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6 of the best: oral presentations
Wednesday 1st March, 16:30

O0001

Proteomic profiles of deceased donor kidney biopsies obtained prior to transplantation correlate with allograft function at one year

Maria Kaisar[1,3], Leon vanDullemen[2], Zeeshan Akhtar[1], Letizia Lo Faro[1], Honglei Huang[1], Nicholas Watkins[3], Benedikt Kessler[1], Rutger Ploeg[1]
[1]University of Oxford, Oxford, UK, [2]University of Groningen, Groningen, The Netherlands, [3]NHS Blood and Transplant, Bristol, UK

Introduction:
Cerebral injury during Donation after Brain Death (DBD) will induce a systemic inflammatory response affecting immediate kidney function and survival posttransplantation. Assessment of donor organ quality prior to transplant that can predict transplantation outcomes will improve donor organ utilisation and provide monitoring tools for novel targeted interventions to resuscitate donor organs.

Methods:
DBD kidney biopsies obtained at retrieval (n=38) were provided by the UK QUOD biobank. Biopsy samples were selected from donors from whom both kidneys were transplanted and had the same posttransplantation outcomes; either suboptimal (SO) or good (GO). Kidneys with SO (n=19) had all developed delayed graft function (DGF) and had a mean 1yr eGFR ≤35 +/- 6ml/min. Kidneys with GO (n=19) had all functioned immediately and had a mean 1yr eGFR ≥ 73 +/-18ml/min. Demographic confounders for outcome include age, cold ischaemia, AKIN and Remuzzi scoring were matched. Samples were analysed by clinical proteomics (n=10) and candidate markers then validated by immunoblotting on a separate cohort of donor kidney samples (n=28).

Results:
Remuzzi scoring and AKIN classification showed no evidence of acute or chronic kidney injury in the donor kidneys. However, proteomic analysis could differentiate between the donor kidneys that had SO from those with GO posttransplantation. Validation of candidate markers supported this discrimination and showed that degradation of glomerular basement membrane proteins, pro-fibrotic and apoptotic markers correlated with SO allograft function while increased antioxidant protein levels were associated with GO allografts.

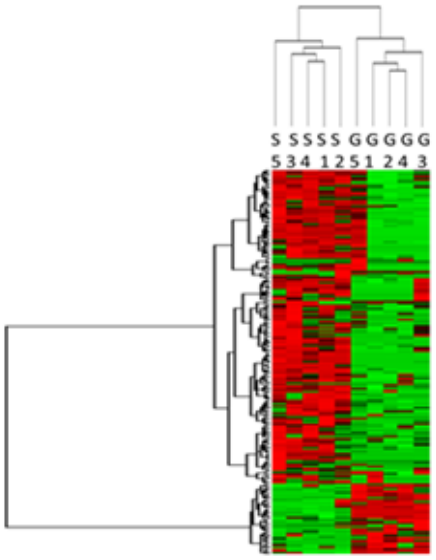


Figure 1. Hierarchical clustering analysis demonstrates that on the basis of a proteomic signature we can discriminate the donor kidneys with suboptimal function from those allografts with good function 1 year posttransplantation.

S1, S2, S3, S4, S5: Individual donor kidneys with suboptimal outcomes.

G1, G2, G3, G4, G5: Individual donor kidneys with good outcomes.

Discussion:
This study suggests that proteomic profiling of pretransplant donor kidneys may correlate with posttransplant outcomes at 1yr. Specific proteins can be identified and validated as potentially clinically relevant biomarkers. This is a first, modest step towards clinical validation to better support clinical decision making whether to accept or decline a donor kidney.

O0002

Stroke in Scotland's renal transplant recipients: Output from combining national registries

Mark Findlay[1,2], Jesse Dawson[1,2], Jamie Traynor[2,3], Patrick Mark[1,2]

[1]University of Glasgow, Glasgow, UK, [2]Queen Elizabeth University Hospital, Glasgow, UK, [3]Scottish Renal Registry, Scotland, UK

Introduction:

Stroke is increased in end-stage renal disease (ESRD) with worse outcomes. This risk is reduced in Renal Transplant Recipients (RTR). Merging two national datasets we describe incidence, risk factors and outcome following stroke in RTRs.

Methods:

Merging the Scottish Renal Registry and Scottish Stroke Care Audit we analysed data from 01/01/2005 to 31/12/2013. Discharge (SMR01) and death records were used to ensure complete capture. RTR was defined as those with a functioning transplant at study inception or received a transplant during follow-up. Stroke was defined as the first documented occurrence of stroke during follow-up period or where stroke was listed as the primary cause of death. Demographics were compared and Cox proportional hazards (PH) analyses performed assessing factors influencing time to stroke in those with ESRD. We employed propensity score matching to compare the circumstances and outcome following stroke in RTR compared to those from the general population at a ratio of 5:1.

Results:

3803 RTR, median age 39 [IQR 15.3] years, 40.6% were female. Cumulative follow-up 19,234 years. 84 patients suffered stroke (2.2%) and incidence rate was 4.37 events/1000 patient-years. Stroke associated with older age (47.6 v 39.4 years), longer RRT vintage (9.1 vs 5.1 years) and a prior history of atrial fibrillation (AF), cardiovascular disease, stroke or diabetes, $p<0.05$. A multivariable Cox PH model showed significance for advancing age and previous stroke. Following stroke, admission length, presentation and stroke subtype were similar between RTR and a matched cohort without ESRD. Mortality is higher in RTR; deaths prior to discharge, 19.6 vs 9.3%, p 0.0332) and at follow-up (66.1 vs 36.1%, $p<0.0001$). Stroke in RTR was associated with a higher risk of death on multivariable regression analysis (HR 4.8, 95% CI 3.4 – 6.9) adjusting for age, sex, RRT vintage and prior AF, stroke, cardiovascular disease and diabetes.

Discussion:

Stroke incidence in Scotland's RTR population is high. In ESRD stroke associates with older age, longer RRT vintage, prior AF and classical cardiovascular risk factors including diabetes. Multivariate Cox PH highlights the significance of age and prior stroke. Despite recognised cardiovascular benefit from renal transplantation those with ESRD are more likely to die following stroke than their matched non-ESRD counter parts.

O0003

Normothermic regional perfusion of donors following circulatory death improves outcomes in liver transplantation

Elizabeth Mowlem[1], Lucy Randle[2], Keziah Crick[1], Corrina Fear[1], Simon Messer[4], Stephen Large[4], Andrew Butler[1,3], Chris Watson[1,3]

[1]Addenbrookes Hospital, Cambridge, UK, [2]OrganOx Ltd, Oxford, UK, [3]University of Cambridge Dept of Surgery, Cambridge, UK, [4]Papworth Hospital, Cambridge, UK

Introduction:

Donation after Circulatory Death (DCD) provides 23% of UK livers for transplantation, but such transplants are associated with more primary graft function and early graft loss, particularly from ischaemic cholangiopathy. Normothermic regional perfusion (NRP), where a circulation is restored to the abdominal organs after circulatory arrest but before retrieval, has been suggested to improve outcomes. Here we review our experience of NRP.

Methods:

Data on all patients who had undergone NRP either by ourselves or Papworth hospital were reviewed, and compared to a comparator group of twice the number of patients transplanted before and after each NRP case. Livers that underwent normothermic preservation were excluded.

Results:

20 NRP liver transplants were compared to 40 contemporaneous "controls". Full data on 3 recipients that were not transplanted by us were not available, although some follow up data was obtained via NHSBT.

	NRP livers (n=20)	Controls (n=40)
1y actuarial graft survival (censored for death)	100%	87%
1 year actuarial patient survival	93%	94%
1y actuarial graft survival (not death censored)	93%	81%
Peak ALT (iu/L) in week one (median (IQR))	480 (349-1016)	840 (437-1443)
Biliary anastomotic leaks	6% (n=17)	5%
Biliary anastomotic strictures	12% (n=17)	5%
Ischaemic cholangiopathy	0 (n=17)	15%

Discussion:

NRP is associated with less early graft damage (ALT rise) and better graft survival compared to contemporaneous DCD liver transplants without NRP. Moreover no ischaemic cholangiopathy was seen post NRP, compared to a 15% incidence in "controls".

O0004

Facilitating renal transplantation in highly sensitised patients by careful deselection of unacceptable HLA antigens

Victoria. C Ross[1], Stuart. J. Falconer[1], Graeme Pang[3], Ann-Margaret Little[2], Colin Geddes[1], Marc Clancy[1], Neal Padmanabhan[1]

[1]West of Scotland renal transplant Unit, Queen Elizabeth University Hospital, Glasgow, UK, [2]. H&I Laboratory, NHS Greater Glasgow and Clyde, Gartnavel Hospital, Glasgow, UK, [3]university of Glasgow, Glasgow, UK

Introduction:

Highly sensitised patients wait considerably longer for transplantation. Contemporary histocompatibility testing provides high definition HLA alloantibody profiles. This creates the opportunity to risk assess the unacceptable HLA antigens identified based on their relative reactivity in the assays used. This study reports our ongoing experience of transplanting highly sensitised patients who have had, "low risk" unacceptable HLA antigens de-selected to facilitate deceased donor renal transplant.

Methods:

In this retrospective cohort study, the electronic record of all patients who had been deemed suitable for de-selecting of unacceptable HLA antigens was reviewed. To be suitable for de-listing, patients were required to have a calculated reaction frequency (cRF) of >95% and have been on the waiting list for more than 6 years. Antigens were deemed "low-risk", and therefore suitable for de-listing if: the MFI was <3000, the DSA was historically positive but now negative or it was a non-complement binding antigen. These antigens were de-selected from the ODT database. The following outcomes were recorded: transplant facilitated by de-listing, diagnosis of delayed graft function, acute cellular rejection (ACR), acute antibody mediated rejection (AMR), death, transplant failure and current eGFR.

Results:

Since July 2014, 22 patients have met the inclusion criteria. 21 of these patients have subsequently been transplanted with an average follow-up of 18 months. Median time on the waiting list prior to transplant was 3040 days. 12 patients were transplanted against previously declared unacceptable antigens. 1 patient died due to septic shock 1 month after transplant. 1 transplant failed due to AMR 17 months after implantation. Delayed graft function occurred in 38% of patients (n=8). ACR in 36% of patients (n=7) and AMR in 24% of patients (n=5). The mean eGFR for the cohort is currently 50ml/min.

Discussion:

Careful deselection of low risk unacceptable HLA antigens can facilitate renal transplantation in highly sensitised patients.

O0005
Impact of comorbidity on renal transplant survival

Matthew Robb[1], Diana Wu[2,3], Lisa Mumford[1], Rachel Johnson[1], Gabriel Oniscu[2,3]
[1]NHS Blood and Transplant, Bristol, UK, [2]University of Edinburgh, Edinburgh, UK, [3]Royal Infirmary of Edinburgh, Edinburgh, UK

Introduction:
Comorbidity is increasingly common amongst transplant recipients, yet its impact on transplant outcomes is not well described. We analysed the effect of comorbidity on survival outcomes after renal transplantation in a national prospective cohort study; Access to Transplantation and Transplant Outcome Measures (ATTOM).

Methods:
2262 patients aged 18-75 undergoing renal transplantation between December 2011 and October 2013 were recruited from all 23 UK renal transplant centres. Extensive comorbidity data were collected at the time of transplantation. Two-year follow-up data were obtained for all patients from the UK Transplant Registry held by NHS Blood and Transplant. The outcome variable was transplant survival, defined as the time from transplant to graft failure or patient death. The impact of individual comorbidities as well as comorbidity score (modified Charlson index) on transplant survival was analysed for living donor (LD) and deceased donor (DD) transplants separately. Data were analysed using Kaplan-Meier estimates and Cox proportional hazards regression models using SAS® 9.4.

Results:
Patients with a higher comorbidity score had inferior transplant survival after DD transplantation (p=0.0021). In multivariate analysis, 2-year DD transplant survival was significantly worse for patients with congestive heart failure (hazard ratio HR: 2.32, confidence interval CI: 1.27-4.24), cerebrovascular disease (HR: 1.83, CI: 1.08-3.13) and obesity (HR: 1.39, CI: 0.95-2.03). For LD transplants, congestive heart failure (HR: 6.47, CI: 2.03-22.37) and diabetes (HR: 2.51, CI: 1.07-5.86) were associated with significantly poorer transplant survival.

Discussion:
Higher baseline comorbidity is associated with worse transplant survival at 2 years post renal transplantation. The impact of individual comorbidities on transplant survival differs for LD and DD transplants. Congestive heart failure has a significant negative effect on transplant survival for both DD and LD renal transplantation.

O0006

Alemtuzumab induction is safe and permits the avoidance of steroids in the majority of renal transplant recipients

Adrienne Seitz[1], Matthew Robb[2], Niaz Ahmad[1], Adam McLean[3], David Taube[3], Rachel Johnson[2], Richard Baker[1]

[1]St James' Hospital, Leeds, UK, [2]NHS Blood and Transplant, Bristol, UK, [3]West London Renal and Transplant, London, UK

Introduction:

The introduction of alemtuzumab into routine clinical use has been hindered by safety concerns surrounding its prolonged effect on the lymphoid compartment. Here we report the updated UK experience of alemtuzumab in standard risk renal transplant recipients.

Methods:

Data was extracted from the UK Transplant Registry held by NHS Blood and Transplant. Standard risk adults who received their first renal transplant between 2005 and 2013 were divided into groups according to the induction agent, and further divided into deceased donor and live donor recipients. Outcomes were measured comparing those who had received alemtuzumab, with a control group comprising of patients who received any other induction agent, and patients with no induction agent documented.

Results:

13816 patients were included in the analysis. There was no difference in patient or graft survival between the two groups. In deceased donor recipients, alemtuzumab was associated with an improved rejection-free survival ($p<0.0001$, log-rank test), with an increase in median time to rejection from 43 days to 146 days. A greater proportion of these patients remained steroid-free at all time points (1year 83.4% vs 25%, 3 year 80.7% vs 33.3%, 5 year 82.7% vs 37.3%). In the live donor group, alemtuzumab induction did not show evidence of an effect on rejection free survival but it did permit a larger proportion of patients to remain steroid-free, whilst maintaining good graft function. The aetiology of graft failure was similar across all groups.

Discussion:

Despite concerns over long term safety regarding the use of alemtuzumab in renal transplant recipients, UK registry data is reassuring suggesting similar overall performance to alternative induction agents. However alemtuzumab does permit significantly higher numbers of patients to avoid steroids without any obvious penalty.

O0007
Early outcomes of the UK deceased donor kidney fast-track offering scheme

Chris Callaghan[1], Lisa Mumford[2], Laura Pankhurst[2], Richard Baker[3], Andrew Bradley[4], Christopher Watson[4]
[1]Guy's Hospital, London, UK, [2]NHS Blood and Transplant, Bristol, UK, [3]St James's Hospital, Leeds, UK, [4]University of Cambridge Department of Surgery, Cambridge, UK

Introduction:
The Kidney Fast Track Scheme (KFTS) was introduced in an effort to identify organs at risk of discard and to offer them to centres most willing to implant higher risk organs. Using registry data, a retrospective analysis was performed of kidneys offered through the KFTS and the short-term outcomes of those organs subsequently implanted.

Methods:
The KFTS was introduced for DBD donors on 1.11.12 and DCD donors on 1.3 13. Kidneys offered (and transplanted) through the KFTS were compared to those offered (and transplanted) through the National Kidney Allocation Scheme (NKAS) alone, from the introduction of the KFTS until 30.4.15. 'NKAS' included standard DCD donor kidney offering pathways. Outcomes included one-year eGFR (4-variable MDRD), one-year death-censored graft survival (DCGS), and patient survival. Chi-squared tests were performed for categorical variables and the Kruskal Wallis test for continuous variables. Survivals were compared using the log-rank test. Multivariable analysis of DCGS was done using Cox Proportional Hazards modelling.

Results:
Over the study period, 286 DBD donor kidneys were transplanted through the KFTS with 2671 transplanted via NKAS only, with 237 DCD donor kidneys via the KFTS versus 1503 through 'NKAS' only. Organs transplanted through KFTS were more likely to be from older, diabetic donors, with higher frequency of poor cold flush. Cold ischaemic times were longer, and recipients older and less well-matched for HLA, when compared to NKAS transplants. One-year DCGS of KFTS and NKAS DBD donor kidneys were similar (94% vs 95%; p=0.70), while there was a difference between KFTS and 'NKAS' DCD donor kidneys (91% vs 95%; p=0.04). Patient survivals were unaffected by KFTS/NKAS kidney status for both donor types. One-year eGFR was lower in DBD KFTS kidneys than NKAS organs (49 vs 52 mL/min/1.73m^2; p=0.01), but not for DCD KFTS vs 'NKAS' organs (45 vs 48 mL/min/1.73m^2; p=0.10). KFTS status was not an independent predictor of one-year DCGS on multivariable analysis for both DCD and DBD donor kidneys.

Discussion:
A high volume of kidneys are offered through the KFTS. Although KFTS kidneys have less favourable donor, graft, and recipient risk factors than NKAS-only organs, short-term graft and patient outcomes are acceptable.

O0008

Development of de novo anti-HLA antibodies following management of CMV and BK viraemia in kidney transplant recipients: preliminary data from the OuTSMART study

Hugh Leonard[1], Rachel Hilton[2], Leanne Gardner[1], May Rabuya[2], Anthony Dorling[1]
[1]King's College London, London, UK, [2]Guy's and St Thomas' NHS Foundation Trust, London, UK

Introduction:

CMV and BK virus can cause serious infections in kidney transplant recipients. We routinely screen for CMV and BK viraemia during the first post-transplant year and first-line management is immunosuppressive dose reduction (ISDR). We retrospectively reviewed a cohort of patients for evidence of a relationship between viraemia and ISDR during the screening period and subsequent development of de novo HLA antibodies, a recognised risk factor for allograft rejection.

Methods:

Patients in the unblinded arm of the OuTSMART study at our centre were included if they had been transplanted in the era of routine CMV and BK virus surveillance and if they had no detectable pre-transplant HLA antibodies. Clinical records were reviewed for episodes of viraemia and ISDR. Knowledge of HLA antibody status of patients in the unblinded arm is an integral part of the OuTSMART study.

Results:

51 patients transplanted between October 2011 and August 2015 were included, of whom 21 developed de novo HLA antibodies following transplantation. There was a significant difference in the rate of HLA antibody formation in those without viraemia (19%), those with viraemia but without ISDR (29%) and those with viraemia managed with ISDR (57%, p=0.04). Longer duration of viraemia, higher peak viral load and longer duration of ISDR were observed in those who formed de novo antibodies, but did not reach statistical significance.

Discussion:

This is a single centre study limited by small numbers, being retrospective in nature and having ongoing follow up. Nevertheless, these findings suggest that ISDR for CMV or BK viraemia increases the risk of subsequent HLA antibody formation, potentially increasing the risk of allograft rejection. This study highlights the difficulty in optimising immunosuppression in the context of asymptomatic viraemia and suggests that there may be value in more rapid re-escalation of immunosuppression following viraemia resolution, routine monitoring of HLA antibody status post-viraemia, and re-evaluation of CMV and BK viraemia management.

O0009

Detrimental clinical impact on patient and allograft outcomes following urosepsis post renal transplantation

Justin Maini, Kavita Gulati, David Taube, Michelle Willicombe
Imperial College Renal and Transplant Centre, London, UK

Introduction:

Infection is a major cause of mortality and morbidity post-renal transplantation, with urosepsis being the most common infection experienced. To identify possible areas of intervention to prevent UTIs in our centre, a detailed analysis of 537 patients transplanted between 2012-2016 was performed.

Methods:

All patients received induction with alemtuzumab and a steroid sparing immunosuppression protocol. All patients have a ureteric stent with protocolised removal at 6 weeks. Patients receive one week of prophylactic antibiotics and receive co-trimoxazole for 6 months post-transplant. Mean follow up was 2.48(2.27-2.64) years.

Results:

123(22.9%) of patients experienced a microbiologically proven UTI. 85/123(69.1%) of patients had a UTI prior to stent removal. 31/123 (25.2%) had early stent removal due to infection. Females ($p<0.0001$), increasing age ($p=0.0002$), deceased donor recipients ($p=0.04$), diabetic patients ($p=0.02$) and sensitised patients ($p=0.02$) were all at increased risk of urosepsis. UTIs were associated with wound infections ($p=0.005$) and bacteraemias ($p<0.001$). Allograft outcomes in the UTI+ and UTI- patients are shown in the table below.

	UTI+ [N=123]	UTI- [N=415]	p value
Overall patient survival	86.3	97.7	0.002
Death with functioning graft	97.9	90.9	0.038
Censored allograft survival	76.2	97.0	<0.0001
Rejection free survival	72.8	80.0	0.059
DSA free survival	69.9	84.0	0.0079

Discussion:

Urosepsis is common post-transplant and associated with inferior patient and allograft outcomes. Strategies to minimise UTIs need to be established, which may include formal RCTs to determine optimal management of ureteric stents and the use of prophylactic antibiotics.

O0010

Immunological risk stratification in renal transplantation: a retrospective analysis of biopsy-proven rejection episodes and subsequent allograft function

Hannah Burton, Paul Martin, Paramit Chowdhury, Elham Asgari
Guy's and St Thomas' NHS Foundation Trust, London, UK

Introduction:
Immunosuppression protocol after kidney transplantation varies between institutions; the best immunosuppressive regimen remains uncertain. We evaluated the effects of immunological risk stratification on rates of rejection and allograft function.

Methods:
523 patients undergoing renal transplantation in a single centre between January 2011 and December 2015 were categorised according to immunological risk (low, standard or high). Rejection episodes were categorised according to the Banff classification. Serum creatinine and tacrolimus levels were measured periodically throughout the study period.

Results:
19.8% of recipients had ≥1 rejection episode. A further 12% had borderline changes. 93% of rejection episodes occurred within a year of transplantation. The incidence of rejection varied according to immunological risk: 23% low risk, 35% standard risk, and 30% high risk patients experienced rejection.

Graft function was significantly better in low risk patients compared to standard and high risk patients at 1 year (mean creatinine 142 vs 181µmol/L, p=0.012). As expected according to our protocol, mean tacrolimus levels at 1 year were significantly lower in the low risk group compared to the standard and high risk group (6.6 vs 8.3ng/ml, p<0.0001).

Across all risk categories, mean creatinine at 1 year was worse following rejection: low risk 175.5 vs 132.4µmol/L (p=0.01); combined standard/high risk 218.9 vs 157.7µmol/L (p=0.002).

