk of MACE and death. Valvular calcifications and elevated PASP are significant predictors of MACE whereas Diastolic dysfunction and elevated PASP are significant predictors of death.

BO186 MORTALITY WITHIN THE FIRST MONTH AFTER KIDNEY TRANSPLANTATION – AN OBSERVATIONAL, COHORT STUDY

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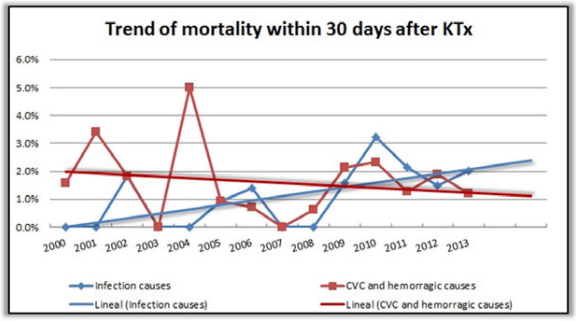
Infection was the principal cause of death after the first year of kidney transplantation (KTx), but the cause of early mortality, was not well described in the actually.

We performed a retrospective, unicentric analysis of mortality in the first 30 days after KTx during January 2000 to May 2014. Older patients than 18 years who received single or combined organ transplantation (COT) from deceased or living donors were included. Data were obtained from medical records and necropsy evaluation. Variables analyzed were age, sex, race, ERSD etiologies, time in dialysis, BMI, living or deceased donor, induction therapy and COT. Statistical analysis was done by Mann-Whitney test, Chi-sq test and Step-wise logistic regression.

In this period, a total of 2390 patients were transplanted in our center. Mortality within the first 30 days after KTx occurred in 87 patients(3.5%), majority of them, were male(60%), white (59%), mean age was 53 ± 12 years and a mean time of dialysis were 52 months. The principal ERSD etiologies were DM (29%), Hypertension (24%) and Glomerulonephritis(22%) and high percentage was transplanted with deceased donors (92%). The most frequent cause of death was infection with 31 cases (36%) followed by cardiovascular (23%), hemorrhagic (21%) and other causes (20%). We observed a raising trend increase of death by infection causes (DIC) during the period analyzed Chi-*sq* 9.09, p = 0.003, as opposed to cardiovascular and hemorrhagic causes, that's tended to reduce. Patients with DIC more frequently dead after the 7*th* day of hospitalization (73% p = 0.006), were more often COT patients (58% p = 0.06) and had less dialysis time before KTx(*P* = 0.07), when compared with other causes of dead. In multivariate analysis the differences between DIC and others death causes were COT p = 0.02 OR4.63 and death after 7*th* day of KTx p = 0.002 OR0.18.

Death by infectious diseases took a longer time to be set as a principal cause of mortality and were associated to more complexity surgery, as COT.



BO187 TRANSPLANTING THOSE WAITING THE LONGEST

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Introduction: Transplantation is the optimal form of renal replacement therapy for suitable patients with end stage renal disease. Long term outcomes improve when the time spent on dialysis is minimised, and individuals with prolonged waiting times can become unfit for transplantation. Those with pre-existing HLA antibodies often wait a disproportionately long time.
Methods: All patients in Northern Ireland (NI) active on the UK deceased donor renal transplant waiting list on 1 Jan 2013 were ranked according to waiting time. All waiting longer than 5 years were identified and those that were very highly sensitised reviewed. Antibodies that were currently not detectable or present at low titres were removed from the unacceptable antigens listed with NHS Blood and Transplant.
Results: There were 30 patients waiting longer than 5 years. The mean waiting time for transplantation was 8 years 5 months, (range 5 years. 1 month – 21 years. 3 months) and mean panel reactive antibody sensitisation was 71%, (range 0 – 100%); 16 (53%) were very highly sensitised (>95% antibodies). The registered unacceptable antigens were altered in 10 (33%).Within 24 months, there were 30 transplants in 28 (93%) patients, one is now unfit for transplantation and one is currently suspended. 8 (27%) were from living donors. Alemtuzumab was given in 9 transplants and Rituximab in 2. The 12 month graft survival was 87%. Of the 4 grafts that failed: 2 had primary non-function due to donor characteristics, 1 failed due to non-recovery of recurrent episodes of AKI after 5 months, and 1 failed at 10 months due to recurrent anti-GBM disease. Two of these patients have seen been transplanted successfully. 12 month patient survival was 100%. In NI there are currently only 2 patients waiting longer than 5 years.
Conclusion: A proactive approach to highly sensitised patients can enhance the opportunities for transplant and should be considered for those with high HLA antibody levels before they have a prolonged duration on dialysis.

BO188 COMPARABLE TRANSPLANT OUTCOMES BETWEEN DBD AND DCD KIDNEY GRAFTS UP TO 5 YEARS POST-TRANSPLANT: SINGLE CENTRE EXPERIENCE

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Introduction: This study aimed to determine the most recent results of kidney transplantation (KT) from donation after brain death (DBD) and circulatory death (DCD). Primary endpoints were graft and patient survival, and graft function. Acute rejection and post-operative complications were assessed as secondary endpoints.
Patient and Methods: This retrospective mono-center review consisted of 226 DBD- and 104 DCD-KT between 2008 and 2014.
Results: Graft survival was comparable between two groups (95.1 vs. 91.1% at 1 year, 92.8 vs. 91.1% at 3 years and 89.2 vs. 91.1% at 5 years). 46% and 40% of graft loss were attributed to patient death with a functioning graft and rejection. Patient survival was comparable between 2 groups (97.8 vs. 95.1% at 1 year, 94.1 vs. 91.2% at 3 years, and 89.6 vs. 82.3% at five years). Etiology of patient death included cardiac arrest (16.7%), infection (16.7%), cancer (13.3%), and unknown cause (46.7%). Delayed graft function occurred in 14.6% of DBD- and 30.8% of DCD-KT (p = 0.001). Primary non function was encountered in 2.6% DBD- and 4.8% DCD-KT (p = ns). Graft function was worse in DCD than DBD up to 3 months post-transplant (p = 0.034), however, no difference existed afterwards. Biopsy-proven acute rejection was found in 12.8% and 13.5% of DBD- and DCD-KT during an average 3 months post-transplant (p = ns). This rate was 7.1% vs. 8.9% on surveillance biopsy performed between 3 and 6 months post-transplant (p = ns). Post-operative