Discussion:
Patients at low immunological risk had a lower incidence of rejection, despite lower tacrolimus levels, and had better graft function at 1 year, suggesting that a lower immunosuppressive burden is appropriate in this cohort. Rejection resulted in worse graft function at 1 year.

O0011

Kidney donor risk evaluation: Comparison of three indexes using French data

Louise Durand, Emilie Savoye, Camille Legeai, Marie-Alice Macher
Agence de la biomedecine, Saint-Denis, France

Background:
US Kidney Donor Risk Index (Rao et al., 2009) and UK kidney donor risk index (Watson et al., 2012) were developed and validated on US and UK data respectively to quantify global graft failure risk. The aim of this study was to create a French donor risk index (FDRI) and compare it with the US and UK indexes when applied to French data.

Methods:
All adults who received a first kidney transplant from a donor after brain death aged over 18 in metropolitan France between 2007 and 2013 were included. Graft survival predictors were identified using a Cox model in order to build a French donor risk index. Variables of the final model were selected via a bootstrap procedure. Missing data were substituted with values obtained by multiple imputation method. The FDRI was internally validated. The discriminatory ability of the three indexes was assessed using the concordance probability estimate (Gönen & Heller, 2005). Kaplan-Meier curves were constructed according to index quartiles.

Results:
The French index is based on the following donor factors : age (continuous, hazard ratio=1,01 [1,01 - 1,02]), hypertension (hazard ratio=1,32 [1,2 - 1,46]), vascular cause of death (hazard ratio=1,19 [1,07 - 1,32]), and estimated glomerular filtration level (continuous, hazard ratio=0,996 [0,994 - 0,998]), as well as use of antidiuretic hormone during intensive care (hazard ratio=0,89 [0,8 - 0,98]) and last entered blood sodium concentration (continuous, hazard ratio=0,99 [0,98 - 0,99]). It was adjusted for recipient age, initial renal condition, dialysis on registration and cold ischemia time. All the indexes tested had a concordance statistic around 0.61. Donor ethnicity, weight, height, diabetes, hepatitis C virus status, length of hospital stay, adrenaline which are included in KDRI and/or UKKDRI are not used in FDRI.

Conclusion:
In terms of global graft survival, the FDRI was as discriminative as US and UK indexes when applied on French data. They appear as useful tools for clinicians to quantify the quality of a deceased kidney donor.

O0012

Viscous or not: Does solution viscosity really affect quality of wash-out at time of organ retrieval and preservation?

Catherine Boffa[1,2], Fenna van de Leemkolk[2], Maria Letizia Lo Faro[2], Nil's t'Hart[3], Srikanth Reddy[1], Edward Sharples[1], Rutger Ploeg[1,2]

[1]Oxford Transplant Centre, Oxford, UK, [2]Nuffield Department of Surgical Sciences, Oxford, UK, [3]University of Groningen, Groningen, The Netherlands

Background:

There is a perception that viscous solutions reduce the rate at which blood is washed out of organs during flush at retrieval, inhibit efficient cool-down and prohibit optimal cortical perfusion of donor organs. Actual data on this topic are scarce. To study perfusion characteristics we compared 4 hypothermic preservation solutions for abdominal organs i.e. UW SCS, HTK, IGL-1 and UW-MPS in a standard large animal model simulating DCD.

Methods:

70kg female pigs were terminated (n=4 per group) followed by aortic cold flush-out of abdominal organs after 40min warm ischaemia. Companies' instructions for volumes were used. During wash-out at pre-defined time points perfusate samples were obtained for further analysis and to determine viscosity, whilst organ temperature and cortical perfusion of kidney and liver using contrast-enhanced ultrasound were measured. Biopsies were taken at start and end for histology and EM, including assessment of wash-out of blood.

Results:

All solutions decreased temperature of liver and kidney not lower than 20°C and 18°C resp. No significant difference in end organ temperatures was observed between different solutions with recommended volumes. However, reduced volumes of 8L HTK (as advocated by some centres) resulted in kidney end temperatures significantly higher when compared to 5L UW (25.6°C vs 16.2°C p=0.03). Cortical perfusion of livers was equally good between solutions (p=0.56), although in kidneys UW penetrated better compared to HTK (p=0.02) and UW-MPS (p=0.06). No significant differences in kidneys were found with histology and EM reflecting adequate wash-out.

Conclusions:

This study contradicts a popular perception and provides evidence that increased viscosity of a preservation solution does not negatively affect cooling and quality of organ perfusion. In fact, we found that UW SCS may be better at flushing out blood and cooling the kidney. This study also provides interesting physiological data about the interaction between cold flush-out solutions and kidney and liver tissue at time of retrieval and start of preservation.

O0013

Immunological risk stratification and 3 month protocol biopsies in renal transplant patients: A single centre experience

Mysore Phanish, Peter Andrews
SW Thames Renal and Transplantation Unit, St Helier Hospital, Carshalton, London, UK

Introduction:

We report our experience of 3m protocol biopsies and immunological risk stratification in a cohort of renal transplant recipients from 2010-2014.

Methods:

This was a retrospective cohort study. A total of 238 transplants were performed. 45% were living donor and 55% deceased donor transplants. 166 patients were stratified to Low immunological risk, LIR (70%) and 72 in to high immunological risk, HIR (30%). Patients with 2nd or subsequent transplants and those with HLA Ab calculated reaction frequency (CRF) >50% and/or a donor specific anti-HLA antibody (cross match negative) were classed as high immunological risk. All other patients were classified as low immunological risk. All patients received basiliximab induction followed by tacrolimus, MMF and prednisolone . In low immunological risk patients, prednisolone was stopped on d7 and MMF was switched to Azathioprine after 3 months if protocol biopsy was normal. The objectives of 3 month protocol biopsies were: 1.To detect subclinical rejection and other graft pathologies. 2. To guide change in immunosuppressive therapy.

Results:

We did protocol biopsies in 65% of patients. 36 patients had biopsy proven acute rejection (BPAR) grade Banff 1A or above and there were 43 rejection episodes. The rejection rate was 18% (including indicated and protocol biopsies). 15 rejections were diagnosed on protocol biopsy (6.3%). Rejection rate excluding protocol biopsy was 12.7%. There were no biopsy-related complications, Out of 15 patients who had rejection on protocol biopsy, 2 patients (13%) had an eGFR of >60 and 13 (87%) had eGFR of <60. Two cases of BK virus nephropathy (BKVN) were detected on protocol biopsy. Further analysis of rejections detected on protocol biopsy showed 6.6% rejections in LIR group and 5.5% in HIR with no statistical difference between the groups (2x2 Chi Square with Fishers's exact test). Subgroup analysis showed comparable 1 year eGFR in low and high immunological risk groups (55 vs 50 ml/min). NODAT rates were 5-8% with significant difference between HIR and LIR group. 1y graft and patient survivals were 95% and 97% respectively.

Discussion:

Three month protocol biopsies are safe and detect subclinical graft pathologies. Most of the subclinical rejections detected on protocol biopsies are in patients with eGFR <60 with no statistically significant difference in rejections rates detected on protocol biopsies in HIR and LIR group. Based on these observations and lack of significant cost benefits upon Azathioprine switch, we have changed our protocol to: **1**. 3m protocol biopsy only in HIR group with MMF withdrawal if biopsy is normal.**2.** Biopsy in LIR based on clinical indication (eg: eGFR deemed suboptimal for a given Tx kidney). **3.** One off BKV PCR in LIR group at 3 months. **4**. No MMF to Azathioprine switch in LIR group unless clinically indicated.

O0014

Assessment of skin protection among renal transplant recipients on immunosuppression

Carolina Fernandez[1], Manuraj Singh[1], Shiva Nayeri[2], Rojean Tavarro[2], Iain MacPhee[2], Joyce Popoola[2]
[1]Department of Dermatology, St George's University Hospital, London, UK, [2]Department of Nephrology and Transplantation, London, UK

Introduction:

Patients on long term immunosuppressants have an increased incidence of skin cancer preventative strategies are key to reducing this in renal transplant recipients.

Methods:

A nine-point questionnaire was distributed to all patients attending the renal transplant outpatient clinic August-October 2016 and collected anonymously to encourage open reporting. Data analysis was using SPSS.

Results:

100 patient questionnaires were reviewed. Mean transplant half-life was 7.95 years (±7.71). 72% used daily sun protection (SPF 50+). 11% no sun protection of this group the mean transplant half-life was 11.54 years with majority having III- VI skin type, male: female ratio of 10:1. 56% patients questioned had not attended a dermatology review. Of the 44% of patients who received a skin check only 22% were in the last year. 19% claimed to have monitored their own skin for changes within the last year. Assessing why patients did not comply with daily sun protection: 22% reported forgetting & 22% reported sometimes getting caught out in the sun. 6% of patients commented on the cost of sunscreen deterring them from applying daily. Only 2% claimed to be unaware that sun protection was required. 13% stated they never/rarely burnt. 7% reported that they did not like applying. The findings suggest majority of our patients report complying with the British Dermatology Association recommendations for skin protection and most patients appear aware that daily sun protection is required 98%, suggesting the message is being successfully delivered by consultations/pre transplant reviews/handbooks & posters.

Summary:

Non-adherent patients had a longer mean transplant half-life, tended to be younger, male and have type III-VI skin type. Specific update education may be required in this cohort of patients. The main reason for patients not using daily sun protection was forgetting. As there is an increased risk of non-melanoma skin cancers in the immune-compromised transplant patients (up to 7 x the general population) it may be justified to get sun screens prescribed on the NHS. The main reason for reduced adherence however, was forgetting. Therefore, there may be a role for innovation around measuring UV exposure through sensors and reminders that are readily available to patients particularly in the cohorts profiled as less likely to adhere in our patient group.

O0015

Psychological issues associated with Absolute Uterine Factor Infertility and attitudes of patients towards Uterine Factor Infertility and Uterine Transplantation: A face-to-face consultation

Srdjan Saso[1,2], Benjamin Jones[1,2], Meen-Yau Thum[3], Joseph Yazbek[1,2], J Richard Smith[1,2]
[1]Imperial College NHS Trust, London, UK, [2]Imperial College London, London, UK, [3]The Lister Fertility Clinic, London, UK

Introduction:
Women with absolute uterine factor infertility (AUFI) are considered as being 'unconditionally infertile'. Potentially, these women may benefit from uterine transplantation (UTx). Despite the progress made towards managing the psychological sequelae for these patients, the barrier of infertility remains. This study was therefore designed to explore potential patients' knowledge of and attitudes towards UTx.

Methods:
Women with AUFI who were seeking information on UTx were taken through a semi-structured interview involving a brief baseline questionnaire. They then participated in a Q&A session following a 20 minute video exploring the main risks and benefits for UTx.

Results:
Forty women were interviewed. 92.5% (n=37) were in stable relationships. 17.5% (n=7) have children of their own, either via surrogacy or adoption. Following the video presentation and Q&A session, 97.5% (n=39) would undergo UTx ahead of surrogacy and adoption in full knowledge that the latter two options would be ultimately safer for their own wellbeing and the fact that the graft could fail even prior to conception. All felt that UTx should take place, and 92.5% saw UTx as achievable. All women felt that UTx research would be of benefit to the fields of medicine, surgery, obstetrics and gynaecology.

Discussion: This study is the first to establish a qualitative relationship between AUFI patients and their curiosity and desire for UTx. It also demonstrates a keen interest in UTx, partly because other options seem difficult to access. In highly motivated women UTx research can be considered ethical and the majority of such women would be interested in attempting it. It is also worth noting that people appear to be distancing themselves from the risk. This will require careful assessment in any clinical programme.

O0016

Quality of life outcomes in Haemodialysis patients vs. deceased and living donor recipients

Chalini Lankage[1], Hannah-May Elmasry[1], Hannah Maple[2], Mohammed Salik Sait[1], Nizam Mamode[2,1], Nicos Kessaris[2,1]

[1]King's College London Medical School, London, UK, [2]Guy's and St Thomas' NHS Foundation Trust, London, UK

Introduction:

Kidney transplantation offers a multitude of benefits to those with end-stage renal failure. The aim of this study was to quantify the quality of life advantages to transplantation over remaining on haemodialysis.

Methods:

Haemodialysis patients (HDx) and living and deceased donor kidney recipients (Rx collectively, LRx and DRx, respectively) from our 2013-15 cohorts were asked to complete a questionnaire 12 months after their transplant. The questionnaire included validated measures of life satisfaction, mood, distress and health-related quality of life (HRQoL).

Results:

296 questionnaires were completed (98 HDx vs. 198 Rx (49 living donor, 149 deceased donor). There was a statistically significant difference in age between HDx and Rx patients (58.4 vs. 54.0 yrs; p=0.022), but no difference between LRx and DRx patients (51.3 vs. 55.0; p=0.089). Life satisfaction scores were significantly lower in HDx patients when compared to those who had received a transplant (15.0 vs. 25.0; p<0001). Mood and distress scores were significantly higher in HDx patients when compared to those who had received a transplant (2.0 vs. 0.0; p<0.0001 and 15.0 vs. 10.0; p<0.001 respectively). There was no statistically significant difference in life satisfaction, mood or distress scores between the different categories of transplant patient (deceased vs. living donor). There was a statistically significant difference in HRQOL between haemodialysis patients and both living and deceased donor recipients. Living donor recipients scored highest, followed by deceased donor recipients and haemodialysis patients (46.0 vs. 41.5 vs. 33.0; p=0.005).

Discussion:

This study has further quantified the psychological and health-related quality of life advantages of transplantation over remaining on haemodialysis. The type of transplant received has no bearing on life satisfaction, mood or distress. Recipients of living donor kidneys have significantly better health-related quality of life scores than recipients of deceased donor kidneys, who in turn have better scores than those on haemodialysis.

O0017

Transplant outcomes in recipients of organs from donors that died from primary hypoxia

Patrick Trotter[1,2], Matthew Robb[2], Dominic Summers[1,2], J A Bradley[1], Christopher Watson[1], James Neuberger[3,2]

[1]Department of Surgery, University of Cambridge, Cambridge, UK, [2]NHS Blood and Transplant, Bristol, UK, [3]Liver Unit, Queen Elizabeth Hospital, Birmingham, UK

Introduction:

There is concern that use of organs from donors that die from hypoxia secondary to hanging, drowning, or carbon monoxide (CO) inhalation may be associated with inferior transplant outcomes, but there is a lack of good evidence to support or refute this view.

Methods:

The UK Transplant Registry was used to identify organ donors who died from hypoxia as a result of hanging, drowning, or CO inhalation over a 13 year period up to 31/12/2015, and the transplant outcome of recipients of organs from such donors compared with those from all other types of deceased donor.

Results:

Of 17,262 consented deceased donors over the study period, 546 (3.2%) died from hypoxia secondary to hanging, drowning or CO inhalation, of which 469 (85.9%) proceeded to organ donation. Compared to all other deceased donors, such donors were significantly younger (median age 33 years IQR (22-45) vs. median age 51 IQR (38-61), $p<0.001$), and more likely to be male (64.6% vs. 53.3%, $p<0.001$). They provided organs for 1,296 transplants and unadjusted patient and graft survival (at 5-10 years) was significantly better for those who received a kidney or liver from a donor dying from hypoxia compared to those receiving organs from all other deceased donors ($p<0.001$). Adjustment for donor age obviated this survival advantage for kidney transplant recipients (Hazard Ratio (HR) 0.915 (95% Confidence Interval (CI) 0.682-1.228, $p=0.555$). One year unadjusted patient survival after lung transplantation was significantly worse for recipients of lungs from hypoxic donors, even after adjustment for donor age, recipient age, and smoking status (HR 1.784 (95% CI 1.134-2.805, $p=0.0122$).

Conclusion:

Donors who die following hanging, drowning or CO inhalation are a valuable source of organs for transplantation and give good transplant outcomes following kidney and liver transplantation, although they are associated with inferior outcomes following lung transplantation.

O0018

Peer educator led home-based family education in Living Donor Kidney Transplantation (LDKT) for Black & Asian patients with end-stage kidney disease (ESKD)

Neerja JAIN[1], Dela Idowu[1], David Makanjuola[2], Sue Moore[3], Michael Nation[1], Lisa Silas[4], Gurdish Bhana[1], Lisa Burnapp[5]

[1]Kidney Research UK, Peterborough, UK, [2]Epsom and St Helier University Hospitals NHS Trust, London, UK, [3]University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK, [4]Guy's and St Thomas' NHS Foundation Trust, London, UK, [5]NHS Blood & Transplant, UK, UK

Introduction:

While kidney transplantation is the best treatment option for improved quality of life and longer-term survival for adults in ESKD, the number of Black, Asian & Minority Ethnic (BAME) patients accessing LDKT is substantially lower compared with white patients. Research has identified many barriers for the low access rates including recipients' reluctance to initiate the conversation about LDKT and lack of skills and knowledge to do so. This abstract describes a pilot project to address these issues.

Methods:

Home- based education as an intervention has been very effective and successful in increasing living donation awareness and evaluations in the BAME communities in the USA & Netherlands. So this is combined with another intervention, Peer Educators (PEs) - lay people from the target community who want to "give back" to their communities with a passion for the subject and a natural empathy in terms of language, culture and health care experience. It is already a proven, evidence based model in effective engagement with BAME communities on donation issues (*Clinical kidney Journal, 2015*).

Results:

16 PEs are now registered volunteers of the two major renal transplant pilot centres. All, except 4 (due to their ill health) recently completed accredited training (=A level). The teams have developed templates, policies and procedures to help replicate this model elsewhere including ensuring governance, safety and confidentiality. Now, over the final 6 months of the pilot, we will measure: 1) Expressions of interest from patients and their families about LDKT; 2) Attendance at patient education sessions; 3) Home visits- uptake. 4) Experience of patients, potential donors, the multi-disciplinary team and PEs using focus groups and questionnaires.

Discussion:

Mistrust exists within BAME communities with regards to healthcare professionals (HCPs), but a collaborative approach between PEs and HCPs is likely to be better received. This 12 month pilot to test an innovative UK approach in engaging with BAME communities on LDKT, working in partnership at grassroots level, will help to inform best practice in this area and increase LKDT.

O0019

Deceased donor kidney transplantation in elderly recipients; outcomes after listing and transplantation in patients aged 70 years and older

Anna Maria Adamusiak[1], Chloe Brown[2], Tracey Salter[3], Peter Andrews[3], Christopher Callaghan[1]
[1]Department of Nephrology and Transplantation, Guy's Hospital, London, UK, [2]NHS Blood and Transplant, Bristol, UK, [3]Department of Nephrology, St Helier Hospital, London, UK

Introduction:
The number of patients aged ≥70 years receiving renal replacement therapy is increasing. There is uncertainty regarding whether listing for deceased donor kidney-only transplantation (DDKTx) is appropriate in this age group, and if outcomes post-transplant are acceptable. This study aimed to address these issues.

Methods:
UK transplant registry data from 1 January 2005 – 31 December 2013 were analysed, with end of follow-up on 1 August 2016. Outcomes of patients aged ≥70 years at listing for DDKTx were compared with those aged 60-69 at listing. In a second analysis, post-transplant outcomes were compared in those aged ≥70 years at time of transplantation with those aged 60-69 years. Multivariable analyses were performed to identify predictors of graft and patient survival.

Results:
During the study period 4739 patients aged ≥60 years were listed for DDKTx; 20.3% (960) were ≥70 years old. By 1 August 2016, 42.1% of the older cohort had been transplanted but 50.3% had been removed or died on the list. Over the same period, 3261 patients aged ≥60 years underwent DDKTx; 727 of them (22%) were aged ≥70 years. Elderly recipients were more likely to receive a kidney from an older donor (median (IQR) age 62 (53-69) vs 58 (49-66) years; $p<0.001$), or a dual transplant (7.2% vs 4.1%; $p<0.001$). There were no significant differences in proportions of DCD donors, graft CIT, recipient ethnicity, or cRF between the two groups. None of these variables were predictive of graft or patient survival in the elderly group. Graft outcomes were similar, with no significant differences in rates of PNF (2.9% vs 3%), rejection within 3 months (9.1% vs 7.9%), graft function at 1, 3, or 5 years, or death-censored graft survival up to 10 years ($p=0.27$). Patient survival was worse in the elderly group ($p<0.001$) and more had died with a functioning graft by the end of follow-up (20.6% vs 15.2%; $p<0.01$).

Discussion:
More than half of elderly patients listed for DDKTx are removed or die on the list. Elderly recipients have similar graft function and death-censored graft survival post-transplant to those aged 60-69 years at transplantation. Patient survival is worse, however, and a high proportion die with a functioning graft. Organ allocation scheme should be altered to enable better matching of graft survival and recipient life expectancy.

O0020

What are the different costs of using circulatory death compared to brain death donors for simultaneous pancreas and kidney transplantation?

Leaanne Pallant, Gail Defries, Stephanie Smith, Christopher Watson
Cambridge University Hospitals, Cambridge, UK

Introduction:

In the UK last year 22% of DBD and 9% of DCD donor pancreases were used for transplantation; many more patients were admitted but the transplant did not proceed, either because the donor did not die in a suitable time frame (DCD) or because of concerns about the quality of the pancreas. We sought the actual costs and, where appropriate, hospital tariffs for all elements of the patient's admission for those non-proceeding transplants.

Methods:

The charts of all patients admitted for SPK transplantation from DCD and DBD donors at our centre between 1st January and 25th November 2016 were reviewed.

Results:

In the time period, 22 patients were admitted for a DCD transplant, of which 9 (41%) proceeded to transplant, and 28 patients were admitted for DBD transplants with 14 (50%) proceeding. For the 27 non proceeding transplants, he following average costs were incurred: Coordination of admission £125; bed stay £72; lab tests £293; blood cross match £68; Chest x-ray £101; transport £220. The total cost per non proceeding patient was £879.

Discussion:

In the first 11 months of 2016 we spent £23733 in admitting patients for SPKs that did not proceed, which represents an additional tariff of £1031 for every actual transplant.

O0021

The Orgamites™: A tool for changing attitudes towards organ donation from children

Luke Yates
Live Life Give Life, London, UK

Introduction:

At present, there are around 6500 people waiting for a suitable organ for transplantation in the UK. Children comprise an estimated 2% of the active waiting list. With a 5% fall in transplants in the UK between 2014 and 2015, there is increasing pressure to provide organs for transplants and this is even more acute in children. In fact some children are not even listed for transplantation when clinicians deem the chance of an organ being available as negligible. Fewer cadaveric donors exist for any given child as compared to adults, with parents making decisions to donate on the child's behalf. Overall, children have a significantly increased risk of morbidity whilst awaiting organ transplantation.