complication rate was comparable between 2 groups, concerning patient death, reoperation, transfusion, perirenal hematoma, macroscopic hematuria, urinary obstruction, wound problem, and infection. Nevertheless, contamination of preservation solution occurred more commonly in DCD than DBD (0.4% vs. 3.8%, p = 0.036).
Conclusions: Despite worse early graft function, DCD-KT was not inferior to that originating from DBD up to 5 years post-transplant, therefore deserves to be used.

BO189 EARLY PLASMA-CREATININE CHANGES PREDICT ONE-YEAR GRAFT FUNCTION AFTER KIDNEY TRANSPLANTATION

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Background: Validated surrogate endpoints for long term kidney graft function are needed in clinical kidney transplantation trials. This study evaluates the association between initial kidney graft recovery and graft function 1 year posttransplant.
Methods: A single centre, observational, cohort study including 100 kidney transplants followed 1 year at Aarhus University Hospital. All p-creatinine (p-cr) values at time of transplantation and 30 days posttransplant were registered along with relevant patient characteristics. In case of temporary dialysis posttransplant, p-cr was gathered until 30 days after the last dialysis. One-year p-cr and graft outcome were registered and in case of death or graft loss, patients were excluded from the analysis ($n = 4$). The observed, time dependent changes in p-cr were modulated for each, individual patient by an exponential, logistic, or a linear model, and the time to a 50% decrease in p-cr was estimated. eGFR 1 year posttransplant was calculated using the simplified Modification of Diet in Renal Disease (MDRD) formula. A multiple linear regression model was used to analyse the association between the time to a 50% drop in p-cr and eGFR after 1 year.
Results: The time to a 50% drop in p-cr correlated negatively with eGFR at 1 year ($n = 96$, $r = -0.375$, beta = -0.112, p = 0.0002). The correlation persisted when corrected for donor type, recipient age, gender, initial p-creatinine level, and cold ischemia time ($n = 90$, p = 0.018). A positive correlation between the time to a 50% drop in p-cr and the total days of hospitalisation 30 and 365 days posttransplant, as well as the number of performed ultrasounds and kidney biopsies 90 days posttransplant, was also found.
Conclusion: Early graft function differences may be important for long-term outcome. Time to a 50% drop in p-cr might be used as a surrogate marker in renal transplant studies, and includes both patients with or without temporary posttransplant dialysis need.

BO190 PATIENT-RELATED FACTORS AFFECTING THE INITIAL TACROLIMUS TROUGH LEVEL AFTER KIDNEY TRANSPLANTATION

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Background: In general, the recommended tacrolimus (Tc) initial dose is calculated per kg of body weight and fixed at 0.1 mg/kg/dose BID. Some observations suggest that in selected groups of patients such dosing may result in Tc tocixity in the early posttransplant period. The aim of our study was to find the factors increasing an initial Tc trough level.
Methods: We performed the retrospective analysis (2000–2013) of 468 consecutive kidney transplant recipients initially treated with immunosuppressive regimen containing tacrolimus BID, mycophenolate, and steroids. The analysis included the first assessment of Tc trough levels and patient-related factors that might affect the pharmacokinetics of Tc.
Results: The mean initial Tc dose was 0.095 $\pm$ 0.002 mg/kg BID. The analysis revealed that recipient's age, BMI, and pretransplant diabetes, but not gender or residual diuresis are explaining the veariability of initial Tc trough level. Recipients >70 years old had 46% greater Tc initial trough levels than those 30 years or less (16.5 $\pm$ 7.1 vs. 11.3 $\pm$ 6.3 ng/ml, $p < 0.001$). Higher concentrations were also observed in diabetics (16.6 $\pm$ 8.0 ng/ml) than nondiabetics (13.5 $\pm$ 6.7 ng/ml), and in overweight (15.3 $\pm$ 7.0 ng/ml) and obese (16.9 $\pm$ 5.9 ng/ml) than normal weight (13.0 $\pm$ 6.7 ng/ml) and underweight (10.9 $\pm$ 7.2 ng/ml) patients. The association between Tc trough level and BMI was independent from the influence of age. Additionally, there was no influence of early graft function on Tc trough level.
Conclusion: The reduction of recommended fixed Tc initial dose should be considered in the elderly, diabetics, and overweight/obese kidney transplant recipients.

Conclusions: ARA 290 protected pancreatic islets from cytokine-induced damage and apoptosis *in vitro* and ameliorated the inflammatory response following PITx. It appears to be a promising candidate for improvement of PITx.

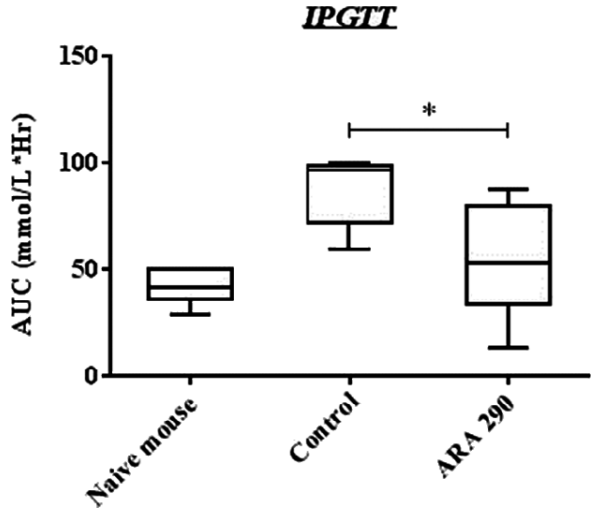

Figure1: AUC in IPGTT is compared among naïve mouse, PITx with PBS (control) and PITX with ARA290 (ARA 290). (*$p < 0.05$ versus control group; values are depicted as lower quartile, median and upper quartile (boxes) with minimum and maximum ranges.).

BO275 VASCULAR SEQUESTRATION OF DONOR-SPECIFIC ANTIBODIES PROTECTS ALLOGENEIC ISLETS FROM HUMORAL REJECTION

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Introduction: Islets grafting restores endogenous insulin production in Brittle type 1 diabetic patients, but long-term outcomes remain disappointing due to destruction of allogeneic islets by recipients' adaptive immune system. In solid organ transplantation, antibody-mediated rejection (AMR) is recognized as the first cause of transplant failure. This experimental murine study aimed at determining whether donor-specific antibodies (DSA) also contribute to islet grafts destruction.
Methods and results: Diabetes was induced by streptozotocine injection in RAG2 KO C57BL/6 (H-2^b) mice, which lack T and B cells. Allogeneic (CBA, H-2^k) islets were not rejected by these immunocompromised recipients, which remained euglycemic until the end of the follow-up (120 days). DSA (either polyclonal immune sera or murine IgG2a anti H-2k mAb) were able to bind to CBA islets and induce complement-dependent destruction β cell line *in vitro*. In contrast, repeated IV injections of DSA did not impact CBA islet grafts function *in vivo*. Live imaging studies, using radiolabelled DSA, showed that alloantibodies were sequestrated in recipients' vascular bed. As a consequence DSA that were able to bind to allogeneic endothelium of CBA heart transplant, failed to reach CBA islets. Indeed, while the vascularisation of transplanted organs comes from the donor, graft vascularisation develops from recipient and is therefore not allogeneic.
Conclusion: Our study demonstrates that, in contrast with solid organ transplants, islet grafts are protected from humoral rejection due to vascular sequestration of DSA.

BO276* ROLE OF BONE MARROW-DERIVED STEM CELLS, RENAL PROGENATOR CELLS AND STEM CELL FACTOR IN CHRONIC RENAL ALLOGRAFT NEPHROPATHY

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Background: Bone marrow-derived stem cells (BMSCs) the hematopoietic stem cells (HSCs) and mesenchymal stem cells (MSCs) are pluripotent cells that can be mobilized into circulation and recruited to sites of inflammation. The present work was designed to study circulating HSCs,MSCs and renal progenitor cells (RPCs) and stem cell factor (SCF) in patients with chronic allograft nephropathy (CAN) in relation to renal hemodynamics and histopathological changes.
Subjects: This study included 45 subjects, they were divided into three groups each 15, renal transplant patients with stable renal function (Group I), with CAN (Group II) and healthy subjects as controls (Group (III).
Methods: The HSCs and MSCs were identified as CD34 + CD45 + CD117 + and CD34−CD45−CD106+ cells using flow cytometry. Serum SCF levels were measured using enzyme linked immunosorbant assay kit. C-reactive protein (CRP),urinary alkaline phoshatase (U.ALP) were measured. Immunohistochemical staining of renal biopsy was done using monoclonal antibodies against CD133 for detection of CD133 + RPCs, CD34 for detection of CD34 + stem cells,vascular endothelial growth factor (VEGF) as vascular marker and alpha smooth muscle actin (a-SMA) for renal fibrosis. Renal hemodynamics was evaluated by duplex Doppler and resistive and pulsatility indices (RI, PI) were calculated.
Results: There was a significant increase in the level of SCF,number of HSCs,MSCs,RI and PI with a decrease of U. ALP in transplanted patients than the controls. These were positively correlaed with each other and with the markers of renal function. The renal CD133 + and CD34 + cells were positively correlated with each other and with VEGF and negatively with ASMA and fibrosis.
Conclusion: Renal transplantation is assocated with mobilization of BMSCs from the BM into the circulation in parallel with an increased production of SCF with severe kidney injury. The activation of endogenous RPCs may play a role in limiting renal fibrosis and enhancing renal vasculature.

BO277 WHARTON'S JELLY MESENCHYMAL STEM CELLS AMELIORATE CISPLATIN-INDUCED ACUTE KIDNEY INJURY IN MICE

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Background/Aims: Acute kidney injury (AKI) remains a common clinical problem with high mortality rates. Mesenchymal stem cells were so far shown as a promising treatment option. It was recently reported that human Wharton's jelly derived mesenchymal stem cells (WJ-MSC) could ameliorate renal function induced by low dose of cisplatin in rats. However, the role of WJ-MSC in AKI induced with high nephrotoxic dosage cisplatin protocol (comparable to human chemotherapeutic scheme) has not yet been demonstrated. Therefore, we tested whether administration of multipotent WJ-MSC to mice with cisplatin-induced AKI (17 mg/kg body weight intraperitoneally) could improve kidney function and ameliorate damage in the kidney (the outcome through amelioration of apoptosis and induction of tubular proliferative response). The distribution of transplanted stem cells after peripheral infusion was also assessed.
Methods: WJ-MSC were injected intravenously, 24 h after cisplatin application. Cells were labeled with DiI for ex vivo tracing. At 96 h after cisplatin induced AKI, serum creatinine and blood urea nitrogen were measured and renal morphology analysis was assessed by histology to confirm the renoprotective effects of transplanted WJ-MSC. Tubular cell proliferation and apoptosis were identified by immunostaining.
Results: After transplantation of WJ-MSC into mice with cisplatin-induced AKI, improvements in renal function and recovery from tubular epithelial cell injury were observed. Several cells engrafted in renal interstitium in the near vicinity of injured tubular epithelia where they exposed their beneficial effects by decreasing tubular cell apoptosis, with no markable effect on tubular cell proliferation.
Conclusions: Infused WJ-MSC can reach damaged kidney tissue after intravenous transplantation. AKI elicited by lethal dose of cisplatin was considerably improved by WJ-MSC, in parallel with less apoptotic events, with no influence on proliferative response.