Methods:

To understand the attitudes of adults to organ donation in children, we conducted an online survey (YouGov) of 4227 adults, of which 989 were parents (with children under 18 years of age)**.**

Results:

We found that only 45% of adults felt able to discuss organ donation with their children. When compared to other difficult topics adults were willing to discuss with children, including terrorism, cancer, and drug addition, organ donation was consistently ranked the lowest. Furthermore, we found that 15% of parents had spoken to their children about organ donation, compared to 40% speaking to their spouse/partner about it. As a means to address the attitudes of adults to organ donation in children we created a free online resource called 'The Orgamites™, - a child-friendly online cartoon depiction of major transplantable organs.

Discussion:

The resources available (www.orgamites.com.) are to aid clinicians, health professionals, teachers and parents discuss organ donation with children, alongside existing support, in a bid to change societal attitudes in the future.

O0022

Can the best practice index admission for kidney transplantation be covered by a standard national tariff? An economic analysis of a representative cohort

Charles Reynard, Rebecca Varley, David Van Dellen, Titus Augustine
Department of Renal and Pancreas Transplantation, Manchester Royal Infirmary, Manchester, UK

Introduction:

The National Health Service is undergoing stringent fiscal scrutiny of its services. National tariffs are being constructed to provide lean and efficient services akin to private health models. However current mechanisms for costing a service follow a 'top-down' approach, relying on assumptions and estimations from large hospital databases. Consequently regional tariffs differ vastly for kidney transplantation. There is little in-depth work on patient-level costing (PLC) in this area. We aim to provide a comprehensive 'bottom-up' cost of an uncomplicated adult renal transplant at our centre.

Methods:

Retrospective pathway analysis of 48 patients from April 2015 to April 2016.
Data was systematically collected for each index inpatient transplant episode, with deconstruction it into its independent components for costing. Trust-specific costings were sourced directly from departments. Repeat surgery for complications and critical-care admissions were excluded.

Results:

The mean overall cost for a standard adult renal transplant was £15,612 (range £12,048 - £33,038). It worked out to £15,983 for deceased donor transplants and £14,868 for living donor transplants. Mean length of stay was 10.3 days (range 6-32). 35.4% required haemodialysis for delayed graft function. 18.8% required additional biopsy. In this cohort no direct correlation was found between graft/recipient factors and cost. These costs will increase once complex cases are included in individual patient costings.

Discussion:

The large variation in cost between even 'uncomplicated' transplant patients highlights the individuality of each case. Current costing mechanisms fail to capture the nuances of an inpatient episode; critically missing high cost areas- staff interactions, out-of-hours premiums, biopsies, haemodialysis, and impact of comorbidity. Regional variations will always exist due to the non-standardised nature of costing within the NHS. To deliver a best practice national kidney service should a national tariff be introduced, it is paramount that baseline costings are accurate. PLC exercises should be utilised to ensure this. It is vital that these costing exercises should model all the numerous variables, both donor and recipient, that are increasingly being encountered to ensure that transplant centres are correctly reimbursed.

Calne-Willliams Medal presentations
Thursday 2nd March, 09:00 – Queens Suite 2

CW0001
Inequity in graft access and delayed re-transplantation of late hepatic artery thrombosis patients lead to inferior outcomes

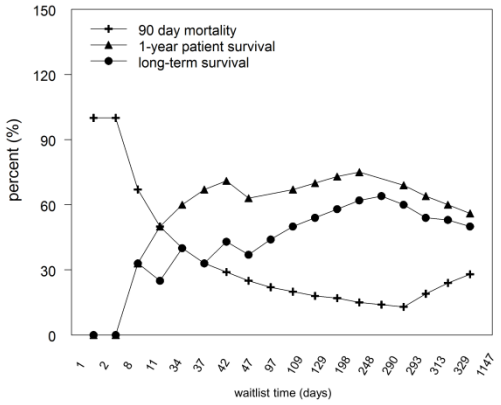
Bettina M Buchholz[1,2], Shakeeb A Khan[1], Bridget Gunson[1], Hynek Mergental[1], John R Isaac[1], Keith Roberts[1], Paolo Muiesan[1], Darius F Mirza[1], M Thamara PR Perera[1]
[1]Liver Unit, Queen Elizabeth Hospital Birmingham, Birmingham, UK, [2]Department of Surgery, Rheinische Friedrich-Wilhelms-Universität, Bonn, Germany

Introduction:
Definitive treatment for late hepatic artery thrombosis (L-HAT) is re-transplantation (re-LT); however the L-HAT associated disease burden is poorly represented in allocation models.

Methods:
The re-LT experience between 2005 and 2016 at our institution was reviewed with specific focus on the L-HAT cohort.

Results:
99 out of 1725 (5.7%) liver transplantations were re-LT with hepatic artery thrombosis as the main indication (n=43; 43%) distributed into early (n=25) and late (n=18) episodes. Late HAT re-LT candidates had frequent hospitalisations due to significantly higher rates of ITBL (72% vs. 18%), bilioma (39% vs. 0%), hepatic abscesses (61% vs. 7%) and sepsis (67% vs. 7%); this necessitated higher rate of biliary interventions (44% vs. 7%) as opposed to late re-LT for non-HAT indications. Median MELD (13 vs. 26) and UKELD (54 vs. 59) did not accurately reflect this graft failure associated morbid events. As a result, re-LT candidates with L-HAT received low prioritization and had the longest wait time until allocation of an acceptable graft which contributed to poor outcomes. The L-HAT cohort had worse 90-day mortality (28% vs. 12%; p<0.02) driven by sepsis and multi-organ failure and inferior 1-year patient survival (60% vs 83%; p<0.001) when compared with re-LT for other indications. However, BAR score (8 vs. 15) and 3-month mortality score (4 vs. 11) failed to prognosticate transplant outcome in L-HAT. Our data suggests that access to a second graft after a median wait list time of six weeks achieved the best short- and long-term outcome in re-LT for L-HAT (figure 1).

Fig. 1



Discussion:
Competition for an ideal graft and inequity in graft access are fundamental obstacles for re-LT in L-HAT. Organ allocation policy with interval exception status for underprivileged L-HAT retransplant candidates during the best window of opportunity would facilitate better transplant outcomes.

CW0002

The golden hour: length of total warm ischemia time presages development of severe acute kidney injury after DCD liver transplantation

Marit Kalisvaart[1,2], Ilaria Umbro[3], Jubi de Haan[2], Irene Scalera[1], Andrea Schlegel[1], Jan IJzermans[2], Thamara Perera[1], John Isaac[1], Anna Paola Mitterhofer[3], Paolo Muiesan[1], Jeroen de Jonge[2]
[1]University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK, [2]Erasmus University Medical Centre, Rotterdam, The Netherlands, [3]Sapienza University of Rome, Rome, Italy

Introduction:

Acute kidney injury (AKI) is more frequently observed in DCD liver transplantation (LT). The donor warm ischemia time (DWIT) aggravates hepatic ischemia/reperfusion injury and thereby enhances renal impairment. Our aim was to analyse the impact of all warm ischemia on development of AKI after DCD LT.

Methods:

Retrospective two-centre study of all DCD LT (2008-2016). AKI was defined following KDIGO criteria. DWIT was divided into two periods: agonal phase (treatment withdrawal–circulatory arrest) and asystolic phase (circulatory arrest–cold perfusion). Total warm ischemia time (TWIT) was defined as the sum of DWIT and recipient warm ischemia time (RWIT).

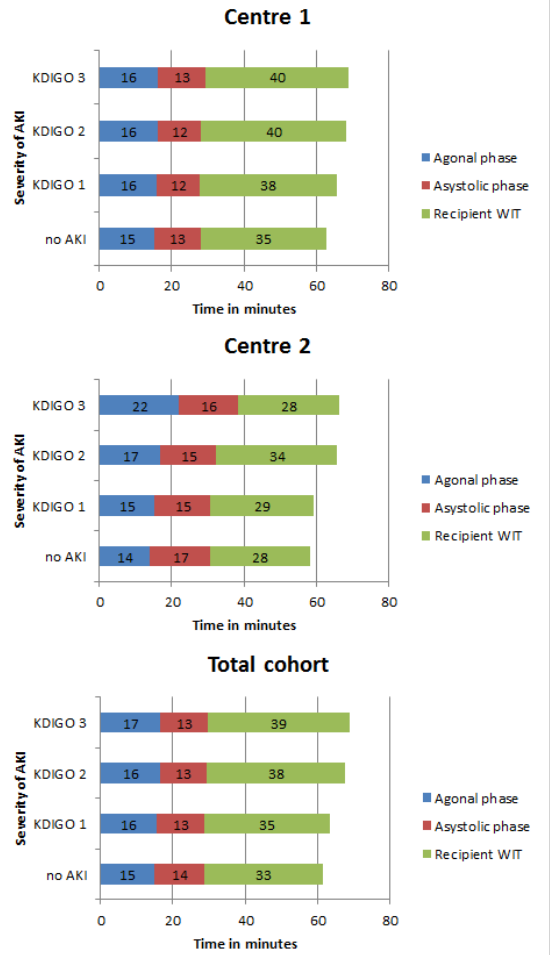
Results:

239/368 recipients (65%) developed AKI, including 151 (41%) severe AKI (KDIGO stage 2&3). The relation between warm ischemia and AKI differed between centres: In centre 1 only RWIT was longer in recipients with severe AKI (40 vs 36 minutes; p=0.003), while in centre 2 only agonal phase was longer in the severe AKI group (19 vs 15 minutes; p=0.028). Analysis of the entire cohort showed that TWIT increased with severity of AKI (figure 1): 61 minutes in recipients without AKI up to 69 minutes in recipients with AKI stage 3 (p<0.001). Multiple logistic regression identified length of TWIT as a factor associated with severe AKI (OR 1.032; 95%CI 1.014-1.051; p<0.001).

Discussion:

The extra DWIT in DCD LT exposes grafts to more warm ischemia upon the warm ischemia period prior to reperfusion. Subsequently, length of TWIT is associated with development of severe AKI and should ideally not exceed 60 minutes.

Figure 1: total warm ischemia and AKI



CW003

Liver transplant outcomes from declined liver allografts: How much worth the risk of transplanting organ when others say "No"

Francesca Marcon, David Bartlett, Andrea Schlegel, Hynek Mergental, John Isaac, Paolo Muiesan, Darius Mirza, Thamara Perera
Liver Unit, Queen Elisabeth Hospital, Birmingham, UK

Introduction:
Marginal liver grafts supplement the organ pool but there lacks a clear definition on marginality. In an era where nearly 200grafts/year are non-utilised upon offering, we aimed to analyse whether previous refusal by other transplant centres had any impact on transplant outcomes.

Patients and Methods:
Organ offer patterns of all adult liver transplants (LT) performed in December 2010-2015 were analysed. Data on previous refusal was captured from NHSBT EOS database. The reasons for refusal by other centres were categorised in to 03groups; *quality*, *logistics* and *other reasons that are not specified*. Complications were graded as per Clavien-Dindo classification and transplant outcomes were analysed.

Results:
Total of 206/909 (22.6%) LT were performed from grafts refused by at least one other centre. Majority [141(68.4%)] were DBD grafts. Donor liver dysfunction existed in 79 (38%) meanwhile 80(39%) donors had out-of-hospital cardiac arrest. Main reason for refusal was previous medical history (n=201), followed by donor age (n=87), poor function (n=85), no suitable recipients (n=76), organisational logistic (n=51), organ size (n=41) and combination of factors (n=83; 65%). The average refusal rate was 3.5/organ (4.2 vs. 3.2; DCD vs. DBD respectively). 44% (DBD) and 65% (DCD) grafts were refused by >4 transplant centres (p=0.006). When refused by >1 centre, there was no agreement on reason for refusal in 65% of cases. The highest disagreement was for DBD offers (60% vs. 40% DCD;p>0.05). By category, reasons for refusal were *organ quality (n=120; 58%), logistics (n=67; 33%)* and *other reasons (n=19; 9%)*. Main indication for transplantation was ALD (n=55 patients; 26.7%), Median UKELD was 53 (32-68). 90-day mortality due to graft failure was 8/206 (3.8%); 6 were from quality refusal group, but none were DCD's. There was no difference in the 3 refusal groups in terms of post-operative complications (p=0.6), rejection (p=0.9) and in graft survival (p=0.9).

Conclusion:
The mortality rate due to graft failure is within acceptable rates, and these data highlight diverse opinion on graft assessment and acceptability amongst transplant surgeons. Most of the centres refused grafts claiming quality issues; this was proven to be correct only in minority of cases.

CW004

Hyperoxic normothermic perfusion is associated with high levels of syndecan-1 and protein carbonyl suggesting production of reactive oxygen species

Anastasia Tsyben[1], Mazin Hamed[2], Vasilis Kosmoliaptsis[2], Christopher Watson[2]
[1]*University of Cambridge, Cambridge, UK,* [2]*Department of Surgery, Addenbrooke's Hospital, Cambridge, UK*

Introduction:
Normothermic ex situ liver perfusion (NESLiP) was developed to facilitate assessment of marginal livers and minimize cold ischaemia. Following initial experience with 6 NESLiP liver transplants, where 5 patients suffered post reperfusion syndrome and/or profound vasoplegia, we sought to investigate if this could be related to reactive oxygen species (ROS) formation due to the use of high perfusate oxygen tensions.

Methods:
We compared 5 livers undergoing NESLiP at high and 5 at low oxygen tensions, measuring perfusate concentrations of syndecan1 and liver tissue protein carbonyls from samples taken 3 to 4 hours after the onset of perfusion.

Results:
Hyperoxic livers had higher levels of protein carbonyls (p=0.04) and higher perfusate concentrations of syndecan compared to livers perfused at lower oxygen tensions (see table). Median hyperoxia perfusate pO2 was 75kPa, normoxic pO2 was 20kPa.

	Hyperoxia (n=5)	**Normoxia (n=5)**
Syndecan 1 (median (range))	290 ng/ml (161-377)	234ng/ml (122-294)
Protein Carbonyl	42 nmol/g (35-49)	33 nmol/g (28-40)

Discussion:
High oxygen tensions have previously been shown to cause reperfusion injury and refractory vasoplegia from generation of ROS and reactive nitrogen species in animal models and in cardiac patients undergoing cardiopulmonary bypass. NESLiP in the presence of high oxygen tensions appears to be associated with ROS production (higher carbonyls) with associated glycocalyx damage (higher syndecan). Subsequent clinical perfusions (n=10) using air in place of oxygen to oxygenate the perfusate have been associated with neither post reperfusion syndrome nor vasoplegia.

CW005

Normothermic *ex situ* perfusion permits assessment and transplantation of declined livers

Vas Kosmoliaptsis[1], Lucy Randle[3], Keziah Crick[2], Corrina Fear[2], Andrew Butler[1], Chris Watson[1]
[1]University of Cambridge Dept of Surgery, Cambridge, UK, [2]Cambridge University Hospitals NHS foundation Trust, Cambridge, UK, [3]OrganOx Ltd, Oxford, UK

Introduction:

19% of DBD and 64% of DCD donor livers in the UK are not used, while 17% of patients either die or are removed from the transplant waiting list. In order to improve our utilisation of livers that might be otherwise declined we initiated a programme of normothermic *ex situ* liver perfusion (NESLiP) using the LiverAssist® device from Organ Assist (Groningen).

Methods:

Livers with a long estimated cold ischaemic time, or other higher risk livers, were subject to NESLiP following arrival at our centre. Perfusion continued until implantation. These livers were compared with a contemporaneous cohort of cold stored livers transplanted before and after each of the NESLiP livers ("Controls").

Results:

16 livers declined by other centres were transplanted after a period of normothermic perfusion, including 4 fast track offers and 2 offered for research.

	NESLiP (n=16)	Control (n =32)
Liver offer type: DBD or DCD Research/Fast track/National/Zonal	11 DCD, 5 DBD 2R, 4F, 4N, 6Z	22 DCD, 10 DBD 0R, 5F, 6N, 21Z
US Liver donor risk index (median, range)	2.17 (1.14 - 3.66)	2.18 (1.18-3.82)
UK Liver index (Collett et al.) (median, range)	1.92 (0.80-1.92)	1.82 (0.72-2.93)
Ex vivo storage time (mins) (median/range)	778 (564-1561)	439 (333-721)
Graft survival (death censored)	15/16=94%	30/32=94%
Patient survival	15/16=94%	100%
Ischaemic cholangiopathy	4/16=25%	7/32=22%
Peak ALT in first 7 days (median/range)	847 (187-4991)	697 (155-3761)

Discussion:

NESLiP livers were subject to greater periods of extracorporeal storage, including a median of 308 minutes (range 122-1561) of normothermic perfusion, with results comparable to cold storage. NESLiP provided a means of halting cold ischaemia and enabled *ex situ* evaluation of livers that may not otherwise have been used for transplantation. More work needs to be done to identify livers at risk of cholangiopathy, and to improve the outcomes of the perfused livers.

CW006

Long term quality of life following liver transplantation with brain dead (DBD) versus cardiac death donors (DCD)

Eleanor Wilson[1,2], Francis Robertson[1,2], Brian Davidson[1,2]
[1]*Royal Free Hospital, London, UK,* [2]*University College London, London, UK*

Introduction:
In the UK to meet the rising demand for liver transplant there has been a progressive increase in the use of grafts from donors after cardiac death (DCD). Recipients of DCD grafts have a 2-fold increase risk of mortality and graft loss following liver transplant in comparison to brain dead (DBD) donors. Whether the use of a DCD graft impacts on the QoL of those recipients who have survived remains to be elucidated.

Methods:
NHSBT Data was reviewed for patients undergoing liver transplantation in the UK between May 1968 and June 2016. Clinical data reviewed was recipient age, gender, UKELD scores, cold ischaemic time, type of graft (DCD and DBD only) and Lifestyle Activity Score. Lifestyle activity scores were grouped by whether patients felt able to perform any kind of work or not and was used as the indicator of quality of life.
Chi Squared and linear regression models were performed on SPSS.

Results:
16198 patients were identified (9213 Male, 6979 Female and 6 unspecified.) 14922 patients received a DBD graft (92.1%), 1276 received a DCD graft (7.88%). Patients receiving DCD grafts had similar QoL at 3 months (31.8% unable to work vs 33.1%, p=0.351) and at 1 year (10.2% vs 9.32%, p=0.404), 2 years (7.65% vs 7.67%, p=0.980), 3 years (6.90% vs 6.86%, p=0.972), 4 years (6.45% vs 6.56%, p=0.934) and at 5 years (4.53% vs 6.74%, p=0.157.)(All DCD vs DBD). Adjusting the data for transplant risk factors did not influence the results.

Discussion:
The use of DCD grafts is associated with increased post transplant mortality but the long-term quality of life of survivors is the same independent of whether brain dead or cardiac death donors are utilised. A more detailed QoL assessment, performed prospectively, would be useful to validate this finding.

CW007

Bile production during normothermic machine perfusion of human livers for transplantation

David Nasralla[1], Charles Imber[2], Rutger Ploeg[1], Peter Friend[1]
[1]*Nuffield Department of Surgical Sciences, University of Oxford, Oxford, UK,* [2]*Royal Free Hospital, London, UK*

Introduction:
Normothermic machine perfusion (NMP) involves perfusing a liver with oxygenated blood and additives at 37^{o}C. Previous animal studies suggest that bile supplementation in the form of bovine sodium taurocholate (BNaT) is necessary to prevent cholestatic injury and maintain bile production, a measure widely regarded as an indicator of organ viability. However, it is unknown whether human livers are able to take up BNaT and excrete it in bile or whether bile production during NMP relates to outcome after transplantation.

Methods:
A RCT comparing continuous NMP vs Static Cold Storage in liver transplantation was conducted by the Consortium for Organ Preservation in Europe (COPE). Bile production was compared between NMP livers with minimal preservation injury (MPI; AST<200IU/L) and significant preservation injury (SPI; AST>1000IU/L) as determined by post-transplant peak AST. Bile salt levels were measured in NMP perfusate and bile samples and related to bile production during NMP.

Results:
MPI and SPI donors were well matched for age, sex and ET-DRI. Recipients were well matched for age, sex and MELD score. Mean hourly bile production during NMP was significantly better in MPI livers (n=25) compared to SPI (n=27) (13.1ml/hr MPI vs 7.8ml/hr SPI; p=0.03) although bile salt composition was similar. Bile salt analysis revealed that bovine sodium taurocholate was taken-up by human livers and secreted in the bile that was produced. There was a strong correlation between bile production and bile salt uptake from the perfusate (r=0.56; p<0.05) with bile production <5ml/hr causing a progressive accumulation of bile salts in the perfusate. All livers functioned well after transplant.

Discussion:
For the first time it has been shown that the human liver is able to take up non-human bile salts (BNaT) and secrete it into bile. Poor bile production during NMP reflects impaired hepatocellular uptake of bile salts which correlates strongly with the degree of preservation injury seen on reperfusion. Absent bile production does not necessarily indicate a non-viable organ but does reflect cellular injury. Ischaemic cholangiopathy rates in these livers will be available at the time of the congress.

CW008

Outcomes from steatotic livers preserved via normothermic machine perfusion

Carlo Ceresa[1], David Nasralla[1], Desley Neil[3], Hynek Mergental[3], Annemarie Weissenbacher[1], Amy Barratt[2], Anne Clark[2], Rutger Ploeg[1], Leanne Hodson[1], Peter Friend[1]

[1]Nuffield Department of Surgical Sciences, University of Oxford, Oxford, UK, [2]Oxford Centre for Diabetes, Endocrinology and Metabolism, University of Oxford, Oxford, UK, [3]University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK

Introduction:

Steatotic livers are associated with poor outcomes after transplantation, resulting in a large number being discarded. By preventing the injury that results from static cold storage (SCS), normothermic machine perfusion (NMP) may enable a larger number of steatotic organs to be transplanted. We report the post-transplant outcomes from matched steatotic NMP and SCS livers and describe the associated changes in perfusate lipid metabolites from steatotic and lean livers during NMP.

Methods:

Thirty-one steatotic livers transplanted as part of a trial comparing NMP (n=20) and SCS (n=11) were identified. Lean livers were matched with their steatotic counterparts (16 SCS, 13 NMP). Groups were matched for donor type, age, risk index and recipient age and model for end-stage liver disease (MELD). Peak serum aspartate aminotransferase (AST) in the first 7-days post-transplant, early allograft dysfunction (EAD), primary non-function (PNF) and 30-day and 6-month patient and graft survival were compared between the groups. Markers of lipid metabolism and function including: triglyceride (TG), cholesterol, 3-hydroxybutarate, urea and AST were measured during NMP. Student's t-test, Mann-Whitney U test and Fischer's exact test were used for statistical analysis.

Results:

Steatotic NMP livers had a lower rate of EAD compared to steatotic SCS livers (3/20 NMP vs 6/11 SCS, p = 0.04). Median peak serum AST was lower in steatotic NMP livers compared to steatotic SCS livers but this did not reach statistical significance (902 U/L [88-5101 U/L] vs 2316 U/L [192-5511], respectively; p=0.48). There was, however, a statistically significant reduction in median peak serum AST between steatotic and lean NMP livers (902 U/L [88-5101 U/L] vs 320 U/L [171-1493 U/L], respectively; p=0.01). Only one patient (1/60) developed PNF and died on the 3rd post-operative day having received a steatotic liver preserved via NMP. All other patients were alive at 6 months follow-up.

At the end of perfusion, mean perfusate TG was significantly higher in steatotic than lean NMP livers (2032 ± 300μmol/L vs 1114 ± 203.2μmol/L, respectively; p=0.03) and median 3-hydroxybutarate levels were also significantly higher in the steatotic liver perfusate (992.2μmol/L [239.9-4889.5μmol/L] steatotic vs 477.8μmol/L [108.4 1577.9μmol/L] lean; p=0.002). Median perfusate AST was significantly higher in steatotic than lean livers (853 U/L [359-6480 U/L] vs 288 U/L [123-1118 U/L], respectively; p=0.003). There was no significant difference in total cholesterol and urea between the two groups.

Discussion:

NMP facilitates enhanced preservation of steatotic livers with improved outcomes compared to SCS. However, the poorer outcomes seen in steatotic compared to lean NMP livers combined with elevated markers of lipid metabolism in the perfusate highlight the potential need for de-fatting interventions.

Medawar Medal presentations
Thursday 2nd March, 10:20 – The Auditorium

M0001

Outcomes from a multinational randomised controlled trial comparing normothermic machine perfusion with static cold storage in human liver transplantation

David Nasralla[1], Consortium for Organ Preservation in Europe (COPE) Liver Research Group[1], Rutger Ploeg[1], Constantin Coussios[2], Peter Friend[1]
[1]Nuffield Department of Surgical Sciences, University of Oxford, Oxford, UK, [2]Department of Biomedical Engineering, University of Oxford, Oxford, UK

Introduction:
By perfusing a liver with oxygenated blood, medications and nutrients at 37°C, normothermic machine perfusion (NMP) may improve outcomes after liver transplantation when compared with conventional static cold storage (SCS). We present the first randomised controlled trial (RCT) comparing continuous NMP with SCS in human liver transplantation.

Methods:
This multinational RCT was initiated by the Consortium for Organ Preservation in Europe (COPE) and involved seven European transplant centres. Adult DBD and type III DCD livers were randomly assigned (1:1) to continuous NMP or SCS. The primary end point was the difference in peak-AST, requiring 220 transplants (90% power). Secondary endpoints included: organ utilisation, preservation time, early allograft dysfunction (EAD), six month graft and patient survival and ischaemic cholangiopathy on MRCP.

Results:
272 livers (135 SCS, 137 NMP) were enrolled, consisting of 194 DBD and 78 DCD organs. 48 livers were discarded (32 SCS (15 DBD, 17 DCD) vs 16 NMP (10 DBD, 6 DCD); p=0.01), with two others declined but then transplanted by non-trial sites. NMP livers experienced significantly longer preservation times than SCS (7hr 21min vs 11hr 39min; p<0.01). Despite this, better early graft function was observed in the NMP group with regards to peak AST (974 IU/L SCS vs 485IU/L NMP; p<0.001) and EAD (29.9% SCS vs 12.6% NMP; p=0.002) with the magnitude of these effects being greater for DCD organs (p=0.02).

Discussion:
NMP livers show better early graft function than SCS in terms of peak-AST and EAD, both of which are surrogates for long-term graft outcomes. This is despite better organ utilisation and longer preservation times in the NMP group. Six month outcomes (graft and patient survival and MRCP data) are currently being analysed and will be available at the time of the congress.

M0002

Evaluation of a novel mitochondria-targeted anti-oxidant therapy for ischaemia reperfusion injury in a model of pig and human kidney transplantation

Mazin Hamed[1], Angela Logan[2], Anna Dare[2], Andrew James[2], Adam Barlow[1], Jack Martin[1], Nikkitas Georgakopoulos[1], Alison Gane[2], Anja Gruszczyk[2], Keziah Crick[1], Diogo Fouto[1], Corrina Fear[1], Eleanor Bolton[1], Andrew Bradley[1], Gavin Pettigrew[1], Sarah Hosgood[1], Michael Nicholson[1], Michael Murphy[2], Kourosh Saeb-Parsy[1]

[1]University Department of Surgery, Cambridge NIHR Biomedical Research Centre and NIHR Blood and Transplant Research Unit in Organ Donation and Transplantation, Cambridge, UK, [2]MRC Mitochondrial Biology Unit, Cambridge, UK

Introduction:
Ischaemia reperfusion injury (IRI) makes a major contribution to graft damage during kidney transplantation. As mitochondria play a central role in the generation of reactive oxygen species during IRI, we examined the efficacy of the novel mitochondria-targeted antioxidant MitoQ in amelioration of renal IRI using porcine and human kidneys.

Methods:
MitoQ uptake by warm and cooled pig and declined human kidneys was measured when preserved in cold static storage or by hypothermic machine perfusion. Pairs of pig kidneys were exposed to 10min of warm ischaemia, flushed and stored ±MitoQ (50nm–250µM) at 4°C for 10h and underwent *ex-vivo* normothermic perfusion (EVNP) with oxygenated autologous blood. Pairs of declined human kidneys were flushed and stored ±MitoQ, stored at 4°C for 6h and underwent EVNP with ABO group-matched blood.

Results:
Stable and concentration-dependent uptake of MitoQ was demonstrated for up to 24h in pig and human kidneys. Pig renal blood flow and urine output were significantly higher in the 50µM MitoQ-treated group compared to controls (115±15 vs. 33±7 ml/min/100g, p=0.001 and 678±208 vs. 309±112 mL/100g; p=0.007 respectively; n=5 pairs). Compared to controls, 50µM MitoQ-treated human kidneys demonstrated a numerically higher urine output and creatinine clearance after 3h of EVNP but the difference did not reach statistical significance (196±139 vs.74±90 mL/100g; p=0.054, 4.0±4.1 vs. 1.5±2.1 mL/min/100g, p=0.152 respectively; n=7 pairs).

Discussion:
Our data suggest that treating kidneys with MitoQ during cold preservation ameliorates the detrimental effects of IRI and can potentially improve graft and patient outcomes after kidney transplantation.

M0003

Variations in risk-appetite between UK kidney transplant centres and impact on patient and graft outcomes

Patrick Trotter[1,2], Matthew Robb[2], Dominic Summers[1,2], J A Bradley[1], James Neuberger[3,2], Chris Callaghan[4,2]
[1]Department of Surgery, University of Cambridge, Cambridge, UK, [2]NHS Blood and Transplant, Bristol, UK, [3]Liver Unit, Queen Elizabeth Hospital, Birmingham, UK, [4]Transplant Unit, Guys and St Thomas' NHS Foundation Trust, London, UK

Introduction:
Risks associated with deceased donors may be donor-related (e.g. transmission of disease), organ-related (e.g. poor graft survival), or both. Variations between individual transplant centres in the risks they are prepared to accept ('risk profile'), and the impact on patient and graft outcomes have hitherto been poorly characterised. This UK registry analysis aims to address these issues.

Methods:
Adult recipients of deceased donor kidney transplants (DDKTx) between 2006 and 2015 were identified. Nine donor and operative variables perceived to be associated with increased risk (donor hypertension, diabetes, age >70 years, malignancy, increased risk behaviour for blood-borne viral diseases, meningitis / encephalitis, UKKDRI >1.60, DCD donor, and dual transplantation) were compared between units. Novel risk scores were developed based on centre quartiles and centre ranking for each variable. Centres were compared over the entire study period, and in early and late 5-year eras. They were divided into four groups based on risk score over the 10-year period. Logistic regression analyses were performed to examine interactions between centre risk and patient outcomes.

Results:
Over 10 years, 14,619 DDKTx were carried out from 8,632 deceased donors. The proportion of DDKTx carried out from the above donor risk groups varied widely between centres, and some centres markedly increased their 'risk profile' from early to late eras. Patients were significantly more likely to receive a transplant if they were listed at a 'high risk' centre versus a 'low risk' centre (odds ratio 2.1 (95% CI 1.9-2.2), p<0.001). No difference in unadjusted 5-year first kidney graft survival was apparent between 'low risk' centres or 'high risk centres' (85.8% vs. 86.6%, p=0.43). Patient survival from listing appeared to be no worse in 'high risk' than lower risk centres.

Discussion:
UK kidney transplant centres display wide variation in their appetite for risks perceived to be associated with deceased donors, with some centres altering their donor 'risk profile' markedly over the last 10 years. Unadjusted patient and graft outcomes appear no worse in higher risk centres, and waiting times for transplantation were shorter, suggesting that accepting kidneys perceived as higher risk may be a beneficial strategy for the local waiting list population.

M0004

SYK inhibition in experimental renal allograft rejection, and its expression in clinical transplant rejection biopsies

Stephen McAdoo[1], Jennifer Smith[1], Gurjeet Bhangal[1], Asim Syed[1], Anisha Tanna[1], Kevin Woolard[1], Linda Moran[1], Jill Moss[1], Esteban Masuda[2], Nadey Hakim[1], David Taube[1], Candice Roufosse[1], Charles Pusey[1], Terry Cook[1], Frederick Tam[1]
[1]Imperial College London, London, UK, [2]Rigel Pharmaceuticals, South San Francisco, USA

Introduction:

SYK has an important role in BCR and FcR immunoreceptor signalling, and thus represents a potential therapeutic target in antibody (Ab)-mediated diseases. We have studied the role of SYK in Ab-mediated allograft rejection (AMR).

Methods:

We examined the effect of SYK inhibition using fostamatinib in a renal allograft model (Brown Norway to Lewis rat) that recapitulates many of the features of AMR, including donor-specific Ab (DSAb) formation, C4d deposition, microvascular inflammation, glomerular and tubulointerstitial (TI) damage, and impaired creatinine clearance. Rats were treated with fostamatinib 30mg/kg twice daily from day 2-5 after transplantation, and assessed on day 6. Furthermore, we examined SYK expression in clinical renal transplant biopsies using immuno-histochemical (IHC) methods. Data are reported as median (±range) and analysis is by non-parametric testing.

Results:

As shown in Table 1, fostamatinib treatment reduced inflammation and injury, and improved renal function. DSAb levels were reduced, but there was no significant difference in C4d deposition, suggesting fostamatinib may be effective in both reducing Ab production and inhibiting the effector functions of existing/deposited Ab. IHC analysis of clinical biopsies was positive for SYK in all (24/24) cases of AMR; SYK localised to areas of glomerulitis in 9/17 (53%) and peritubular capillaritis in 15/22 (68%).

Discussion:

SYK inhibition is an effective treatment for acute allograft rejection in a rodent model. SYK is expressed in human renal transplant biopsies, and can be detected in the pathological lesions characteristic of AMR. SYK inhibition therefore represents a therapeutic target in AMR, and clinical studies are warranted.

TABLE 1	Vehicle (n=7)	Fostamatinib (n=8)	% Change	P-value
Glomerular injury, au	3 (1-4)	1 (0-3)	- 66%	<0.05
TI infiltrate, au	5 (4-5)	3 (2-4)	- 40%	<0.005
ED1+ macrophages, au	10.4 (5.3-12.8)	1.7 (0.1-5.8)	- 84%	<0.005
CD8+ T cells, au	7.4 (0.6-12.5)	1.7 (0.6-5.4)	- 77%	<0.05
DSAb, MFI	575 (89-876)	74 (49-241)	- 87%	<0.005
C4d, au	4 (2-5)	3 (1-4)	- 25%	NS
Cr Clearance, ml/min	0.1 (0.01-0.3)	0.4 (0.1-0.7)	+ 300%	<0.005

M0005

Assessment of the association between measures of metabolic function and pancreas graft survival

Shruti Mittal[1,2], Rachel Franklin[3,4], Jonathan Levy[2], Stephen Gough[3,4], Peter Friend[1,2], Edward Sharples[2]
[1]Nuffield Department of Surgical Science, Oxford, UK, [2]Department of Renal and Transplantation, Oxford, UK, [3]Oxford Centre of Diabetology Endocrinology and Metabolism, Oxford, UK, [4]Biomedical Research Centre, Oxford, UK

Introduction:
The lack of a validated measure of graft function after pancreas implantation has hindered our ability to monitor recipients post-transplant and identify declines in function before graft failure (return to insulin) occurs. Standard definitions of glycaemic control have been validated in diabetic and healthy control cohorts and it is unknown if equivalent criteria are applicable to pancreas transplant recipients with systemic venous drainage.

Methods:
Longitudinal metabolic measures taken pre-discharge and at 3 monthly intervals post-transplant according to clinical protocol, including Hba1c, fasting and stimulated glucose and insulin were recorded for a cohort of 500 pancreas transplant recipients between 2002- 2011 with at least 4 years follow-up data. 118 graft failures were included in the cohort and compared to those with ongoing good pancreas function for patterns of functional decline. Data was censored at graft failure or last follow-up.

Results:
Fasting glucose pre-discharge (HR 1.46, p=0.007) and stimulated glucose at all timepoints (HR 1.12 - 1.55, p< 0.04) were predictive of late graft failure. Insulin and c-peptide level had no association to graft failure at any time-point. HbA1c was also associated with graft failure and HbA1c >41mmol/mol at 1-year post-transplant predicted graft failure (AUC 0.842, p=0.005) with 83.3% sensitivity and 94.7% specificity in ROC analysis. Cox regression and Kaplan-Meier analysis showed 1 year HbA1c >41mmol/mol to predict graft failure (HR 37.5, p=0.001) and 5-year graft survival of 62.3% vs 98.6% for HbA1c<41mmol/mol (p<0.001).

Discussion:
We have shown that 1-year HbA1c >40mmol/mol is a strong predictor of graft failure and can be used as a reliable surrogate end-point for graft failure in clinical trials. We have seen that insulin and c-peptide are not useful predictors of graft failure. However, rises in glucose or HbA1c post-transplant should serve as early warnings of risk of graft failure, and could be considered as triggers for intervention.

M0006

A novel computational HLA matching algorithm for improving donor-recipient histocompatibility and graft outcomes after kidney transplantation

Dermot H Mallon[1], J Andrew Bradley[1], Susan Fuggle[2], Rachel Johnson[2], Christopher JE Watson[1], Craig J Taylor[1], Vasilis Kosmoliaptsis[1]
[1]Department of Surgery, University of Cambridge, Cambridge, UK, [2]NHS Blood and Transplant, Bristol, UK

Introduction:
Human Leukocyte Antigen (HLA) matching is a central objective of kidney allocation policies, but current assessment of histocompatibility is inadequate. Building on our previous research, we have now developed a novel computational scoring system to quantify structural and surface electrostatic potential differences between donor and recipient HLA (Electrostatic Mismatch Score; EMS-3D) and applied it to examine long-term graft survival after kidney transplantation in a national patient cohort.

Methods:
Data were obtained from the UK Transplant Registry on 10,726 adult, deceased-donor, first, kidney only transplants performed between 2003 and 2012. A multivariate Cox proportional hazards regression model was fitted to investigate the influence of HLA on death-censored graft survival. The model was risk-adjusted for donor, recipient and transplant factors. HLA comparisons were performed using our bioinformatics platform to determine the EMS-3D for each donor-recipient HLA combination.

Results:
Patients were followed up for a median (IQR) of 6.5 (4.5-9.5) years. Increasing number of HLA mismatches at the HLA-A, -B, -DR and -DQ loci or increasing HLA mismatch Level (1 to 4) significantly increased the risk of graft failure (HR: 1.06 per HLA mismatch, 95% CI: 1.02-1.09, p=0.001). The donor-recipient EMS-3D ranged (median, IQR) from 0 to 2.91 (1.07, 0.64-1.44) and correlated with HLA mismatch level (R^2: 0.762), but there was wide variation of EMS-3D within each HLA mismatch level. Increasing EMS-3D was strongly and independently associated with an incremental increase in the risk of graft failure (HR: 1.26 per unit increase in EMS-3D, 95% CI: 1.17-1.38, p<0.0001). Notably, for transplants within an HLA mismatch level, EMS-3D was an independent predictor of graft survival [e.g. for Level 3 mismatched grafts (n=2,762) HR: 1.38 per unit increase, 95% CI: 1.11-1.72, p=0.003; for Level 4 mismatched grafts (n=1,016) HR: 1.25 per unit increase, 95% CI: 1.14-1.38, p<0.0001].

Discussion:
This study provides strong evidence that our novel HLA matching algorithm enables improved assessment of donor-recipient histocompatibility and may help inform future deceased-donor kidney transplant allocation policies to maximise the benefits of transplantation.

M0007

A phase two, randomised, placebo-controlled trial of belimumab in kidney transplant recipients, BEL114424, demonstrates safety and an increase in regulatory B cells

Gemma Banham[1,2], Shaun Flint[3], Nicholas Torpey[2], Paul Lyons[1], Don Shanahan[3], Adele Gibson[3], Ann-Marie O'Sullivan[2], Rachel Jones[1,3], Luke Devey[3], Anna Richards[3], Lars-Peter Erwig[3], Caroline Savage[3], Kenneth Smith[1,2], Robert Henderson[3], Menna Clatworthy[1,2]

[1]Department of Medicine, University of Cambridge School of Clinical Medicine, Cambridge, UK, [2]Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK, [3]GlaxoSmithKline, Stevenage, UK

Introduction:

Significant challenges remain in the field of humoral alloimmunity with an unmet need for effective immunotherapies targeting B cells and plasma cells. B lymphocyte stimulator (BLyS; also know as BAFF) is a cytokine that enhances B cell survival and proliferation. In renal transplant recipients, elevated serum BLyS is associated with development of de novo donor specific antibodies, increased number and titre of anti-HLA antibodies, and increased frequency of antibody mediated rejection. Experimental models of transplantation suggest neutralising BLyS may prevent rejection but to date, this axis has not been targeted in human transplant recipients. Here we report the first use of belimumab (an anti-BLyS antibody) in renal transplantation (ClinicalTrials.gov number NCT01536379; EudraCT number 2011-006215-56).

Methods:

We carried out a phase two, double-blind, randomised placebo-controlled trial in kidney transplant recipients to assess the effect of belimumab (n=14) or placebo (n=14) when added to standard of care immunosuppression (basiliximab, mycophenolate mofetil, tacrolimus and prednisolone). Participants received belimumab 10mg/kg intravenously on the day of transplant and at weeks 2, 4, 8, 12, 16 and 20 and were followed up to one-year post transplant. Co-primary endpoints were safety and efficacy measured as change in naïve B cells from baseline to week 24.

Results:

Belimumab has not been previously used in end-stage renal failure, nor in combination with triple immunosuppression and basiliximab but we observed no excess risk of infection, including opportunistic infection, in those receiving belimumab. There was a reduction in naïve B cells with a concomitant increase in memory B cells but fewer of these were activated (CD95+). In vitro stimulation assays demonstrated that residual B cells (memory, naïve and transitional) had increased capacity to produce interleukin-10 relative to interleukin-6, consistent with a proportional increase in regulatory B cells.

Discussion:

This pilot study suggests that belimumab may be safe when used with transplant immunosuppression and may achieve the difficult therapeutic remit of suppressing B cell activation whilst augmenting regulatory B cells without conferring additional risk of infection.

M0008

Generation and transplantation of primary human cholangiocyte organoids on bioengineered scaffolds for repair and replacement of the extrahepatic biliary tree

Fotios Sampaziotis[1,2], Alexander Justin[1], Olivia Tysoe[1], Steve Sawiak[1], Miguel Cardoso de Brito[1], Graeme Alexander[1], Athina Markaki[1], Ludovic Vallier[1], Kourosh Saeb-Parsy[1,2]
[1]University of Cambridge, Cambridge, UK, [2]Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK

Introduction:
Treatment of common bile duct disorders such as biliary atresia is limited to liver transplantation or hepatojejunostomy due to the lack of suitable tissue for surgical reconstruction. Here, we explore the potential of bioengineered biliary tissue consisting of human extrahepatic cholangiocyte organoids (ECOs) and biodegradable scaffolds for transplantation and biliary reconstruction in vivo.

Methods:
Primary human cholangiocytes were isolated by mechanical dissociation from deceased organ donors with ethical approval and informed consent (n=8). Propagation of ECOs was achieved using our established protocol. The Illumina HumanHT-12v4 array was used for transcriptomic analysis. ECOs were seeded on Polyglycolic Acid (PGA) or densified collagen scaffolds. Biliary reconstruction was achieved in immunodeficient NSG mice by partially replacing the gallbladder wall with an ECO populated PGA-scaffold patch (ECO-patch; n=8), or replacing a length of the native common bile duct with ECO populated collagen tubes (ECO-tubes) through end-to-end anastomosis (n=4). Fibroblast-populated (n=5, PGA; n=4, collagen) or acellular scaffolds (n=2, PGA) were used as negative controls. Biliary tree patency was confirmed using magnetic resonance cholangiopancreatography (MRCP) or cholangiography.

Results:
ECOs closely correlate with primary cholangiocytes in terms of transcriptomic profile (*r*: 0.92) and functional properties (ALP, GGT, bile acid transfer). ECO-populated scaffolds form biliary tissue-resembling structures, maintain their functional properties (ALP, GGT) and marker expression (CK7, CK19, HNF1B). All ECO-transplanted animals exhibited prolonged survival (ECO-patch vs. acellular controls, P=0.0027; ECO-tubes vs. fibroblasts, P=0.0082; log-rank test). The transplanted cells integrated in the biliary epithelium, continued expressing biliary markers (CK7, CK19, HNF1B), exhibited ALP activity and a patent lumen. All fibroblast reconstructions failed, the biliary epithelium was replaced by fibrotic tissue and the lumen of the gallbladder or neo-bile duct was occluded.