BO278 THIRD PARTY MESENCHYMAL STROMAL CELL INFUSION IN KIDNEY TRANSPLANT RECIPIENT: 6-MONTH SAFETY INTERIM ANALYSIS

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[1]Department of Nephrology, University of Liege, CHU Liege; [2]Department of Surgery & Transplantation, University of Liege, CHU Liege; [3]Department of Hematology, University of Liege, CHU Liege, Belgium; [4]Department of Transplantation, University of Liege, CHU Liege

Background: Mesenchymal stromal cell (MSC) have immunomodulating properties and could be used as immunosuppressive agents. We report the 6-month safety results for the 5 first patients treated with MSC after kidney transplantation (KTx). Here, we address 3 specific safety issues: immunization against MSC and engraftment syndrome defined as acute graft dysfunction not related to rejection and over-immunosuppression.
Patients and method: MSC production was carried out locally. MSC were not matched with kidney recipients' HLA. Included patients were non-immunized, first transplant recipients from deceased donors. MSC (1.5–3.0 $\times$ 106/kg) infusion was planned 3 to 5 days post KTx. Patients with cardiovascular instability post KTx were excluded. All patients were treated with Basiliximab induction, Tacrolimus, Mycophenolate Mofetil and Steroid. We prospectively screened for anti-HLA antibodies at month 1, 3 and 6. Informed consent was obtained from all participants. The local ethical committee approved the protocol.
Results: Collectively there were 23/50 and 29/50 HLA mismatches (MM) with kidney and MSC donor respectively, out of which 5 were shared MM. One patient developed de novo DSA, 2 patients anti-HLA antibodies against shared kidney/MSC MM and 1 patient developed 2 specific antibodies against MSC (MSCSA) at month 6. All antibodies were anti HLA class I except for 1. We did not observe any "engraftment" syndrome. Three patients experienced non-severe opportunistic infections: 1 CMV reactivation and 2 polyoma-BK virus viremia.

Recipient	Age at Tx (years)	63 $\pm$ 6
	Gender (M/F)	4/1
	BMI (kg/m^2)	27 $\pm$ 3
	Dialysis vintage (days)	373 $\pm$ 564
Kidney donor	Age (years)	51 $\pm$ 18
	Gender (M/F)	3/2
	BMI (kg/m^2)	26 $\pm$ 5
	DBD/DCD	4/1
Transplantation	CIT (min)	737 $\pm$ 219
	WIT (min)	46 $\pm$ 16
	HLA mismatches (*n*)	
	A (0/1/2)	0/4/1
	B (0/1/2)	1/4/0
	Cw (0/1/2)	1/3/1
	DR (0/1/2)	1/4/0
	DQ (0/1/2)	1/4/0
MSC donor	HLA mismatches (*n*)	
	A (0/1/2)	1/2/2
	B (0/1/2)	1/3/1
	Cw (0/1/2)	0/4/1
	DR (0/1/2)	1/3/1
	DQ (0/1/2)	0/3/2

Conclusion: We did not observe any strong safety signal. We did however observe some degree of immunization in 3 patients: 2 developed antibodies against shared kidney/MSC donor HLA MM and 1 MSCSA.

BO279 MESENCHYMAL STEM CELL TREATMENT IN A MOUSE MODEL OF COMBINED LIVER ISCHEMIA REPERFUSION INJURY AND REGENERATION

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Liver ischemia reperfusion injury (IRI) is inevitable during transplantation and extended resections. Hepatic IRI is characterized by hepatocellular injury and hepatocyte loss and may compromise regeneration. At present there is no therapy to treat IRI. Therefore, potential therapeutic strategies to reduce hepatic IRI and accelerate liver regeneration could offer major benefits in both liver transplantation and resection. Mesenchymal stem cells (MSC) are reported to have anti-inflammatory and regeneration promoting properties in models of isolated ischemia or resection. Whether they are of benefit in a more clinically relevant model where IRI is combined with resection induced need for rapid regeneration is currently unknown. Therefore we investigated the effect of MSC administration in a mouse model of combined IRI and partial resection. IRI was induced by occlusion of the blood flow to the left lateral and median liver lobes for 60 min followed by partial hepatectomy of 40% of the liver volume (PH) in C57Bl/6 mice. Animals were treated intravenously with 2-, or 3 x105 mouse syngeneic MSC or PBS control, 2 h before-, or 1 h after IRI. Six hours, and 2- and 5 days after combined ischemia and resection mice were sacrificed. Liver damage was evaluated by measuring liver enzymes, histological damage, and inflammatory markers IL-6 and TNF-α. Liver regeneration was determined by measuring liver/body weight ratio and numbers of proliferating hepatocytes at 2 and 5 days after combined IRI and PH. Liver damage in mice treated with 3 x105 MSC was increased compared to controls. 2 $\times$ 105 MSC 2 h before or 1 h after IRI and PH was not significantly different from PBS treated control mice. Liver regeneration was also not different from control animals. In contrast to what is generally assumed, intravenous administration of high numbers of MSC increase liver damage, whereas lower numbers have no beneficial effect on liver IRI or regeneration.