Discussion:
We demonstrate that ECO-populated biodegradable scaffolds can successfully be transplanted and reconstruct the biliary tree in vivo. To our knowledge, this is the first application of regenerative medicine in cholangiopathies and first report of tissue transplantation and organ reconstruction using human primary cells expanded in vitro.

O0023

IL-21R antagonist inhibits differentiation of B cells towards plasmablasts upon alloantigen stimulation

Kitty de Leur[1], Frank J.M.F. Dor[2], Marjolein Dieterich[1], Luc J.W. van der Laan[1], Rudi W. Hendriks[1], Carla C. Baan[1]
[1]Erasmus MC, Rotterdam, The Netherlands, [2]Hammersmith Hospital, London, UK

Introduction:
Antigen-specific antibody responses rely on IL-21+ T follicular helper (Tfh) cells that regulate B cell differentiation. In transplantation, a large proportion of renal allograft recipients develop a donor-specific antibody response which is associated with an increased risk for acute and chronic rejection. Here, we tested in an allogeneic setting whether Tfh cell help signals control B cell differentiation with its dependency on IL-21.

Methods:
Pre kidney transplantation patient PBMCs (*n*=17) were FACS sorted into CD4+CXCR5+ Tfh cells and CD19+CD27+ memory B cells and *in vitro* stimulated with donor alloantigen in the presence or absence of an IL-21 receptor antagonist (αIL-21R). Phospho-flow cytometry was used to determine the STAT3 phosphorylation in T and B cells.

Results:
Stimulation of Tfh and memory B cells with alloantigen initiated expression of the activation markers ICOS and PD-1 on Tfh cells, and a shift towards a mixed Tfh2 and Tfh17 phenotype. Co-cultures also initiated memory B cell class switch recombination and differentiation towards IgM and IgG producing plasmablasts. In the presence of αIL-21R, a dose dependent inhibition of STAT3 phosphorylation was measured in T and B cells. Blockade of the IL-21R did not have an effect on PD-1 and ICOS expression on Tfh cells but significantly inhibited B cell differentiation. The proportion of plasmablasts decreased by 78% in the presence of αIL-21R. Secreted IgM and IgG2 levels were significantly lower in the presence of αIL-21R.

Discussion:
Our results demonstrate that IL-21 produced by alloantigen activated Tfh cells controls B cell differentiation towards antibody producing plasmablasts. The IL-21R might therefore be a useful target in organ transplantation to prevent alloantibody mediated immune responses leading to graft failure.

O0024

Use of Nanostring nCounter technology to assess C4d positive biopsies with no histological evidence of inflammation

Katherine Dominy[1], Michelle Willicombe[3], Tariq Al Johani[2], Jack Galliford[3], Adam McLean[3], Terry Cook[1,2], Candice Roufosse[1,2]

[1]Imperial College, London, UK, [2]King Saud University, Riyadh, Saudi Arabia, [3]Imperial College Healthcare NHS Trust, London, UK

Introduction:

The deposition of C4d has been an established part of the Banff classification scheme for antibody mediated rejection (AbMR) since 2001. More recently, C4d negative AbMR has been described but the presence of C4d remains a highly specific marker for AbMR. However, a small sub-set of patients with C4d positive biopsies have no histological features of inflammation and donor specific antibodies are not always present. ABO incompatible (ABOi) accommodated transplants are also frequently positive for C4d. Our aim was to further investigate these patients to understand the significance of C4d staining.

Methods:

RNA was extracted from formalin fixed paraffin embedded biopsies. Gene expression analysis of 96 transcripts in 84 patients was carried out using the Nanostring nCounter system. Genes were chosen based on previously published microarray data. Samples included AbMR, TCMR, Normal, stable ABO incompatible and the study group of C4d positive samples with no inflammation.

Results: Many genes showed widespread expression levels in the study group. Interferon-gamma induced C-X-C motif chemokines 10, 11 and 13 demonstrated reduced expression in normal, ABOi and C4d positive study group samples, when compared to rejecting samples. However, *IFNG* itself was elevated in some C4d positive samples. Reduced expression in the study group was also observed for *GNLY, PLA1A* and *TRD*, all associated with AbMR, and *EV12A* and *PTPRC*, injury repair response associated genes. Expression levels were comparable to normal and ABOi samples.

Discussion:

A spread of expression levels within the C4d positive group indicates a heterogeneity that is not yet fully defined. Elevation of *IFNG* without chemokine elevation suggests in some cases rejection is initiated but subsequently halted, similar to the way accommodated grafts appear to block the complement cascade after C4d deposition. Following up these patients to determine which develop AbMR is crucial to furthering our understanding of the rejection and accommodation processes.

O0025

Thrombalexin: in vitro & in vivo use of a cytotopic anticoagulant to reduce thrombotic microangiopathy in a highly sensitized model of kidney transplantation

Miriam Manook[1,2], Jean Kwun[2], Janghoon Yoon[2], David Howell[2], Richard Smith[3], Steven Sacks[3], Anthony Dorling[3], Stuart Knechtle[2], Nizam Mamode[1]

[1]Guy's and St Thomas' NHS Foundation Trust, London, UK, [2]Duke Abdominal Transplant Center, North Carolina, USA, [3]MRC Centre for Transplantation, London, UK

Introduction:

Thrombotic microangiopathy (TMA) is a phenomenon observed in antibody-mediated rejection (AMR) of the kidney transplant, particularly in highly sensitized individuals. Following promising data in a rodent model of sensitized transplantation, we used Thrombalexin (TLN), a cytotopic anti-thrombin therapy in a highly sensitized non-human primate (NHP) model of kidney transplantation to reduce the incidence and severity of TMA.

Methods:

In vitro, thromboelastography (TEG) methods were used to measure time to clot formation (r, in min) in rhesus whole blood, comparing TLN vs HLL peptide only (without a mirystoyl tail) vs negative kaolin-control, n = 4. Human endothelial cells (EC) were incubated with TLN or HLL, after washing cells were added to whole blood (human), and TEG testing used, without kaolin, to measure anti-coagulant effect. In vivo, NHP kidney was perfused with TLN (2uM) in UW solution and immunohistochemistry (IHC) used to detect membrane-bound TLN using RICS2 and GaM FITC. TLN (4uM) in University of Wisconsin (UW) solution was infused into a donor kidney after an initial UW flush. All kidneys were flushed again with UW alone prior to implantation in a pre-sensitised rhesus macaque. Post reperfusion tissue, plasma & serum samples were obtained for immunohistochemistry, TLN detection, coagulation studies & ELISA.

Results:

TLN & HLL result in significantly prolonged time to clot formation (r) compared to kaolin controls, $p = 0.02$. Membrane bound TLN on ECs prolongs time to clot formation, compared to HLL or pure EC's. TLN was detected bound to the glomeruli of the transplanted kidney, in the absence of any systemic detection. There was no difference in observed mean survival time (MST) in treated animals compared to controls. Histologically, there was a difference in severity of TMA ($p=0.005$), and microvascular inflammation (MVI = glomerulitis, g score + peritubular capillaritis, ptc score, $p=0.03$) score on histology of TLN treated animals compared to controls. Platelet (CD61) & fibrinogen staining was also reduced in the TLN treated kidneys, compared to controls. Inhibiting thrombin resulted in trend for less detectable serum complement activation (C3a) in the early post-operative time period.

Discussion:

Localised inhibition of thrombin using Thrombalexin reduces TMA, as well as early microvascular injury scores. There is evidence that inhibition of coagulation may reduce complement activation by crosstalk mechanisms in highly sensitized NHP, however there is no survival benefit, and more work is required to understand the optimal dosing of this compound.

O0026

Validation of a computational scoring system for predicting HLA immunogenicity based on quantification of structural and surface electrostatic potential differences between donor and recipient HLA molecules

Dermot H Mallon[1], Christiane Kling[2], Matthew Robb[3], David Collett[3], J Andrew Bradley[1], Craig J Taylor[1], Dieter Kabelitz[2], Vasilis Kosmoliaptsis[1]

[1]Department of Surgery, University of Cambridge, Cambridge, UK, [2]Institute for Immunology, University of Kiel, Germany, [3]NHS Blood and Transplant, Bristol, UK

Introduction:

Our preliminary work indicates that donor HLA immunogenicity in kidney transplantation can be predicted by comparative assessment of donor and recipient amino-acid sequence and physicochemical properties. We have now created a novel computational algorithm to quantify structural and surface electrostatic potential differences between donor and recipient HLA and applied it to predict alloantibody responses in a unique patient cohort.

Methods:

We examined 191 patients that underwent treatment for infertility with lymphocyte immunotherapy (LIT). Patients were injected intradermally with partner´s lymphocytes, and serum samples collected prior to and after LIT to assess HLA-specific sensitisation (Luminex single-antigen-beads). Following two field HLA typing, HLA structural modelling and calculation of HLA electrostatic potential, donor-recipient HLA comparisons were performed to determine the electrostatic mismatch score (EMS-3D) and assess its ability to predict donor-specific antibody (DSA) development and overall sensitisation to HLA post-LIT [expressed as calculated reaction frequency (cRF)].

Results:

The EMS-3D of mismatched HLA ranged 0 to 0.488 (median: 0.268, IQR: 0.200-0.344). Increasing EMS-3D was strongly associated with higher risk of DSA development against HLA-A and -B (OR: 1.70 per 0.1 unit increase, 95% CI: 1.35-2.15, $p<0.0001$) and against HLA-DR and -DQ (OR: 2.35 per 0.1 unit increase, 95% CI: 1.94-2.84, $p<0.0001$). Notably, physicochemical differences between donor and recipient HLA-DQ were higher compared to other loci (EMS-3D median: 0.346, IQR: 0.200-0.421) and donor HLA-DQ with the highest EMS-3D (fourth quartile) were highly likely to induce a DSA response (OR: 30.8, 95% CI: 11.6-81.9, $p<0.0001$). Finally, the overall physicochemical disparity between donor and recipient HLA types was a strong and independent predictor of the risk of developing high levels of sensitisation to HLA (cRF≥85%, OR: 1.09 per 0.1 unit increase in EMS-3D, 95% CI: 1.01-1.17, $p=0.02$).

Discussion:

Donor HLA immunogenicity can be predicted by computation of structural and physicochemical disparities with recipient HLA to enable better assessment of transplant immunological risk and help inform future deceased-donor kidney allocation policies.

O0027

Using transcriptomics to generate biomarkers that identify lungs suitable for transplantation following *ex vivo* perfusion

John Ferdinand[1], Anders Andreasson[2], John Dark[2], Andrew Fisher[2], Menna Clatworthy[1], NIHR Blood and Transplant Research Unit .[1], DEVELOP-UK investigators .[2]
[1]*University of Cambridge, Cambridge, UK,* [2]*Newcastle University, Newcastle, UK*

Introduction:
With the shortfall in organ availability, more marginal donors are being considered, making the decision on organ usage increasingly difficult. There is therefore a pressing need to provide clinicians with biomarkers that accurately reflect the viability and future function of an organ. Post-retrieval perfusion under normothermic or hypothermic conditions has emerged as a mechanism that allows the evaluation of a variety of organs, including liver, kidney and lung, providing data on multiple physical parameters. In the case of lungs, this includes ventilator parameters that inform the decision of whether an organ is suitable for transplantation. However, this assessment is only partially predictive of outcomes post-transplant.

Methods:
We utilised RNASeq to assess gene changes in N=11 human lungs assessed for suitability for transplantation using *Ex Vivo* Lung Perfusion (EVLP). Samples were obtained at the start and end of EVLP for each lung. The cohort contained sets of lungs that were deemed suitable (n=6) and unsuitable (n=5) for transplantation based on physiological parameters**.**

Results:
More than 700 genes were differentially expressed pre- and post-EVLP, and many of these were involved in immunological processes. There were differences in the transcriptome between lungs that were deemed suitable and unsuitable for transplantation in the baseline samples obtained prior to EVLP. Using gene set enrichment analysis (GSEA), we found that one pathway ('TNFA signalling via NFKB') was significantly upregulated in 'failed' lungs whilst three metabolic pathways were significantly down-regulated.

Discussion:
This analysis has enabled the identification of 6-10 potential biomarkers for organ suitability and we are currently processing a validation cohort and analysing lung perfusates to determine if the proteins associated with the genes identified are detectable and predictive.

O0028

A practical approach to delisting unacceptable antigens in patients awaiting renal transplantation

Olivia Shaw[1], Alasdair Heads[1], Chloe Martin[1], Kamla Reddi[1], Nicos Kessaris[2], Lisa Silas[2], Irmen Generalao[2], David Game[2], Anthony Dorling[2], Nizam Mamode[2], Robert Vaughan[1]

[1]Clinical Transplantation Laboratory, Guys Hospital, Viapath, London, UK, [2]Guys and St Thomas NHS Foundation Trust, London, UK

Introduction:

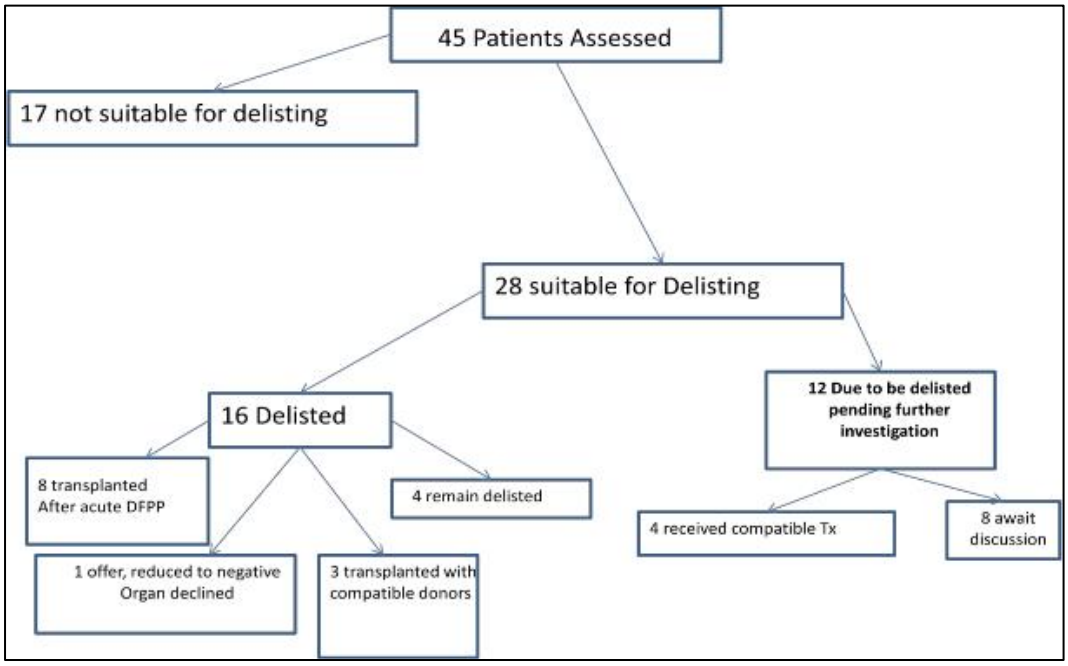
We have extended our approach to living HLAi renal transplantation to include patients without suitable donors, with an aim to accept organs where a single acute DFPP can reduce the flow crossmatch to negative pre transplant.

Methods:

45 patients were treated with a single volume DFPP with antibody analysis pre and post using Luminex based single antigen beads (OneLambda). With reference to the patients' sensitisation history, antibodies with MFI values below 10000 post-DFPP were removed from the unacceptable antigen profile with ODT for paired and/or deceased donor organ allocation.

Results:

28/45 patients showed a reduction in cRF of > 5%. The average reduction in cRF was 18% (range 0 – 100%) (p=<0.0001). Figure 1 indicates the post-DFPP outcome.



Post transplant outcomes were comparable between compatible (n=7) and incompatible (n=8) patient groups, with 86% vs 88% patient and graft survival and median eGFR of 34 vs 30 at last follow up.

Discussion:

Of the 16 patients 'delisted' to date 50% have received a transplant following a single acute DFPP pre transplant. The mean waiting time prior to delisting was 9.2 years and following delisting was 95 days. Our approach has allowed our highly sensitised, long waiting, patients' rapid access to a larger pool of potential donors. A test DFPP allows refined and accurate delisting of unacceptable antigens based on real-time antibody information, reducing the risk of encountering an insurmountable positive crossmatch, and associated prolonged CIT of the offered organ, or breakdown of a paired chain.

O0029

Dual targeting of costimulation and proteasome to desensitize and prolong graft survival of sensitized nonhuman primates

Jean Kwun[1], Christopher Burghuber[2], Miriam Manook[1,3], Brian Ezekian[1], Janghoon Yoon[1], Neal Iwakoshi[4], Alton B. Farris[4], John Yi[1], Stuart Knechtle[1]

[1]Duke University Transplant Center, North Carolina, USA, [2]Vienna University, Vienna, Austria, [3]Guy's and St Thomas' NHS Foundation Trust, London, UK, [4]Emory University Transplant Center, Georgia, USA

Introduction:

Pre-formed donor-specific anti-HLA antibodies (DSA) due to prior transplantation, transfusion, or pregnancy affects a significant proportion (35%) of patients awaiting a kidney transplant. Highly sensitized patients have low rates of transplantation, and after transplantation, worse graft survival.

Methods:

Rhesus macaques were sensitized by a full MHC mismatched skin graft (~ 2cm diameter). Grafts all rejected within 2 weeks without treatment. Animals received a proteasome inhibitor, Bortezomib (N=4), costimulation blockade (COB) with Belatacept (N=3), Belatacept/2C10 (N=3), or Belatacept/2C10/Bortezomib (N=3) for a month.

Results:

Bortezomib treatment reduced bone marrow (BM) plasma cells but follicular helper T cells (Tfh) were significantly increased. Belatacept alone or Belatacept with 2C10 treated animals showed reduction of Tfh cells but showed no effect on BM plasma cells in the sensitized setting. Donor specific antibody (DSA) was not significantly reduced by either proteasome or COB. The combination of COB and bortezomib (dual targeting) significantly reduced BM plasma cells, serum DSA levels, and LN Tfh cells compared to Bortezomib alone or COB alone. It was also notable that central memory CD4 T (Tcm) cells were greatly reduced compared to untreated controls. To confirm the desensitization effect, kidney transplantation was performed. Renal allografts without desensitization showed accelerated rejection (N=5, MST=3.6d) with basiliximab. In contrast, desensitization with Bortezomib/Belatacept/2C10 treatment dramatically prolonged graft survival (N=3, MST>20.6d; $p<0.05$) with no signs of rejection.

Discussion:

Desensitization with proteasome inhibitor or costimulation blockade alone showed limited effect on desensitization. However, targeting costimulation signals in conjunction with Bortezomib profoundly reduced Tfh cell populations, plasma cell number, and serum DSA. These data suggest that combined bortezomib and COB (dual targeting) may be worthy of further investigation as a desensitization regimen for highly sensitized living donor renal transplant recipients.

O0030

Insight into the pathogenesis of the detrimental sequelae of post-transplant blood transfusions from non-HLA matched blood donors

Sevda Hassan[1], Fiona Regan[2,3], Colin Brown[4], Andrea Harmer[4], Nicky Anderson[3], Paul Brookes[5], David Taube[1], Michelle Willicombe[1]

[1]Renal and Transplant Centre, Imperial College Healthcare NHS Trust, London, UK, [2]Imperial College Healthcare NHS Trust, London, UK, [3]NHS Blood and Transplant, London, UK, [4]Histocompatibility and Immunogenetics, NHS Blood and Transplant Centre, London, UK, [5]Histocompatibility and Immunogenetics, Imperial College Healthcare NHS Trust, London, UK

Introduction:

Blood transfusions are a recognised cause of allosensitisation. Recent evidence has shown that blood transfusions post renal transplant are associated with the development of de novo donor specific antibodies (DSA). The mechanisms behind this phenomenon are not clearly understood.

Methods:

We HLA typed 108 blood donors to 36 renal ± pancreas transplant recipients who developed a de novo DSA following a blood transfusion. By analysing de novo HLA antibody development, we were able to determine the incidence of transfusion specific HLA antibodies (TSA), determine the frequency with which the HLA antigenic targets of the TSA and DSA are shared, and correlate the subsequent clinical outcomes.

Results:

Of the 36 patients: 10 were female, 21 received kidney alone transplants, 17 were sensitised, mean HLA mismatch was 3.7±1.5. 54/108 transfusions resulted in a TSA, which occurred in 29 patients. 33/108 transfusions resulted in a TSA which was the same specificity as the subsequent DSA (TSA=DSA). The median time to blood transfusion was 2.5(0.0-6.2) days and to DSA detection was 57.0(17.4-160.9) days. Patients where TSA=DSA, had the worse allograft outcomes as shown in the table below.

	TSA-	TSA+		p value
	[N=7]	TSA≠DSA [N=12]	TSA=DSA [N=17]	
Allograft survival	50.0%	83.3%	0.0%	0.01
Rejection free survival	57.1%	50.0%	25.5%	0.13
AMR free survival	100.0%	66.7%	31.9%	0.015

Discussion:

This study has shown important novel findings. In transplant recipients, an alloimmune response against a blood transfusion is common and avoidance of transfusions from blood donors who share HLA antigens with the transplant donor may reduce DSA development and improve outcomes.

MODERATED POSTERS

WEDNESDAY 1ST MARCH

18:15

THE EXHIBITION HALL

P0001

Role of CD27-CD70 pathway in the biology and suppressive function of human regulatory T cells

Rebeca Arroyo Hornero, Fadi Issa, Kathryn Wood, Joanna Hester
University of Oxford, Oxford, UK

Introduction:

Regulatory T cells (Tregs), natural contributors in the establishment of tolerance, are being tested as a cellular therapy in transplantation and may permit a reduction of immunosuppressive drugs and its severe toxic side effects. Stable *bona fide* Tregs can be accurately identified by the demethylated status of the transcription factor forkhead box P3 (FOXP3) gene, the master regulator of Treg development and function. However, for cellular therapy it is crucial to identify extracellular markers sufficient to isolate Tregs that remain stable and potent after expansion. We aim at determining whether the cell surface costimulatory molecule CD27 and its unique ligand CD70 play a role in maintaining stability and potent activity of human Tregs.

Methods:

$CD4^+CD127^{-/low}CD25^+$ Tregs were sorted from healthy donor PBMCs and, after *in vitro* expansion, were separated according to CD27 expression. Functional and phenotypic hallmarks of expanded $CD27^+$ and $CD27^-$ Tregs were analysed *in vitro*.

Results:

Expanded human Tregs that lose CD27 and acquire CD70 cell surface expression have significantly impaired suppression function, compared to $CD27^+$ Tregs. Moreover, $CD27^+$ Tregs have epigenetically stable FOXP3 expression and do not convert to a Th17 phenotype after *in vitro* expansion, in contrast to $CD27^-$ Tregs. However, blocking the CD27-CD70 pathway during an allogenic DC-driven suppression assay enhances Treg suppressive activity. Additionally, Tregs and conventional $CD4^+$ T cells show differences in activation, proliferation and apoptosis levels when costimulated via CD27, which might imply that CD27 and CD70 intracellular signals might differ between cell populations.

Discussion:

These data suggest that CD27 may well identify Tregs with stable and potent regulatory activity; making it a potential immune therapeutic target. However, the role of CD27-CD70 pathway in Treg biology requires further investigation.

P0002

Thrombalexin and Mirococept synergistically reduce IBMIR in a porcine to rhesus xenoislet model

Miriam Manook[1,2], Jean Kwun[2], Kannan Samy[2], Andrea Macdonald[2], Richard Smith[3], Steven Sacks[3], Anthony Dorling[3], Stuart Knechtle[2], Nizam Mamode[1]

[1]Guy's and St Thomas' NHS Foundation Trust, London, UK, [2]Duke Abdominal Transplant Center, North Carolina, USA, [3]MRC Centre for Transplantation, London, UK

Introduction:

Early activation of coagulation and complement are important factors in the initiation of instant blood mediated inflammation (IBMIR) in xenoislet models. Two novel 'cytotopic' agents, 'Thrombalexin', (TLN, PTL060) and Mirococept (APT070) combine cell-membrane binding properties via a mirystoyl tail with anti-thrombin and anti-C3 convertase peptides respectively, allowing perfusion of donor cells to provide targeted inhibition of coagulation or complement.

Methods:

Neonatal porcine islets (NPI) were isolated from either wild type (WT), Gal-knockout (GKO) or Gal-knockout-CD46transgenic (GKOCD46) animals, and cultured for 7 days. NPI were incubated with either TLN (20uM), Mirococept (100ug/ml) or combination therapy ('high dose' 100ug/ml + 20uM, or 'low dose' 50ug/ml + 10uM) vs negative controls for 30m. After washing of the NPI, cells were added to rhesus blood and thromboelastography (TEG) methods were used to measure time to clot formation (r time). Islet function was tested with C-peptide, and membrane binding confirmed with immunohistochemistry.

Results:

Compared to PBS alone controls, PBS treated NPI shorten time to clot formation significantly ($p = 0.0159$ WT; $p=0.0286$ for GKO & GKOCD46). Monotherapy with TLN or Mirococept did not prolong time to clot formation compared to PBS treated NPI for any type of NPI. High dose combination treatment of NPI with TLN and Mirococept prolonged time to clot formation in both types of genetically manipulated islets (median r time: WT=2.3min; GKO= 2.7min; GKOcd46 = 4.5min) compared to PBS treated controls (median r time = 2.0min), and was statistically significant for the GKOCD46 ($p= 0.0286$). Detection of membrane-bound TLN & Mirococept was confirmed by immunohistochemistry, and c-peptide levels confirm preservation of function.

Discussion:

IBMIR results in rapid clot formation in a xenotransplant model, irrespective of genetic modification. Monotherapy with either cytotopic anticoagulation or anti-complement therapy is ineffective to inhibit IBMIR, however high dose combination therapy prolongs time to clot formation significantly in genetically modified islets.

P0003

Lipid catabolism provides alternative energy source and compensates for mitochondrial dysfunction in reperfused kidneys after warm ischaemia

Honglei Huang[1,2], Leon FA van Dullemen[3], Mohammed Z Akhtar[1,2], Letizia M Lo Faro[1,2], Zhanru Yu[2], Alessandro Vall[2], Anthony Dona[4,5], Marie-Laëtitia Thézénas[2], Philip D Charles[2], Roman Fischer[2], Maria Kaisar[1,2], Henri GD Leuvenink[3], Rutger J Ploeg[1], Benedikt M Kessler[2]

[1]NDS, University of Oxford, Oxford, UK, [2]NDM, University of Oxford, Oxford, UK, [3]University Medical Center Groningen, Groningen, The Netherlands, [4]Imperial College London, London, UK, [5]Kolling Institute of Medical Research, Royal North Shore Hospital, University of Sydney, Sydney, Australia

Introduction:

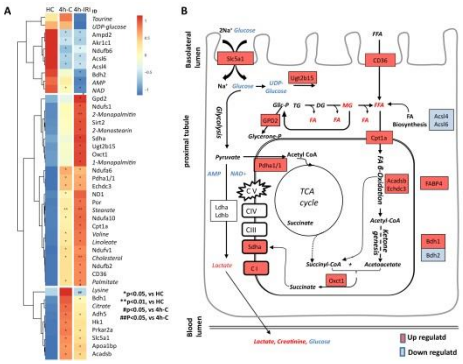
To reduce morbidity and mortality on the wait list for kidney transplantation, centres are required to use older and higher risk organs including unstable DBD, ECD and DCD donors affecting function and graft survival. DCD kidneys have significantly higher rates of PNF and DGF than DBD kidneys but the underlining molecular mechanism of this acute form of kidney injury is not well understood.

Methods:

In this study, we have induced unilateral warm ischaemia for 45min in the rat model by clamping the left renal artery kidney followed by 4h and 24h reperfusion, resp. to mimic DCD with subsequent Ischaemia Reperfusion Injury (IRI). Contralateral right kidneys served as endogenous controls. Next, label-free quantitative proteomics was used to measure proteins in cortex tissue lysates at 4h and 24h after IRI. Nuclear magnetic resonance (NMR) spectroscopy was used to profile metabolites from cortex samples.

Results:

After reperfusion, tissue proteomics analyses showed molecular profiles reflecting elevated acute phase, coagulation, and complement related proteins. Fatty acid (FA) signalling was found to be a major pathway alteration following IRI in kidneys. Metabolomic analysis showed increased level of lipids and FAs, and significant changes with an altered metabolism was found on the mitochondrial level. Mitochondrial function was assessed by complex I activity, oxygen consumption and ATP levels, and appeared to be significantly impaired at 24h post IRI. Eventually, IRI caused an energy-depleted state with reduced kidney function and increased creatinine levels.



Discussion:

Integrated proteo-metabolomic profiling indicates that IRI increases FA β-oxidation, which suggests a compensatory mechanism for the developing energy deficit and altered mitochondrial function. The results of this study provide a robust framework for metabolic intervention strategies to minimise ischaemic kidney injury.

Figure 1. Integrated proteomic and metabolomics analysis 4h post IRI. A. Metabolites and proteins involved in metabolite production were shortlisted based on their changed expression (p<.05 and >2fold) in 4h-IRI compared to 4h endogenous controls (4h-C) and healthy controls (HC). A heat map using both metabolites (Italic font-style) and proteins (normal font-style) indicates a distinct pattern in particular for FA β-oxidation and ketogenesis. B. This is a model of energy homeostasis 4h post IRI reflecting increased FFA metabolism.

P0004

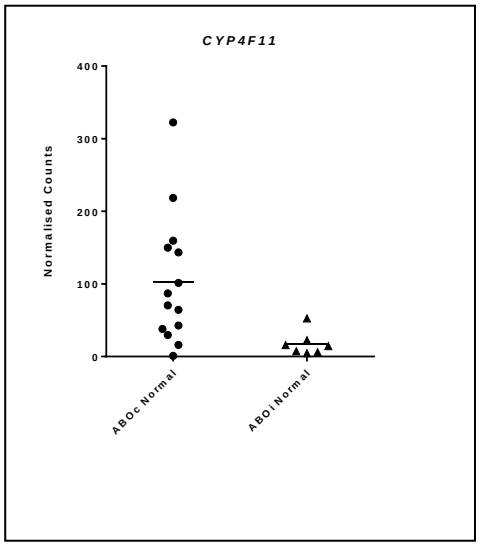
Validation of *CYP4F11* as a marker of accommodation in biopsies from recipients of an ABO-incompatible renal transplant

Katherine Dominy[1], Michelle Willicombe[3], Tariq Al Johani[2], Alona Sosinsky[4], Jack Galliford[3], Adam Mclean[3], Terry Cook[1,3], Candice Roufosse[1,3]
[1]Imperial College, London, UK, [2]King Saud University, Riyadh, Saudi Arabia, [3]Imperial College Healthcare NHS Trust, London, UK, [4]Genomics England, London, UK

Introduction:
Recipients of an ABO incompatible transplant have circulating anti-AB antibodies, A and/or B antigens expressed on endothelium and usually C4d deposition on the endothelium, yet with adequate immunosuppressive treatment, this seldom leads to antibody-mediated rejection. Previous work using RNA sequencing compared ABO-incompatible (ABOi) and ABO-compatible (ABOc) surveillance biopsies with normal histology and identified a number of differentially expressed genes. Here we validate CYP4F11 as a marker of accommodation in an independent set of biopsies.

Methods:
RNA was obtained from formalin fixed paraffin embedded tissue from 14 ABOc and 7 ABOi renal transplant patients. Eighteen genes considered the top hits in sequencing analysis were assayed using a Nanostring nCounter custom panel.

Results:
Comparison between two groups confirmed a reduced expression of *CYP4F11* in ABOi patients compared to ABOc (p=0.0042, Mann-Whitney test) (See figure). None of the other genes demonstrated a significant differential expression between the two groups.



Discussion:
Expression of *CYP4F11* is reduced in ABOi patients confirming association with accommodation of the renal allograft. The study may be under-powered to validate any of the other genes. Most of the substrates of cytochrome p450 4F isoforms are eicosanoids, which play important roles in the inflammatory response. Cytochrome 4F enzymes metabolize arachidonic acid to 20-hydroxyeicosatetraenoic acid (20-HETE). *CYP4F11* is known to have high expression in the kidney and 20-HETE inhibitors have demonstrated improved renal microvascular function in hypertension. The down-regulation of *CYP4F11* in ABOi transplants may be likewise protecting the microvasculature.

P0005

Normothermic regional perfusion (NRP) versus immediate in situ cold perfusion for DCD simultaneous pancreas and kidney (SPK) transplantation: a single centre study

Gail Defries, Leaanne Pallant, Stephanie Smith, Andrew Butler, Chris Watson
Cambridge University Hospitals Truse, Cambridge, UK

Introduction:

Normothermic regional perfusion (NRP) in donation after circulatory death (DCD) donors restores an oxygenated circulation to the abdominal organs for 2 hours before in situ cold perfusion. We evaluated the outcomes of DCD pancreases undergoing this treatment with a contemporaneous cohort of DCD pancreas transplants.

Methods:

The records of all recipients of DCD SPK transplants since the introduction of NRP were reviewed.

Results:

Between March 2013 and August 2016, 9 patients have undergone an SPK transplant from a donor who underwent NRP at retrieval; these were compared with 22 non-NRP DCD SPK transplants in the same period. All patients received the same immunosuppressive protocol The table illustrates the difference in outcomes.

	NRP SPKs n=9	**Standard DCD SPKs** n=22
Median donor / recipient age	D24y; R34y	D29y; R45y
Pre-dialysis	33%	23%
Cold ischaemic times	K682min; P506min	K792min; P657min
Pancreas delayed graft function	0	5%
No of reoperations	4/9=44%	6/22=27%
Length of stay (median/IQR) in days	16 (10-29)	25 (11-28)
1 year pancreas graft survival	8/9=89%	21/22=95%

There were no deaths in either group and no kidneys were lost. In the NRP group the single pancreas loss was due to early graft thrombosis; in the standard DCD group the graft that was lost had undergone a partially successful portal vein thrombectomy early post transplant but eventually failed at 140 days.

Discussion:

The NRP DCD SPK group involved the youngest donors and recipients, with more recipients pre-dialysis at the time of transplant. In spite of that these initial data show no benefit of NRP for patients undergoing SPK transplantation.

P0006
Insulin therapy in pancreas donors as a predictor of subsequent transplant outcome

Iestyn Shapey[1,2], Hussein Khambalia[2], Angela Summers[2,1], Titus Augustine[2,1], Martin Rutter[1,2], David van Dellen[2,1]
[1]University of Manchester, Manchester, UK, [2]Central Manchester University Hospitals, Manchester, UK

Introduction:
Brain stem death results in high levels of systemic catecholamines and inflammation affecting all donor organs. These changes, and the routine use of high-dose corticosteroids in intensive care units (ICU), contribute to hyperglycaemia which is managed with insulin in about half of all donors. We hypothesised that donor insulin use (DIU) may be a surrogate of irreversible pancreatic beta-cell death. We aimed to assess relationships of DIU to pancreas transplant outcome and function.

Methods:
National data from the UK Transplant registry (2004-2016) was reviewed retrospectively to determine donor variables associated with DIU and its relationship with graft survival. Early non-technical graft failure (transplant pancreatitis) was assessed from histology reports using our regional data (2010-2015). In a sub-group, we determined relationships between DIU and early c-peptide secretion.

Results:
In 1943 pancreas transplant donors nationally, 1005 (52%) required insulin. Insulin-treated donors were older (p=0.016, T-test), female (p<0.0001, Chi^2), DBDs (p<0.0001, Chi^2), hypotensive (p=0.004, Chi^2) and more likely to die from meningitis (p=0.0001, Chi^2). Donors not treated with insulin were more likely to die from hypoxic brain damage (p=0.005, Chi^2) or trauma (p=0.002, Chi^2), and were more likely to have suffered cardiac arrest (p=0.015, Chi^2). Using a Cox-regression analysis, there was no difference in graft survival (median follow-up: 3 years) by DIU: donor variable-adjusted HR (95%CI), insulin *vs.* no insulin: 0.93 (0.76-1.14), p=0.684; donor and recipient variable-adjusted HR 1.0, (0.77-1.29), p= 0.978. Early pancreas graft loss due to non-technical failure was more commonly associated with DIU (proportion failing: with vs. without insulin: 6/72 (8.3%) *vs* 1/96 (1%), p=0.02, Chi^2). In a sub-group (n=46), pancreas graft function (c-peptide levels) 72-hours post-transplant was lower in donors requiring insulin (insulin *vs.* no insulin donors: 4.3 vs. 7.5 ng/mL, p<0.001, T-test).

Discussion:
DIU could be a useful clinical predictor of early pancreas graft outcome and function. Further understanding of the physiological processes causing hyperglycaemia in donors could improve donor selection and lead to better outcomes.

P0007

Ultrasound-guided pancreas allograft biopsies: safety and diagnostic use

Hui Fan[1], Samuel Turner[1], Kai Tai Derek Yeung[1], Steven Moser[2], Paul Tait[2], Candice Roufousse[3], Terry Cook[3,4], Rawya Charif[1], Adam McLean[1], David Taube[1,4], Anand Muthusamy[1]

[1]West London Renal and Transplant Centre, London, UK, [2]Department of Radiology, Hammersmith Hospital, London, UK, [3]Department of Histopathology, Hammersmith Hospital, London, UK, [4]Imperial College London, London, UK

Introduction:

Since the nationwide adoption of enteric drainage as the preferred method of pancreas allograft implantation, immunological monitoring is largely limited to indirect measures such as serum amylase/lipase or blood glucose. Image-guided percutaneous is seldom performed because of concerns about complications and feasibility.

Methods:

Single centre retrospective study of all pancreatic allograft biopsies performed from 2009 to 2015 were analysed. Radiological, histological and clinical data were correlated to assess the safety, histological adequacy, and incidence of complications.

Results:

91 pancreas transplants were performed using enteric/iliac drainage technique in this period. 72 biopsies (71 ultrasound-guided and 1 CT-guided) were performed in a total of 42 patients; 69 were indication biopsies, 3 were surveillance. Biopsy indications included: elevated amylase in 38 (55%), deranged sugars in 8 (12%), 7 (10%) for both, low c-peptide and insulin in 1 (1.4%) and 15 (22%) were for graft dysfunction. 31 biopsies (43%) were performed as day cases, 41 (57%) during inpatient stays. 21 (29.2%) of 72 showed rejection, 15 (20.8%) sclerosis or fibrosis, 11 (15.3%) showed other features such as hyalinosis and 14 (19.4%) were normal. 10 (13.9%) samples were insufficient. One patient developed bleeding immediately post-biopsy bleeding requiring transfusion – no further intervention was needed. 3 patients (4.2%) had hyperamylasemia following biopsy. Based on histology, 19 (26.4%) received enhanced immunosuppression - IVIg, steroids, or plasma exchange; 7 patients (9.7%) received IV antibiotics for presumed pancreatitis, and 5 (6.9%) patients received all the above. No allografts were lost to biopsy related complications.

Discussion:

Pancreatic allograft biopsies may be performed with low risk of complications, and provide useful diagnostic information. Technical feasibility of percutaneous biopsy needs to be considered in planning biopsy-based immunological monitoring of these grafts.

P0008

Validation of the Homeostatic Model Assessment (HOMA) of beta cell function in pancreas transplantation

James Barnes[1,2], Rachel Franklin[3], Edward Sharples[1], Tim James[4], Peter Friend[1,2], Stephen Gough[3], Jonathan Levy[3], Shruti Mittal[1,2]

[1]Oxford Transplant Centre, Oxford University Hospitals NHS Trust, Oxford, UK, [2]Nuffield Department of Surgery, University of Oxford, Oxford, UK, [3]Oxford Centre for Diabetes, Endocrinology and Metabolism, University of Oxford, Oxford, UK, [4]Department of Clinical Biochemistry, Oxford University Hospitals NHS Trust, Oxford, UK

Introduction:

Five-year graft survival after pancreas transplantation remains low and is limited by the lack of validated biomarkers for identification of graft dysfunction. The Homeostatic Model Assessment (HOMA) quantifies beta-cell function (B) and insulin sensitivity (S) in healthy and diabetic patients, but is not applicable to pancreas transplantation recipients with markedly higher insulin concentrations due to systemic venous drainage.

Methods:

We developed a modified HOMA (HOMATx) to allow for post-hepatic insulin delivery. A 2-step hyperglycaemic clamp was performed in 12 pancreas recipients and 12 matched healthy controls. Glucose infusions were titrated every 2.5min in 90min steps to achieve steady-state at 8mmol/l and 12mmol/l. Insulin concentrations and glucose infusion rates were calculated at the end of each clamp stage. Fasting B and S were calculated using HOMATx in recipients and HOMA in controls and correlated with clamp data.

Results:

The two groups were matched for demographic factors. Fasting insulin was higher in the transplant recipients, 76.9pmol/l (8.69) vs 40.2pmol/l (4.56), p=0.001, but there was no significant difference in HOMA-Tx derived B or S between groups: B 71.5 (5.1) vs 64.43 (4.3), p=0.29; S 114.2 (10.0) vs 138.2 (18.6), p=0.27) in recipients and controls, respectively. In the recipients, Pearson correlation was confirmed between HOMATx B and insulin secretion rate at both 8mmol (r=0.84, p=0.001) and 12mmol (r=0.75, p=0.008) clamp glucose levels.

Discussion:

HOMATx is the first model to be derived for assessment of graft function in whole pancreas transplantation. It provides a validated measure of graft function that is simple and practical to calculate, and correlates well with directly measured beta-cell function. Although fasting insulin values differ markedly in transplant recipients, HOMATx enables meaningful assessment of B and S. Further work is required to evaluate its utility in the identification and monitoring of graft dysfunction.

P0009

The risk of infection after pancreas resection and autologous islet cell transplantation in patients with previous pancreaticojejunostomy and complex pancreatic trauma

Jennifer Logue[1], Adi Kanwar[1], William Scott III[2], Minna Honkanen-Scott[2], Julian DeHavilan[2], Ahmad Abou-Saleh[1], Hany Gabre[3], James Shaw[1], Derek Manas[1], Richard Charnley[1], Steven White[1]
[1]Institute of Transplantation, Freeman Hospital, Newcastle, UK, [2]Institue of Cellular Medicine, Newcastle, Newcastle, UK, [3]Department of Surgery, Great North Children's Hospital, Newcastle, UK

Introduction:.
Autologous islet transplant (IAT) after pancreas resection has the potential to minimise glucose intolerance. Despite cell isolation being performed in a GMP facility some patients may be at an increased risk of infection. Two such cohorts could be those who have had a previous pancreaticojejunostomy or patents with significant pancreatic trauma. The risk of transmitting infection through the islet preparation in these cases is not well reported.

Methods:
We have performed 7 IAT with 5 being in the relevant cohorts (Previous pancreaticojejunostomy n=2; pancreatic trauma n=3). Islets were isolated in a GMP, HTA licensed facility. The pancreas is decontaminated with Fungizone, cephalosporin and a Betadine wash prior to islet solation. We use BacT/ALERT SN culture bottles for detection of microbes in the pancreatic transport fluid (TF) and final washing (FW) steps. We perform environmental monitoring by finger dabs, settle plates and from within the class II hoods. We also culture from the final islet preparation and perform a gram stain.

Results:
Islet yields were significantly higher in those with pancreatic trauma (range 20,000 to 298,149 IEQ). All 3 having extended left hemi-pancreatectomy (2 adults and 1 paediatric) remain insulin independent after more than 18 months follow up and the remaining 2 are C-peptide positive. One pancreatic trauma patient grew staph epidermidis in the TF but had no post-operative infections. Another required re-laparotomy for an infected collection in the pancreatic bed which grew Staph aureus after negative culture during the isolation process. One drainage patient had contaminated TF and a FW but did not develop any systemic sepsis other than a minor wound infection.

Discussion:
Patients perceived to be at high risk of developing contaminated islet isolations can be safely transplanted without any infection risk. Culture of microbes during islet isolation does not always lead to systemic infective episodes following transplantation despite also undergoing major abdominal surgery.