BO280 MULTIPOTENT ADULT PROGENITOR STEM CELL ADMINISTRATION IN A PORCINE MODEL OF EX VIVO LUNG PERFUSION

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Background: Ex vivo lung perfusion (EVLP) is a promising technique to resuscitate potential donor lungs prior to transplantation. Clinical grade multipotent adult progenitor cells (MAPCs) are a novel type of stem cells with immunomodulatory properties. We report our first experience administrating MAPCs during prolonged EVLP comparing intravascular (IV) and intratracheal (IT) administration to modulate ischemia-reperfusion injury.
Materials and Methods: Porcine lungs were perfused for maximum 6 hrs on EVLP following a warm ischemic interval of 90 min. Animals (n = 2/group) were divided in 4 groups. In MAPC-IV group 10*10^6 MAPCs were administrated IV at onset of EVLP; in CONTR-IV group no cells were added to the perfusate. In MAPC-IT group 10*10^6 MAPCs in 40 ml PBS were instilled in the airways at onset of EVLP; in CONTR-IT group no cells were added to the PBS. Functional evaluation included the % difference in PVR and Compliance between end and onset of EVLP. Wet-to-dry weight (W/D) ratio was calculated.
Results: Data are depicted as mean.

Not all grafts could be perfused for 6 hrs due to massive edema. Therefore, maximal perfusion time was documented. Decline in graft function was defined as ↑PVR (+%PVR) or ↓compliance (-%COMPL). MAPCs IV further deteriorated lung function and compromised perfusion time compared to CONTR-IV. In contrast, it seems that lung function was better preserved in MAPC-IT compared to CONTR-IT.
Conclusion: These preliminary data indicate that IT administration of MAPCs during EVLP might offer a potential to resuscitate lung grafts. IV administration of MAPCs led to deterioration of pulmonary function in this model. We hypothesize that MAPCs IT might improve epithelial barrier function and modulate the inflammatory response. More data are necessary to confirm these findings and to elucidate potential mechanisms. Results will be updated at time of presentation to n = 6/group.

transplantation. ACL+ group was defined by at least one positive ACL detection. ACL were screened in 247 patients. Patients screened and not were similar. Among screened patients, ACL- group included 101 patients (59%) and ACL+ group 146 (41%). Mean follow-up was 33.5 (16.6–36) months. Allografts and patients survival were similar between both groups (graft losses: ACL+ $N = 15$ (10%) vs. ACL- $N = 10$ (10%); HR = 1.18). Thrombotic events did not differ between both groups (ACL+ $N = 20$ (20%) vs. ACL- $N = 30$ (21%); HR = 0.98). One year after transplant, eGFR was significantly lower in ACL+ group (48.5 (35.1–60.3) ml/min/1.73 m^2 vs. 51.9 (39.1–65.0) ml/min/1.73 m^2, $p = 0.042$). ACL was an independent risk factor of worst eGFR ($p = 0.03$). ACL without APS before kidney transplantation is an independent risk factor of eGFR decline within the first year post-transplant. Allografts, patients survival and thrombotic events were similar in both groups. Histological analysis of protocol biopsies is in progress.

BO346* 18FDG-PET/CT IMAGING IN SUSPECTED ACUTE RENAL ALLOGRAFT REJECTION

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The diagnosis procedure for kidney transplant recipients (KTR) with suspected acute rejection (AR) relies on needle biopsy. Noninvasive tests to predict nonrejection would be preferable. AR is associated with a recruitment of activated leukocytes into the transplant, which are characterized by a high metabolic activity and an increased uptake of glucose analog, ^{18}Fluoro-deoxy-glucose (^{18}FDG). Thus, ^{18}FDG-Positron emission tomography coupled with computed tomography (PET/CT) may help noninvasively distinguish nonrejection from AR. From January 2013 to February 2015, we prospectively performed 32 ^{18}FDG-PET/CT in 31 adult KTR with suspected renal AR who underwent a biopsy. Biopsies were categorized as "normal", "borderline", "AR" or "others" according to Banff classification. PET/CT imaging was performed within 201 ± 18 min after i.v. administration of 3.2 ± 0.2 MBq/kg of ^{18}FDG, before any modification of immunosuppression. The mean standard uptake values (SUV) of both upper and lower renal poles were measured, with no threshold activity. Biopsies were diagnosed as "normal", "borderline", "AR" or "others" in 8, 10, 8 and 6 (including 3 polyoma-BK nephropathies) cases. Mean SUV respectively reached 1.5 ± 0.2, 1.6 ± 0.3, 2.9 ± 0.8, 2.2 ± 1.2 in each category. Mean SUV of biopsy-proven AR was significantly higher than "normal" cases ($p < 0.01$). No difference was found between "normal" versus "borderline", or between "AR" versus "others" histopathology. Still, a positive correlation between mean SUV and acute composite (g+i+t+v+ptc) Banff score was found, with a coefficient of 0.70 ($p < 0.001$). Sensitivity and specificity of ^{18}FDG-PET/CT in detecting pathological biospies were respectively 92.3% and 36.8%, with a mean SUV threshold at 1.4. ^{18}FDG-PET/CT imaging may help discriminate nonrejection, thereby avoiding unnecessary transplant biopsy in KTR with suspected AR.

BO347* REDUCED INCIDENCE OF CYTOMEGALOVIRUS INFECTION IN KIDNEY TRANSPLANT RECIPIENTS RECEIVING EVEROLIMUS

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Background: CMV infection is associated with inferior long-term kidney transplant outcomes. This study compared the incidence of CMV infection/disease in de novo kidney transplant recipients receiving three immunosuppressive regimens and no CMV pharmacological prophylaxis.
Methods: We randomized and treated (1:1:1) 288 low/moderate kidney transplant recipients to receive a single 3 mg/kg dose of rabbit antithymocyte globulin, tacrolimus, everolimus and prednisone (r-ATG/EVR, $n = 85$), basiliximab, tacrolimus, everolimus and prednisone (BAS/EVR, $n = 102$) or basiliximab, tacrolimus, mycophenolate and prednisone (BAS/MPS, $n = 101$). The primary end-point was the cumulative incidence of first CMV infection/disease in the intention to treat population. Secondary end-points included biopsy confirmed acute rejection, graft loss, death, renal function and safety.
Results: Patients receiving EVR showed lower incidence of CMV infection/disease compared to those receiving MPS (4.7 vs. 10.8 vs. 37.6%, $p < 0.001$). There were no differences in the incidence of first treated biopsy confirmed acute rejection (9.4 vs. 18.6 vs. 15.8%, $p = 0.403$), patient (96.5 vs. 95.1 vs. 96%, $p = 0.893$) and graft (95.3 vs. 93.1 vs. 89.1%, $p = 0.267$) survivals. There were no differences in the incidence of wound-healing complications (23.5 vs. 34.3 vs. 22.8%, $p = 0.123$) and delayed graft function (47 vs. 48.5 vs. 41.5%, $p = 0.701$). Mean estimated glomerular filtration rate was lower in BAS/EVR (65.7 ± 21.8 vs. 60.6 ± 20.9 vs. 69.5 ± 21.5 ml/min, $p = 0.021$) respectively, but no differences in proteinuria was observed.
Conclusion: In de novo kidney transplant recipients receiving TAC-based immunosuppressive regimen and no pharmacological CMV prophylaxis, the use of everolimus was associated with a significant reduction in the incidence of CMV infection/disease compared to mycophenolate.

BO348* ECULIZUMAB FOR DE NOVO HUS AFTER KIDNEY TRANSPLANTATION

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Eculizumab has been used in post-kidney transplant as a rescue therapy in patients with de novo HUS and severe AMR which are resistant to conventional treatments. Between 2012 and 2014, 477 patients underwent living-related kidney transplantation at our institution. All patients received Tacrolimus, MMF and steroid based immunosupression. Among 477 patients, 13 (2.7%) developed de novo HUS, 5 of them (1.04%) needed Eculizumab treatment in which conventional therapies had failed. All the patients who developed de novo HUS post-transplant had no prior history of aHUS and their primary renal disease were different. The diagnosis of de novo HUS was made with elevated LDH, low platelet count, anemia, low haptoglobulin level and schistocytes in peripheral smear. A renal biopsy was done if serum creatine level was elevated. When the diagnosis of de novo HUS was made Tacrolimus was switched to an mTOR inhibitor and plasmapheresis (PP) was initiated. Factor mutations were also evelauated the time of diagnosis Eculizumab was given if patients were resistant to conventional treatment. All renal biopsy results show thrombotic microangiopathy (TMA) compatible with denovo HUS. In one patient who had severe de novo HUS on postoperative day (POD) 2 with oligouria and rising creatinine, a graft biopsy on POD 4 showed diffuse TMA rapidly progressing to cortical necrosis. Eculizumab was started on POD 7 without waiting the clinical response for conventional therapies to save the graft.

Eculizumab is a viable treatment option in patients with de novo HUS post-transplant when the conventional treatment modalities fail. Given the bad prognosis for renal transplantations displaying acute injury progressing rapidly to cortical necrosis on the biopsy, the prompt use of eculizumab could have the advantage of immediate effects by stopping cellular injury. This can provide a therapeutic window to allow conventional treatment modalities to be effective and prevent early graft loss.

	Age	Female/ Male	Primary Kidney Dis	Duration of Dialysis	Donor	HLA match	Timing of HUS diagnosis	Timing of Inc Creat	Timing of BX	Pathology	PP	Eculizumab treat started	Last Creat	Genetic Mutations
1	26	F	HT	3 year	Father	1 Haplotype	POD 4	POD 3	POD 11	TMA	POD 26	POD 22	1,8	Factor H+, Factor I +
2	4,5	M	BARTTER	4 year	Grandmother	-	POD 2	POD 9	POD 18	TMA	POD 10	POD 11	1,45	N/A
3	30	F	VUR	3 year	Mother	1 Haplotype	POD 3	POD 2	POD 4	TMA+Cort Necr	POD 13	POD 7	1,95	Factor H+, Factor I +
4	31	M	TAKAYASU ARTERİTİS	1 year	Brother	Identical	POD 4	POD 3	POD 4	TMA	POD 28	POD 48	1,56	Factor H+, Factor I +
5	44	F	HT	4 month	Father	1 Haplotype	POD 14	POD 10	POD 13	TMA	POD 41	POD 72	3,2	FactoR H -, Factor I -