P0010

The association of donor vasoactive drugs with pancreas transplant graft survival

Iestyn Shapey[1,2], Petros Yiannoullou[2,1], Angela Summers[2,1], Titus Augustine[2,1], Martin Rutter[1,2], David van Dellen[1,2]

[1]University of Manchester, Manchester, UK, [2]Central Manchester University Hospitals, Manchester, UK

Introduction:

Vasoactive drugs (VaD) are commonly used to correct abnormal haemodynamics of organ donors in Intensive Care Units (ICU). VaDs can differentially affect insulin secretion positively (dobutamine) or negatively (noradrenaline). Therefore, we hypothesised that some VaDs might induce beta-cell stress/death and be associated with adverse pancreas transplant outcomes. We aimed to assess relationships of VaD use to pancreas transplant graft survival.

Methods:

UK Transplant registry data (2004-2016) were used to assess associations between VaD use and covariate-adjusted pancreas graft survival (median follow-up: 3 years).

Results:

In 1944 pancreas transplants, VaDs were used in the following numbers (proportions) of donors: dobutamine 70 (3.5%), dopamine 77 (4.0%), adrenaline 145 (7.5%), noradrenaline 1402 (72%) and vasopressin 1091 (56.1%). In donor variable-adjusted models, noradrenaline use (vs. non-use) was associated with better graft survival (HR (95%CI): 1.28 (1.02-1.62) p=0.033) and this relationship remained significant after further adjustment for cold ischaemic time (HR: 1.31 (1.04-1.65), p= 0.021) and recipient variables (HR: 1.34 (1.03-1.75), p= 0.032). In donor variable-adjusted models, dobutamine use (vs. non-use) was associated with significantly poorer graft survival (HR: 0.58 (0.39-0.90) p=0.01) but this relationship became non-significant after further adjustment for cold ischaemic time and recipient variable. Use of adrenaline, dopamine and vasopressin were not related to graft survival. Concomitant insulin use with VaDs was similar.

Discussion:

Noradrenaline use was associated with better graft survival in models adjusting for donor and recipient variables and this may be related to inhibition of pancreatic insulin secretion (initiating pancreatic beta-cell 'rest'). Further research is establish whether relationships are causal before any recommendation of change in practice can be made.

P0011

Alemtuzumab vs. Basiliximab based immunosuppression regime: Long term outcomes for Simultaneous Pancreas and Kidney (SPK) transplantation

Aditya Kanwar, Aimen Amer, Tom Bradish, Rohan Thakkar, George Hawche, Jeremy French, Colin Wilson, Gourab Sen, David Talbot, Derek Manas, Steven White
Freeman Hospital, Newcastle upon Tyne, UK

Introduction:

Alemtuzumab is (anti CD52 antibody) a potent lymphocyte depleting induction agent that allows early reduction of Calcineurin Inhibitors (CNI) and steroid avoidance, making it particularly favourable for SPK transplants. We introduced Alemtuzumab for all our SPK recipients from March 2008 onwards along with a steroid-free maintenance regime of Tacrolimus and MMF. Prior to this, we used Basiliximab for induction with triple maintenance immunosuppression with steroids. We aimed to compare the 2 different regimes and assess long term outcomes.

Methods:

A retrospective analysis of all our SPK transplant patients from January 2003 till December 2015. Information was gathered using electronic records and patient notes. Data was analysed using Microsoft Excel 2011 and SPSS 23. Kaplan-Meier analysis was used to assess patient and graft survival.

Results:

A total of 79 SPK transplants were performed with either Alemtuzumab (n=49) or Basiliximab (n=30). There was no statistical difference in overall patient and graft survivals. Kaplan-Meier survival probability estimates are tabulated as below.

Survival (%)	Kaplan-Meier Survival Probability Estimates			
		Year 1	**Year 3**	**Year 5**
Patient	**Alemtuzumab**	96	93	90
	Basiliximab	90	90	90
Kidney Graft	**Alemtuzumab**	90	85	85
	Basiliximab	100	97	97
Pancreas Graft	**Alemtuzumab**	82	74	71
	Basiliximab	87	83	69

Discussion:

Despite a longer follow up period, patients receiving Basiliximab induction appear to have comparable rates of patient and graft survival. There appeared to be an increasing trend for kidney graft survival in the Basiliximab group.

P0012

Ipsilateral or contralateral simultaneous pancreas and kidney transplantation? A comparative study with medium term outcomes

Stavros Papachristos, Afshin Tavakoli, Babatunde Campbell, Ravi Pararajaisngam, Raman Dhanda, Bence Forgacs
Manchester Royal Infirmary, Manchester, UK

Introduction:
During simultaneous pancreas and kidney transplantation the pancreas is usually placed in the right and the kidney in the left iliac fossa. Implantation of both grafts in the same side remains controversial. Potential disadvantage of ipsilateral transplantation could be that the pancreas might jeopardise the usually distally implanted kidney, nonetheless this technique is quicker than the conventional contralateral implantation and preserves the other side for subsequent transplantation.

Methods:
From October 2008 to October 2011 67 simultaneous pancreas and kidney transplantations were performed in our unit. In 18 cases both pancreas and kidney were placed in the right iliac fossa (ipsilateral graft placement) and in 49 cases the pancreas in the right and the kidney in the left iliac fossa (contralateral graft placement). Patient and graft survival, surgical and non surgical complications, ITU/HDU stay and hospital stay were compared between the two groups.

Results:

***=p<0.05**	Ipsilateral graft placement	Contralateral graft placement
Male patient	28%*	90%
5 year patient survival	94%	84%
5 year pancreas survival	83%	74%
5 year kidney survival	89%	82%
Patient required reoperation	22%	35%
Theatre time (min)	293*	359

There was no difference in donors and recipients demographics. The frequency of surgical and non surgical complications was similar. ITU/HDU and overall hospital stay were also comparable.

Summary: Ipsilateral placement of pancreas and kidney transplants is safe and results in similar patient and graft survival as contralateral placement of the grafts. The incidence of surgical and non surgical complications is also comparable. Ipsilateral graft placement is safe and may preserve the contralateral side for future transplants.

P0013

Transarterial chemoembolization (tace) prior to liver transplantation: Does it add to surgical risk when considering marginal grafts?

Amanda Carvalheiro, Carlos Derosas, Yuri Boteon, Heynek Mergental, Jonh Isaac, Paolo Muiesan, Darius Mirza, Thamara Perera
University Hospitals Birmingham, Birmingham,West Midland, UK

Introduction:
TACE is established tumour control measure in patients with hepatocellular carcinoma (HCC) prior to liver transplantation (LT). Loco-regional effects of TACE may adversely affect the technical aspects of LT, and hence implications for graft selection.

Methods:
Retrospective cohort study involving patients with HCC that underwent TACE before LT (TACE group) between January 2011 and December 2015. The outcome of this group was compared with patients that underwent LT for HCC but without preoperative TACE (NoTACE group). Post-transplant surgical morbidity was compared according to Clavien classification.

Results:
59 cases included in the TACE group were compared with 123 cases in the NoTACE group. TACE group had higher prevalence of ischaemia related native collateral damage (11.86% vs 0%; p=0.002), native hepatic artery occlusion identified at surgery (5.1% vs 0%;p=0.033) and adhesions between the necrotic tumour to adjacent structures (14.75% vs. 3.15%; p=0.005). Surgical morbidity rate was significantly higher in the TACE group considering Dindo-Clavien grade 2 complications (64.4% vs 47.2%; p=0.029), however this was not found for grade ≥ 3 (45,8% vs 58,5%; p=0,105). Patients in the TACE group transplanted with grafts from donors after cardiac death had 8.7% 90-day mortality and 56.5% major complication rate compared to 6.7% and 65% for the NoTACE group (p=0.719 and p=0.475; respectively).

Discussion:
HCC patients undergoing TACE while in the LT waiting list may lead to complications related to the procedure experienced in the laparotomy, nevertheless it has not shown repercussions on the mortality and only partial impact at morbidity, even considering the use of marginal grafts.

P0014

The estimated effect of liver transplantation on the health-related quality of life of end-stage liver disease patients: A propensity score matched analysis

Kenneth McLean, Julian Camilleri-Brennan, Thomas Drake, Ewen Harrison
Department of Clinical Surgery, University of Edinburgh, Royal Infirmary of Edinburgh, Edinburgh, UK

Introduction:
Liver transplantation remains the sole curative intervention for end-stage liver disease. Previous studies have supported an overall quality of life gain after liver transplantation. However there remain some questions whether this improvement is across all dimensions of health. This study aimed to estimate the effect of liver transplantation on the health-related quality of life (HRQoL) of end-stage liver disease patients.

Methods:
Consecutive pre- and post-transplantation patients who attended a UK Liver Transplant Unit between 16th July and 3rd September 2015 were eligible for inclusion. A previously validated, condition-specific 'SFLDQOL' questionnaire was administered to assess their HRQoL. Responses were aggregated by domain, and scaled into scores out of 100. Propensity matching was performed based on 8 pre-transplantation characteristics: age; sex; ethnicity; weight; height; underlying liver disease; hepatocellular carcinoma status; and MELD score. The primary outcome measure was the estimated average treatment effect (ATE) of liver transplantation on the HRQoL score for pre- and post-transplantation patients.

Results:
273/374 (78.3%) eligible patients completed the questionnaire. Seventy-two respondents (26.4%) were pre-transplantation, and 201 (73.6%) were post-transplantation. There was no significant difference (p=0.599) in the unadjusted overall HRQoL score for pre-transplantation patients (75.1, 95% CI 74.9 - 75.4) and post-transplantation patients (75.3, 95% CI 75.2 - 75.4). Following propensity matching and balancing, the overall estimated effect of transplantation on HRQoL was non-significant (-0.1, 95% CI: -4.8 to 4.5, p=0.952). This was consistent across all questionnaire sub-domains.

Discussion:
Liver transplantation was estimated to have no significant effect upon the HRQoL of end-stage liver disease patients in this sample. This supports the main benefit of liver transplantation being in potentially extending the life expectancy of these patients.

P0015

Normothermic ex situ perfusion improves liver microcirculatory flow demonstrated by contrast-enhanced ultrasound

Rodrigo Figueiredo[1,2], Avinash Sewpaul[1,2], Ben Stenberg[2], Andrew McNeill[2], Jeremy French[2], David Talbot[2], Derek Manas[2], Steve White[1,2], Colin Wilson[1,2]
[1]Newcastle University, Newcastle upon Tyne, UK, [2]Institute of Transplantation, Freeman Hospital, Newcastle University, UK

Introduction:

Ex situ liver perfusion offers the potential to "recondition" organs prior to transplantation. Putative benefits of perfusion include delivery of oxygen, as well as wash-out of the micro-circulation prior to transplantation. Vasoconstriction during cold storage may also be reduced by perfusion.

Methods:

8 human livers declined for transplantation underwent ex-vivo normothermic perfusion with a red-cell based perfusate at fixed pressures (arterial pressure 75 mmHg, portal pressure 5 mmHg). Microbubble contrast enhanced ultrasound was used to assess the livers at the start, after 2 hours and after 6 hours. Contrast was injected via the hepatic artery and portal vein separately to identify circulation specific differences in perfusion within the liver. Area Under the Curve (AUC) ultrasound interrogation of vessels and parenchyma was analysed (difference between vessel and parenchyma -dAUC) to quantify changes in tissue perfusion.

Results:

During perfusion portal vein vessel flow, as measured by AUC, remained relatively stable over the course of perfusion across all livers, as did the portal parenchymal AUC. However, the arterial dAUC decreased over time (T_0=433 (-381 - 3109), T_2=197(-261 - 705), T_6=39(-119 - 166)), suggesting improving parenchymal flow relative to luminal flow.

Discussion:

The reduction in dAUC over the course of perfusion implies that as the microcirculation improves, the flow through the liver parenchyma becomes closer to the flow within the hepatic artery. Therefore, normothermic ex situ perfusion improves the hepatic arterial parenchymal microcirculation, whereas it has little effect on portal venous microcirculation.

P0016

Clinical experience of ex situ hypothermic liver perfusion using a novel circuit and perfusate

Rodrigo Figueiredo[1,2], Avinash Sewpaul[1,2], Jeremy French[2], Gourab Sen[2], David Talbot[2], Derek Manas[2], Steve White[1,2], Colin Wilson[1,2]

[1]Newcastle University, Newcastle upon Tyne, UK, [2]Institute of Transplantation, Freeman Hospital, Newcastle upon Tyne, UK

Introduction:

Ex situ liver perfusion is being used to assess organs for transplant and potentially optimise recipient outcomes. We have established Hepatic Ex situ hypothermic Perfusion after Cold Storage (HEPaCS) as a low-cost, low intensity perfusion strategy in contrast to commercial, high technology delivery systems.

Methods:

HEPaCS utilises proprietary cardiopulmonary bypass equipment, a custom-made heparin-bonded circuit, University of Wisconsin solution and a prostaglandin additive. A single centrifugal pump delivers cooled (8-10°C) oxygenated solution via the hepatic artery (25mmHg) and portal vein (4 mmHg) and an IVC cannula maintains a negative transhepatic gradient. Livers from donors after circulatory death (DCD) or organs from donors after brain death (DBD) declined by other centres were perfused and transplanted into recipients after appropriate selection and consent.

Results:

To date (February 2016- November 2016) 8 livers (DCD n=7, DBD n=1) have been transplanted after HEPaCS. All 8 transplants were considered high-risk due to both donor and recipient factors. Livers were perfused for an average of 118 minutes (94-176). Median peak post-operative ALT was 642 (150-3020). Longest follow-up is 9 months (0-9) with 100% graft and patient survival and 0% ischaemic cholangiopathy to date. Oxygen tensions in delivery (mean PaO_2 = 19.2kPa, 17.4-22.0) and recovery sides (mean PaO2 = 3.9kPa, 1.1-6.6) of the circuit demonstrate oxygen consumption (mean = 1.71cm^3/Kg/min, 0.62-3.55) in the hepatic parenchyma.

Discussion:

HEPaCS is safe, feasible and delivers oxygenated perfusate to the parenchyma where this is extracted and metabolised prior to implantation.

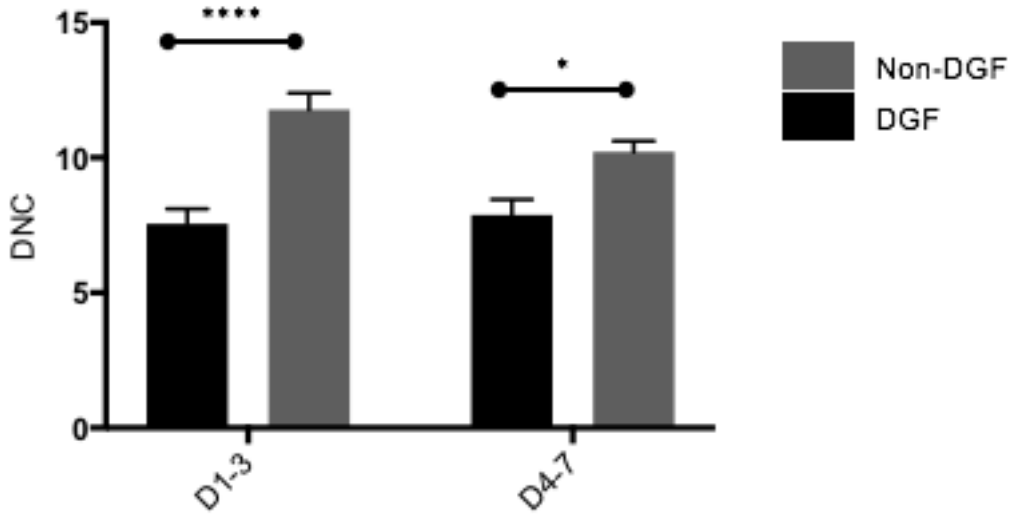
P0017
Reduced tacrolimus exposure in renal transplant recipients with delayed graft function

Viren Ahluwalia, Iain MacPhee
St George's, University of London & St George's University Hospitals NHS Foundation Trust, London, UK

Introduction:
The principal determinant of tacrolimus oral bioavailability is the extent of first pass metabolism by the enzymes cytochrome P450 3A4 and 3A5 (CYP3A). It is well established that genetic factors, in particular the *CYP3A5* genotype, influence CYP3A activity but other clinical factors may also play a role. Renal impairment has been shown to reduce hepatic CYP3A activity. We have tested the hypothesis that patients with Delayed Graft Function (DGF) post transplantation have impaired CYP3A metabolism leading to increased tacrolimus exposure.

Methods:
The study had ethical approval and all patients gave written informed consent. DGF was defined as failure of serum creatinine to fall by at least 20% from baseline recordings up to 72 hours post transplant. Tacrolimus blood concentrations were determined by immunoassay. *CYP3A5* genotype was determined using a Roche Lightcycler.

Results:
DGF was found in 54 (15%) patients. Kruskal-Wallis comparison of dose-normalised blood concentrations (DNC) in DGF against non-DGF patients, grouped as either 1-3 days post-transplant (D1-3) and 4-7 days post-transplant (D4-7) found higher DNC in non-DGF patients (D1-3, P<0.0001 and D4-7, P=0.023).



Higher DNC were found in non-DGF patients in the D1-3 analysis in both CYP3A5 'expresser' (at least one wild-type *CYP3A5*1* allele, P=0.0068) and 'non-expresser' (homozygotes for mutant *CYP3A5*3* allele, P=0.022) groups.

Discussion:
Rather than having increased tacrolimus exposure, patients with DGF actually had reduced exposure, irrespective of *CYP3A5* expresser status, counter to the hypothesis. Further investigation is required to determine whether this relates to reduced absorption, altered distribution or enhanced metabolism.

P0018

Risk factors associated with delayed graft function and their impact on graft survival

Hendor Russell[1], Abbas Ghazanfar[1,2]

[1]St Georges University of London, London, UK, [2]St Georges University Hospitals NHS Foundation Trust, London, UK

Background:

Delayed graft function (DGF) is a common complication following renal transplantation, occurring in 2% to 50% of deceased donor transplants worldwide. The most widely used definition for DGF is the need for dialysis within the first 7 days post- transplant. Although several risk factors for DGF have been identified in the literature, the long-term impact on graft survival has remained controversial. In this study, we analysed the variables significantly associated with DGF and reviewed the impact that DGF has on 3 year graft survival.

Material and Methods:

A total of 102 patients who underwent deceased donor transplantation from 2008 to 2013 were analysed retrospectively. These patients were divided into two groups: patients with DGF and those without DGF. The variables analysed were categorised into: recipient factors, donor factors and transplant-related factors. Some of which included: recipient and donor age, duration and modality of dialysis, history of hypertension, cold-ischaemia time, HLA-DR mismatch, etc. In addition, graft survival at 3 years was compared between DGF patients and patients without DGF.

Results:

DGF occurred in 35 patients (34.3%), whilst 67 patients (65.7%) did not have DGF. A statistically significant difference was observed between DGF and non-DGF groups for the following variables: recipient age (56.7y vs 50.6y, p=0.036), recipient hypertension (68.6% vs 86.6%, p=0.030), DCD donor type (40.0% vs 19.4%, p=0.025) and HLA-DR mismatch. 3 year graft survival was 85.7% in the DGF patients compared to 89.5% in patients without DGF. This difference was non-significant.

Table 1. Recipient-related variables

Variables	DGF (n=35)	No DGF (n=67)	P
Age (y)	56.7 ± 12.4	50.6 ± 14.2	0.036
Dialysis modality			0.086
HD	68.6%	49.3%	
PD	22.9%	25.4%	
Pre-emptive	8.6%	25.4%	
Dialysis duration (months)	42.8 ± 36.4	40.9 ± 39.7	0.81
Cause of ERF			0.62
HTN	11.4%	13.4%	
DM	8.6%	10.4%	
PKD	14.3%	14.9%	
Chronic GN	37.1%	22.4%	
Others	28.6%	38.8%	
BMI	26.5 ± 4.2	25.6 ± 4.4	0.336
History of HTN			0.030
Yes	68.6%	86.6%	
No	31.4%	13.4%	
History of IHD			0.330
Yes	11.4%	6.0%	
No	88.6%	94.0%	
History of DM			0.393
Yes	11.4%	17.9%	
No	88.6%	82.1%	
Number of transplants			0.216
1st	82.9%	92.5%	
2nd	14.3%	4.5%	
3rd	2.9%	3.0%	

Table 2. Donor-related variables

Variables	DGF (n=35)	No DGF (n=67)	P
Age (y)	55.2 ± 13.1	50.1 ± 15.3	0.099
Type			0.025
DBD	60.0%	80.6%	
DCD	40.0%	19.4%	
BMI	25.85 ± 3.15	26.47 ± 4.89	0.498
History of Hypotension			0.452
Yes	77.1%	70.1%	
No	22.9%	29.9%	
History of HTN			0.109
Yes	74.3%	58.2%	
No	25.7%	41.8%	
Cardiac arrest			0.647
Yes	34.3%	29.9%	
No	65.7%	70.1%	
History of DM			0.69
Yes	11.4%	9.0%	
No	88.6%	91.0%	
Urine output (ml/hr)	149.5 ± 148.1	148 ± 136.6	0.960
Cr on admission (µmol/l)	81.43 ± 30.79	80.48 ± 29.59	0.880
Cr on retrieval (µmol/l)	85.51 ± 37.69	84.55 ± 46.51	0.916

DBD, brain dead donor; DCD, cardiac death donor; Cr, creatinine.

Conclusion:

Increasing recipient age, DCD donor type and HLA-DR mismatch were associated with an increased incidence of DGF. In contrast, recipient hypertension was associated with a reduced incidence of DGF, suggesting it is a protective factor. Also, DGF had no significant effect on graft survival at 3 years.

P0019

Outcome of patients with multiple myeloma who undergo autologous stem cell transplantation followed by renal transplantation: A case series report

Maria Ibrahim[1], Michael Delaney[3], Matthew Streetley[2], Ceri Bygrave[4], Stephen Schey[1], Rueben Benjamin[1], Sapna Shah[1]

[1]Kings College Hospital, London, UK, [2]Guy's and St Thomas' Hospital, London, UK, [3]Kent and Canterbury Hospital, Canterbury, UK, [4]University Hospital of Wales, Cardiff, UK

Introduction:

Autologous stem cell transplantation (ASCT) and novel therapies have improved prognosis of patients with multiple myeloma (MM). Renal failure and dialysis substantially impact on morbidity and mortality and therefore renal transplantation is considered if complete remission (CR) after ASCT is achieved. This case series reports the outcomes for patients after ASCT and renal transplantation.

Methods:

Patients were identified from the hospitals in our region. Clinical and demographic data were extracted from patient records.