019 ISCHEMIA/REPERFUSION INJURY/PRESERVATION

P100

METABOLOMIC STUDY OF MOUSE KIDNEY AND URINE FOLLOWING RENAL ISCHEMIA/REPERFUSION

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Ischemia/reperfusion (I/R) is unavoidable in transplantation, and its severity conditions graft function and survival at both short and long terms. Several biochemical pathways have been implicated in I/R. However, the pathophysiology of I/R remains unclear, which confines its management to supportive maneuvers. Metabolomics is dedicated to identify the metabolites involved in physiological and pathological changes of integrated living systems. In kidney diseases, metabolomics demonstrated enormous potential in research on drug-induced nephrotoxicity and diabetic nephropathy, as well as acute kidney injury. In order to investigate the metabolic changes induced by renal I/R, we performed a 1H Nuclear Magnetic Resonance (NMR) metabolomic analysis of urine and kidney samples from a 12-week-old C57BL/6J mouse model of renal 30-min ischemia followed by 6, 24 or 48-h reperfusion. Sham-operated mice were used as controls. After classical statistical discriminant analyses (PCA and OPLS-DA) of urine spectra, a clear separation of I/R and sham groups was observed, with relevant changes in levels of taurine, creatine, lactate, valine and citrate. The same discrimination could be highlighted in kidney samples. Indeed, the renal metabolite composition (including lactate, lipids, amino acids, taurine) was significantly affected by I/R. Such metabolite changes were observed as early as 6 h after reperfusion and were still present at 48 h. Still, the major modifications in metabolite patterns occurred at 24 h post reperfusion. At this time-point, correlation coefficients between urine spectra and blood urea nitrogen and serum creatinine levels reached 0.95 and 0.94, respectively. Our study demonstrates that renal I/R causes early and sustained metabolic changes in urine and kidney composition. These data open new research avenues to better understand, diagnose and prevent renal I/R.

019 ISCHEMIA/REPERFUSION INJURY/PRESERVATION

P123

RENAL ISCHEMIA/REPERFUSION DECREASES THE EXPRESSION OF TYPE 4 DIPEPTIDYL-PEPTIDASE (DPP-4) AT BOTH MRNA AND PROTEIN LEVELS

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Type 4 dipeptidyl-peptidase (DPP-4) is a serine protease expressed at the surface of most epithelia, including renal proximal tubules (PT). Since DPP-4 participates to inflammation, recruitment of immune cells and apoptosis, we investigated its expression and distribution in case of renal ischemia/reperfusion (I/R). Transient I/R is indeed unavoidable at the time of kidney transplantation, and its severity conditions graft function and survival at both short and long terms. Renal ischemia was induced in Wistars rats by unilaterally clamping the left kidney for 60 min. The right kidney was simultaneously excised and used as a comparator. Renal reperfusion was allowed for 24 h ($n = 6$) or 48 h ($n = 6$) h. Kidneys were snap-frozen and lysed for mRNA and protein extraction. In parallel, the expression and distribution of DPP-4 was studied by immunohistochemistry on 10 biopsies of human kidneys with non-toxic acute tubular necrosis (ATN). In rat kidneys, mRNA abundance of DPP-4 was significantly decreased following I/R at both 24 h (12.5-fold) and 48 h (12.9-fold) in comparison to controls. Immunoblotting analyses also showed a 2.3-fold reduction of DPP-4 expression at 24 h and 48 h post reperfusion. In human kidneys with ATN, the abundance of DPP-4 appeared reduced in comparison to healthy controls. Still, we did not observe evidence of DPP-4 internalization into PT cells. In conclusion, renal I/R is associated with reduced expression of DPP-4 in rat and human kidneys, which may be caused by PT tubulorrhexis and/or DPP-4 shedding into the urine.

023 KIDNEY

P195 GUIDANCE OF (POTENTIAL) KIDNEY DONORS

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Introduction: After kidney donation, several living donors missed the possibility to share their experiences. They expected prolonged contact by a social worker or specialised nurse as they had experienced before donation. In addition, an evaluation by the Dutch Kidney Patient Federation revealed that donors experienced significant attention prior to and missed attention after the donation procedure. We enrolled a surveillance programme for donors to accompanying them after the procedure.
Methods: Potential Donors will be accompanied by a social worker, who will contact them every 3 months from the start of the first appointment until the moment of donation. After the procedure, donors will be at first re-evaluated by the specialised nurse 2–4 weeks after donation, and the a second time 2–4 months after the procedure by the social worker. In the first re-visit, the aim will be the consequences of the operation and the physical recovery. The social worker will discuss the further physical recovery, reintegration of work and the relation to the recipient. They will also pay attention to unexpected negative outcome or regret.
Results: Currently, the work is in progress. We expect that donors feel more guided, now also after donation. In addition, we expect to receive a lot of information to improve our work-up programme for potentially new donors.
Discussion: More attention for living kidney donors is essential, especially after the donation procedure. We expect that the proposed guidance programme will improve the donors' feelings and will contribute to a positive image about living kidney donation. In addition, we expect to improve our work-up programme for upcoming donors.

P196 CHRONIC POSTSURGICAL PAIN AFTER LAPAROSCOPIC DONOR NEPHRECTOMY: PREVALENCE AND CHARACTERISTICS

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Background: The prevalence of chronic postsurgical pain (CPSP) after open donor nephrectomy is high (33%) and greater than after nephrectomy for renal disease. We investigated the prevalence of CPSP and its characteristics after laparoscopic donor nephrectomy.
Methods: After IRB approval, a questionnaire was mailed to all the patients who underwent laparoscopic donor nephrectomy from 2000 until December 2013 ($n = 43$). Recall of postoperative pain intensity, duration of postoperative pain, presence of persistent pain directly related to the surgical procedure were questioned. In case of CPSP, characteristics of pain and impact on quality of life and sleep were assessed. Data were compared using Kruskal-Wallis. $p < 0.05$ = statistically significant.
Results: Data of 36 patients (49 ± 9 yo, M/F: 8/28) were analyzed. 5 patients (14%) reported chronic pain 57 [39 - 89] months after surgery. Averaged and maximal intensities of CPSP (0–10 VAS) during the last 3 days were respectively: 5 [2–5] and 5 [2–9]. CPSP had a negative impact on the quality of life in all patients and on sleep in 2 patients. Two patients complained of visceral pain, 3 of parietal pain. To characterize their CPSP all patients used adjectives that apply to neuropathic pain. Patients with CPSP reported significantly more severe early postoperative pain 6 [5 - 7] than patients without CPSP (4 [2 – 5]; $p = 0.03$) and had a longer hospital stay (8 [6 – 12] vs. 6 [5 – 7], $p = 0.11$) than patients without CPSP.
Conclusion: This study reports a 14% incidence of CPSP after laparoscopic open nephrectomy. This incidence is less than that reported after open donor nephrectomy (33%). CPSP has neuropathic characteristics, can be severe, and is disabling. Patients with CPSP complained of more intense pain during the early postoperative period.

025 LIVER

P272 TRANSFUSION NEEDS DURING LIVER TRANSPLANTATION AT THE CHU OF LIEGE (BELGIUM): CHARACTERISTICS AND PREOPERATIVE PREDICTIVE FACTORS

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Introduction: Liver transplantation (LT) can result in significant bleeding requiring transfusion of allogenic blood products, which potentially leads to postoperative morbidity and mortality (1). This study aimed to determine transfusion needs during LT in our institution and its preoperative predictive factors.
Material and Methods: Two hundred LT performed at the CHU Liege between 2006 and 2012 were respectively reviewed (age = 55 ± 11 yo, BMI = 25.5 ± 4.4 kg/m^2, F/M = 45/155, MELD score = 19 ± 10). Transfusion needs of the different blood products during POD 0, and POD 0–7 were recorded. Parameters associated with the transfusion of more than 2 units of RBC ($p \leq 0.1$) were identified using the Kruskal Wallis and chi square tests (table 1). These parameters were then placed into a backward stepwise logistic regression model for the transfusion of more than two units of RBC at POD 0. A p value threshold ≥0.1 was used for leaving the model.
Results: Transfusion needs were: RBC = 2[0–4], FFP = 4[2–7], PLT = 1[0–1] during POD 0; and RBC = 3[0–6], FFP = 6[3–10], PLT = 1[0–2] during POD 0–7. Preoperative factors independently associated with the transfusion of more than two units of RBC were preop Hb (0.6 [0.46–0.79], $p < 0.001$) and MELD score (1.13 [1.06–1.20], $p < 0.001$).
Discussion: These results suggest that preop Hb and MELD score are associated with blood requirements during LT.
References: 1. J Am Coll Surg 2013; 216:902–7.

Table 1 Data are median [IQR].

	>2 RBCs	≤2 RBCs	p value
Female gender, %	73	78	0.5
BMI, kg/m^2	24.8 [5.3]	25 [4]	0.6
NHBD donor, %	18	42	0.001
Portal hypertension, %	53	49	0.6
Cold ischemia time, min	321 [23]	286 [294]	0.38
Warm ischemia time, min	41 [14]	44 [15]	0.2
MELD score	27 [8]	14 [10]	<0.001
Preop Hb, g/dl	10 [3]	12.5 [3]	<0.001
Preop fibrinogen, g/l	1.9 [2.1]	2.8 [1.5]	<0.001
Preop platelets, ×1003/μl	79 [52]	95 [76]	0.03

NHBD, Non-heart-beating donor; MELD, Model for End-Stage Liver Disease score.

P273 SHORT TERM SAFETY AND FEASIBILITY OF MTORI FROM THE FIRST LIVER TRANSPLANT DAY

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Introduction: We designed a retrospective observational study to evaluate everolimus usage ab initio after liver transplantation.

Materials and Methods: Fifty five non consecutive adult patients (47M/8F, mean age 52 ± 10.5 years) who received liver transplantation between 2009 and 2014 were included in the study. All recipients received everolimus from the first transplant day either in association with CNI's or antimetabolites. The primary goal was to assess the safety and feasibility of everolimus after liver transplantation; the remaining objectives were to evaluate liver function and the incidence of rejection and side effects. Results: The 1 year patient and graft survival was 85%. Liver function was stable during the follow-up of 1 year. No rejections were observed. Only five patients (12%) required therapy for onset dyslipidaemia. Conclusion: Low-dose regimen of everolimus immediately after liver transplantation is safe and feasible whenì associated with low doses of calcineurin-inhibitor or antimetabolite, permitting to avoid all the side effects of standard regimens with higher doses.

P274 LIVING DONOR LIVER TRANSPLANTATION FOR CLASSICAL MAPLE SYRUP URINE DISEASE: CASE REPORT

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Objectives: Despite progress in medical management, classical maple syrup urine disease (MSUD) poses a risk of serious neurologic disability and untimely death. Acute metabolic intoxication causes cerebral edema that can culminate in brain herniation and cardiorespiratory arrest. We represent early post transplant period of two pediatric MSUD patients whose Branched-chain ketoacid dehydrogenase (BCKDH) enzyme activity was 0%.
Cases: 28 and 11 months old male patients developed neurologic symptoms such as nausea, vomiting and drowsiness after birth. Branched-chain amino asid (BCAA) levels were found high after metabolic evaluation. Patients were fed with special MSUD formulas because of entire body BCKDH activity was 0%. Thus especially the brain was preserved from acute and chronic metabolic intoxication. Physical development of patients became appropriate for liver transplantation. In case 1 living donor liver transplantation (LDLT) was performed from his father in December 2013. In case 2 LDLT was performed from his mother in December 2014. Both patients post operative period was uneventfull. In follow up after transplantation BCAA levels and liver function tests were normalized in both patients. Three weeks after transplantation patients were fed entirely normally. Irregularities observed in neurocognitive functions prior to transplant have disappeared completely at the post transplant period.

Conclusions: Diatery regulation is mandotary for MSUD. Particularly in developing countries, the availability of medical foods, convenience and speed of amino acid monitoring, and access to emergency metabolic care is still a major problem. Therefore, Liver transplantation is an effective alternative to dietary treatment in patients with MSUD. Liver transplantation provides sufficient BCKDH enzyme activity so it can be effective and permanent method for treatment of this disease. And also liver transplantation may prevent possible brain damage in these patients.