Results:

Two females and 3 males were identified. Median age at diagnosis of MM was 54 years (range 37- 64). High dose melphalan autografts for MM were performed after a median of 13 months (range 10-22) of achieving a very good partial remission (VGPR) or CR. Renal transplantation was completed at a median of 27 months after ASCT (range 16-43). Patients 1 and 3 experienced relapse of myeloma at 40 months and 13 months after renal transplantation. They were successfully treated with chemotherapy for a further 30 and 44 months respectively. Patient 1 commenced dialysis before death and patient 3 died with a functioning renal allograft. Patients 2, 4 and 5 remain alive with functioning renal allografts and are currently in CR with a median follow-up period of 67 months. The median graft survival time is 66 months (range 47 – 95). These results are summarized in the graph shown.

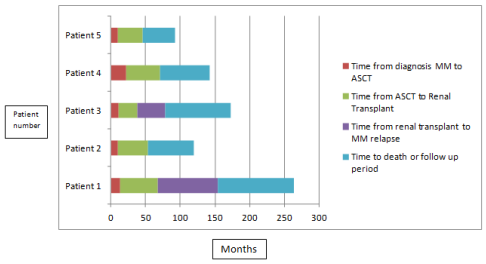


Figure 6: Graphical representation of timeline of progression of disease of each patient from time of diagnosis of MM

Discussion:

We report that patients with MM undergoing ASCT followed by renal transplantation achieve dialysis independence for a median of 66 months. We suggest that all patients with MM and end stage renal failure who achieve a stable deep response (VGPR or CR) for a minimum of a year following ASCT should be considered for renal transplantation.

P0020

Beyond the bones: The association between Vitamin D, graft outcomes, malignancy and vascular disease

Adrienne Seitz[1], Aravind Cherukuri[2], Richard Baker[1]
[1]*St James's Hospital, Leeds, UK,* [2]*University of Pittsburgh, Pittsburgh, USA*

Introduction:
Vitamin D deficiency in kidney transplant recipients (KTRs) is an emerging theme. The purported associations between Vitamin D deficiency and various metabolic, cardiovascular and non-metabolic adverse events have not been thoroughly studied in KTRs.

Methods:
In this prospective observational study, we examined the association between Vitamin D deficiency, graft loss, mortality, NODAT, cardiovascular events and development of cancers.

Results:
504 KTRs had their vitamin D checked in 2008 and were followed up for 100 months. Vitamin D status was defined as normal **(N, >50nmol/L)**, insufficiency **(Ins, 25-50 nmol/L)** or deficiency **(Def, <25 nmol/L)** as per WHO criteria. The prevalence of vitamin D deficiency was high (**Ins 37%, Def 28%**) with a significantly higher prevalence in older and female recipients, and in relatively new transplants. KTRs who were vitamin D deficient had significantly worse mortality **(N, 4% vs. Ins, 9% vs. Def 14% p<0.001)**, death censored graft loss **(N, 4% vs. Ins, 7% vs. Def 13%, P<0.001)**, development of NODAT **(N, 8% vs. Ins, 15% vs. Def, 15% p=0.01)** and cardiovascular events **(N, 2% vs. Ins, 5% vs. Def, 9%, p=0.01)** when compared to those with normal levels (N). Although vitamin D deficiency is not associated with a higher incidence of malignancy, it is associated with higher mortality in those with cancer **(Def, 79% vs. N and Ins, 37%, p=0.01)**. In a multivariate Cox model, vitamin D deficiency was associated with significantly worse mortality **(Ins, HR 2.3, p=0.004; Def, HR 3.3, p<0.001)** and death censored graft loss **(Ins, HR 2.0, p=0.03; Def. HR 3.1, p<0.001),** NODAT **(Ins, HR 2.0, p=0.02; Def, HR, 2.2. p=0.005)** and cardiovascular events **(Ins, HR 2.4 p=0.05; Def 3.3, p=0.008)** independent of age, PTH levels, gender, graft number, type of transplant, time since transplantation, graft type and renal function, proteinuria, steroid usage and Calcium phosphate product.

Discussion:
Vitamin D deficiency, which is highly prevalent in KTRs is associated with adverse clinical outcomes. Our study stresses the need for a prospective trial of vitamin D replacement in KTRs

P0021

Chronic Hepatitis E infection in transplant recipients: A single kidney and pancreas transplant centre experience

Andreas Kousios[1], Rawya Charif[1], Emilie Sanchez[2], Shahid Khan[3], Fiona Regan[4], Belinda Smith[3], David Muir[2], David Taube[1], Jack Galliford[1]

[1]Renal and Transplant Centre, Hammersmith Hospital, Imperial College Healthcare NHS Trust, London, UK, [2]Department of Infection and Immunity, Charing Cross Hospital, Imperial College Healthcare NHS Trust, London, UK, [3]Department of Hepatology, St Mary's Hospital, Imperial College Healthcare NHS Trust, London, UK, [4]Department of Haematology, Hammersmith Hospital, Imperial College Healthcare NHS Trust, London, UK

Introduction:

Hepatitis E (HEV) evolves to chronic hepatitis in 65% and cirrhosis in 10% of immunosuppressed patients, however incidence and prevalence are unknown. HEV can be transmitted by the faecal-oral route and blood products and infection is underdiagnosed in Solid Organ Transplant recipients (SOT) due to subacute disease onset and delayed or even absent seroconversion. No established treatment exists, although immunosuppression reduction and ribavirin have been shown to be effective.

Methods and Results:

Between 2010-2016, seven patients were investigated for persistently raised ALT and were diagnosed with HEV (Table). Retrospective analysis of stored samples identified 5 patients with chronic HEV3-infection (HEV-RNA detection for more than 6 months prior to diagnosis). Notably, 2 chronic-HEV patients had negative IgM/IgG at the time of diagnosis. The source of infection was temporal with a transplant in 3 and food in 4 patients. To date, 5 patients have been treated with ribavirin, 4 achieved HEV-clearance but 2 out of 4 have relapsed.

#	Age at Dx/ Gender	Tx	Induction/ Maintenance Immunosupp.	IgM/IgG at Dx	Months after Tx	Duration HEV-RNA Positivity (months)	Peak ALT/ GGT (IU/L)	Treatment	Time to response-clearance/ Total treatment duration (months)	Relapse/ Treatment
1	45/ F	SPK	Alemtuzumab / FK	+/+	82.5	30.1	282 133	↓immunos. Ribavirin	2.8/ 12.5	N
2	51/ F	K	Alemtuzumab /Sirolimus	-/-	36	8.6	557 134	↓immunos. Ribavirin	1.2/ 4	Y Ribavirin
3	46/ M	SPK	Alemtuzumab /FK and MMF	+/-	25.5	11.8	263 61	↓immunos. Ribavirin	2.4/ 6	N
4	36/ F	K	Alemtuzumab /FK, AZA, Pred	+/+	82.5	3	169 40	↓immunos.	2.4	N
5	35/ M	K	Alemtuzumab / FK and MMF	-/-	46.1	>6.8 Lost to FU	Chronic HBV	↓immunos. entacavir	Active HEV	-
6	60/ F	K	Alemtuzumab /FK	+/+	1.5	29.8	337 663	↓immunos. Ribavirin	1.5/ 2	Y Ribavirin
7	51/ M	K/PAK	Alemtuzumab / FK, MMF, Pred	+/+	6.5	>48,2 On going	347 149	↓immunos. Ribavirin	On going day 44	-

Discussion:

HEV should be suspected in all immunosuppressed patients with unexplained transaminitis noting that IgM/IgG antibodies may be falsely negative. The optimal treatment and duration remains to be determined. Blood products for SOT recipients should be HEV-tested as per SaBTO guidelines. Further studies are needed to determine regional incidence and prevalence.

P0022

Risk of kidney rejection following simultaneous liver kidney transplantation

Sapna Shah[1], Abid Suddle[1], Varuna Aluvihare[1], Olivia Shaw[3], Catriona Shaw[1], Nizam Mamode[2], Christopher Callaghan[2], Geoff Koffman[2], Nigel Heaton[1]

[1]King's College Hospital, London, UK, [2]Guy's and St Thomas' Hospital, London, UK, [3]Viapath, London, UK

Introduction:

Simultaneous liver kidney transplant (SLK) recipients may be at risk of antibody-mediated kidney rejection (AMR) if the pre-transplant crossmatch is positive (+CXM). Accordingly, in 2014, we modified our SLK programme to include a flow crossmatch and increased immunosuppression (basiliximab induction, tacrolimus, MMF and prednisolone) for those with HLA class II DSAs MFI>10000 in whom a decision to proceed with +CXM SLK was made due to clinical urgency and cRF. All other patients receive tacrolimus and prednisolone. We report the results of the first 14 SLK transplants performed under the new risk stratification policy.

Methods:

Cohort analysis of SLK recipients 2014-2016.

Results:

Baseline variables are shown below. 2 patients had a retrospective B cell +CXM and class II DSAs with MFIs>10000. Both suffered with AMR at 1 week which was treated with plasma exchange and intravenous immunoglobulin (PEXivG). Current eGFR for these patients is 50 and 27 ml/min/1.73 m^2. A third patient developed grade 2A T cell mediated rejection (TCMR) at day 11 and was treated with ATG (current eGFR 39 ml/min/1.73 m^2). One further patient developed 1A TCMR at 3 months. At 1 year, graft (liver and kidney) and patient survival was 100% with median eGFR of 46 ml/min/1.73 m^2 (32-94).

Demographic / Clinical variable	% of cohort
Male	43
Pre-emptive kidney transplant	29
Primary renal and liver disease- Adult Polycystic Kidney Disease and Polycystic Liver Disease	71
DBD donor	93

Discussion:

Our results suggest that patients undergoing SLK transplantation with class II DSAs with MFIs>10000 and +CXM are at risk of AMR despite increased immunosuppression. However, AMR can be effectively treated with PEXivG. Further investigation to consider immunological risk stratification in SLK transplantation and optimal induction immunosuppression, by recruitment to a multicentre study is warranted.

P0023

Non-White donors and kidney transplant outcomes: a population-cohort study of transplant registry data

Bhavini Pisavadia[1], Adam Arshad[2], Imogen Chappelow[2], Peter Nightingale[3], Benjamin Anderson[1], Jay Nath[2], Adnan Sharif[1,2]

[1]Department of Nephrology and Transplantation, QEUH, Birmingham, UK, [2]University of Birmingham, Birmingham, UK, [3]Department of Medical Statistics, QEHB, Birmingham, UK

Introduction:

It is unclear if non-White donors achieve the same outcomes after kidney transplantation for White versus non-White recipients. We undertook this national study to better inform clinical practise.

Methods:

This study analysed all kidney-alone transplants performed in the UK between 2003 and 2015. Multivariate Cox regression models were used to analyse the effect of donor-recipient ethnicity combinations on outcomes post-transplant.

Results:

There were 27,893 kidney transplant recipients in the study cohort (White=23,148, Black=1,672, south Asian=3,073), with 64.5% comprised of deceased-donor transplants (n=17,991). There were more Black and south Asian living-donors (3.8% versus 6.9% respectively) versus deceased-donors (1.1% and 1.7% respectively). Donor-recipient matched ethnicities resulted in better outcomes for graft survival, 1-year creatinine, delayed graft function and patient survival. South Asian deceased-donor kidneys had worse 1-year creatinine and graft survival. Compared to White donors' we observed worse graft survival with both south Asian (HR 1.365, 95%CI 1.105-1.685, p=0.004) and Black (HR 1.611, 95%CI 1.265-2.053, p<0.001) donated kidneys. However, south Asian recipients had better estimated 5-year graft survival after receiving a south Asian living-donor kidney versus a White deceased-donor kidney (91.8% versus 85.6% respectively, p<0.001).

Discussion:

Kidneys from non-White donors are associated with worse graft survival after kidney transplantation, although matched donor-recipient ethnicities have better outcomes. Our data supports living-kidney donation amongst non-White communities but, regardless of recipient ethnicity, we believe deceased-donor kidneys from any ethnicity will have superior outcomes compared to dialysis.

P0024

Ten year experience of kidney transplantation in children weighing <20kg

Pankaj Chandak[1,2], Jelena Stojanovic[1], Faisal Jamshaid[1], Nizam Mamode[1,2], Francis Calder[1,2], Jonathon Olsburgh[1,2], Chris Callaghan[1,2], Martin Drage[1,2], Geoff Koffman[1,2], Stephen Marks[2], Nicos Kessaris[1,2]
[1]Guy's and Evelina London Children's Hospitals, London, UK, [2]Great Ormond Street Hospital, London, UK

Introduction:

Renal transplantation is the gold standard treatment for end-stage kidney disease. There are increased challenges in paediatric renal transplant recipients under 20kg, especially when placing an adult kidney into a small abdomen.

Methods:

Data was retrieved from a prospectively collected database, electronic records and hospital notes from two Paediatric Transplant Units in UK. eGFR was calculated using the Schwartz formula (*Schwartz GJ, Pediatrics 1976 ;58:259-63*). Death-censored graft survival and patient survival were assessed using Kaplan-Meier analysis.

Results:

420 children, who had a kidney transplant between 2005-2015, were reviewed. Group A (<20kg) included 116 (28%) and Group B (>20kg) had 303 (72%) cases. The median age (years) for Group A was 3 (IQR 2-4) and for Group B, 13 (IQR 10-15). This was significantly different ($p<0.001$). 108 (93%) Group A cases had a functioning graft at last follow up (6 failed, 2 died) versus 274 (90%) Group B cases (29 failed, 1 died). 3 (38%) losses in Group A and 14 losses (48%) in Group B were due to rejection. The overall median follow up was 2 years (IQR 1-5) with a maximum of 9 years. The median donor age (years) was 37 (IQR 30-42) and 41 (IQR 34-47) for Group A and B respectively ($p<0.001$). Group A included 85 (73%) live, 28 DBD and 3 DCD donors and Group B 179 (59%) live, 116 DBD and 8 DCD donors. 1/116 in Group A and 29/303 in Group B were re-transplants. The last median eGFR was 61 (IQR 48-74) and 51 (IQR 40-63) in Group A and B respectively ($p<0.001$). There was no significance difference between the groups with respect to graft and patient survival (log rank test $p=0.276$ and 0.130 respectively).

Discussion:

Despite the obvious difference in age between the two groups, the overall patient and graft survival was similar between children <20kgs and >20kgs in this cohort. Transplantation in small children is feasible with good outcomes.

P0025

Pre-transplant histological assessment provides a useful predictor of subsequent kidney allograft function

Adam Brayne, Patrick Trotter, Daniel Hart, Vasilis Kosmoliaptsis, Gavin Pettigrew, Menna Clatworthy
Department of Surgery, University of Cambridge, UK

Introduction:

Organ shortage is a major challenge in transplantation. To ameliorate this problem, marginal donors are increasingly used. In renal transplantation, histological assessment with the Remuzzi score (RS) has shown some utility in predicting outcomes but requires widespread validation. Our transplant centre has used this scoring system to allocate kidneys from older donors or those with multiple co-morbidities, for single or dual transplantation. From 2010, we used kidneys with a score of 1-3 as single transplants, and in 2014 extended this to include kidneys with a score of 4. We sought to assess the efficacy of the RS to predict transplant outcomes and to confirm that kidneys with a score of 4 had a reasonable outcome when used as single transplants.

Methods:

We performed a single centre, retrospective observational study of all available RSs, performed on pre-implantation and time zero biopsies, in 495 single kidneys obtained from both deceased circulatory death and deceased brainstem death donors, and transplanted as single kidneys between 2010 and 2016. Subsequent outcomes (graft survival and 1 year eGFR) were ascertained for patients with follow up data.

Results:

Of the 495 kidney transplants with pre-transplant biopsies, the RSs were:

RS	0-1 (n= 171)	2 (n=81)	3 (n=127)	4 (n=84)	5-7 (n=32)
1 year eGFR (median (IQR))	57.9 (40.7-77.3)	45.2 (33.1-58.5)	42.3 (31.5-57.1)	45.9 (34.0-53.7)	35.4 (30.0-52.9)
1 yr Graft Survival	143 (96%)	67 (98%)	92 (93%)	75 (95%)	30 (100%)

Graft function at 1 year was significantly worse with a RS ≥ 5, with eGFR 41.9 ml/min (95% CI 34.3-49.5) versus 52.3 ml/min (95% CI 49.8-54.7) with a score <5 (p=0.02). Increasing RS incrementally conferred reductions in 1 year eGFR (r=-0.356, p<0.01).

Discussion:

This single centre, retrospective observational study demonstrates that the RS is effective in predicting graft function at one year. The data also show that some kidneys with a score of >5 have reasonable outcomes, highlighting the need for additional biomarkers to improve prediction of subsequent function.

P0026

A retrospective analysis of renal allograft function and biopsy-proven rejection episodes according to donor type

Paul Martin, Hannah Burton, Paramit Chowdhury, Elham Asgari
Guy's and St Thomas' NHS Foundation Trust, London, UK

Introduction:
It is well recognised that donor type can have a significant impact on renal allograft outcomes. This study evaluates the impact of donor characteristics on rejection and allograft function in a single large centre.

Methods:
523 patients undergoing renal transplantation between January 2011 and December 2015 were categorised according to donor characteristics (donation after brain death (DBD), donation after circulatory death (DCD) and live donor (LD)). Delayed graft function (DGF) was defined as the need for haemodialysis within a week of transplantation. Rejection episodes were categorised according to the Banff classification. Serum creatinine and tacrolimus levels were measured periodically throughout the study period.

Results:
60% DCD, 34% DBD and 2% LD transplants were complicated by DGF. The subsequent rate of rejection after DGF was 27%, compared with 16% in those with immediate graft function (p=0.0075).

Overall 26% DBD, 30% DCD and 19% LD transplant recipients experienced ≥1 rejection episode; when combined, recipients of all deceased donor (DD) organs had a significantly higher incidence of rejection than LD recipients (27.6% vs 19%, p=0.036).

Though there was no significant difference between DBD and DCD graft function at 1 year (202.7 vs 182.1 µmol/L, p=0.33), significantly better function was seen for LD grafts (146µmol/L, p=0.0016 compared to all DD grafts). Figure 1 depicts how graft function varied over time according to donor type and rejection status.

Discussion:
Though outcomes after LD transplantation are superior, in our centre there was no significant difference in graft function or rejection rates between DBD and DCD grafts.

P0027

Kidney transplant biopsies for delayed graft function:Does it add therapeutic value?

Vishwanath Siddagangaiah, Stavros Papachristos, Marcus Lowe, David van Dellen, Muir Morton, Titus Augustine
Manchester Royal Infirmary, Manchester, UK

Introduction:

Graft biopsies are performed in kidney transplants with delayed graft function (DGF) to confirm diagnosis and exclude potential underlying rejection. With the increasing use of donor after cardiac death (DCD) and Extended Criteria Donors, DGF incidence is increasing whilst modern immunosuppressive regimes have reduced the incidence of acute rejection to less than 10%. Routine biopsies may therefore provide therapeutic efficiency or financial utility. In addition, they are known to be associated with potential morbidity.

Methods:

A retrospective analysis was performed of kidney transplant recipients over 4 years (2004-8). Patients who underwent graft biopsy due to DGF within 2 weeks of transplantation were included. Only biopsies performed with the aim of confirming acute tubular necrosis (ATN) and excluding rejection were considered for analysis.

Results:

866 kidney transplants were performed over this period and 73 patients met the inclusion criteria (67 deceased donors and 6 living donors recipients.) 8 biopsies were excluded from analysis due to suboptimal samples. 55 biopsies (84.6%) either had features suggestive of ATN or lacked evidence of rejection. Rejection (which included 3 borderline rejections) was reported in only 9 recipients. One report suggested donor related factors. All recipients also had renograms that suggested DGF.

Discussion:

The exclusion of rejection has traditionally mandated early biopsy following renal transplantation in the context of DGF. However the incidence of concomitant rejection with DGF remains low. The indications for a routine biopsy during DGF therefore requires more critical appraisal. The role of novel alternate techniques, including urinary metabolomics or proteomics may provide further insights in this cohort of patients.

P0028
Predictors of transplant failure in patients who undergo an indication renal biopsy

Kathryn Stevens, David Kipgen, Shana Coley, Marc Clancy, Bruce Mackinnon, Colin Geddes
Renal Transplant Unit, Queen Elizabeth University Hospital, Glasgow, UK

Introduction:
This study considers indication renal biopsies and factors which may be important predictors of transplant loss and patient death.

Methods:
All indication biopsies undertaken between 01/2011 and 12/2015 were identified. Demographic data including immunological and outcome data was recorded. Statistical analysis was undertaken in SPSS (v22).

Results:
354 patients underwent 549 biopsies. Mean patient and transplant age at time of biopsy was 43.2 ±15.3 and 4.2±5.8 years respectively. 44.9% (n=247) of biopsies showed evidence of Cell mediated rejection (CMR)/ABMR or both. 9.3% (n=51) demonstrated features of chronic transplant glomerulopathy (CTG). DSA was present at the time of biopsy in 23.1% (n=127). In transplants aged ≤ 6 months old histological diagnosis was CMR in 32.5% (n=69) with ABMR seen in 2.8% (n=6). In transplants aged ≥10 years, CTG was seen in 32.5% (n=26) with ABMR accounting for 6.3% (n=5). 22.9% (n= 81) of transplants failed at a median of 182 days from most recent biopsy. On cox regression analysis, peritubular capillary (PTC) C4d and CTG were independent predictors of transplant failure. Probability of transplant failure was 45% and 50% at one year if mixed rejection or CTG were present. 9.3% (n=33) patients died at a median of 227 days from most recent biopsy. Independent predictors of death included deceased donor transplant, patient age and presence of ABMR on biopsy ($p<0.05$).

Discussion:
Acute ABMR is a risk factor for patient loss whilst chronic ABMR is a risk factor for transplant loss. This association is independent of DSA but dependent upon PTC C4d staining, indicative of donor humoral activity – HLA or otherwise. Histological diagnosis in an indication biopsy is an important factor in predicting outcome. This study is limited by the inherent bias in patient selection with indication biopsy.

P0029

Transplantation of organs from donors with Hepatitis C: The potential to substantially increase transplant activity

Patrick Trotter[1,2], Matthew Robb[2], Dominic Summers[1,2], Ines Ushiro-Lumb[2], James Powell[4], Christopher Watson[1], J A Bradley[1], James Neuberger[3,2]

[1]Department of Surgery, University of Cambridge, Cambridge, UK, [2]NHS Blood and Transplant, Bristol, UK, [3]Liver Unit, Queen Elizabeth Hospital, Birmingham, UK, [4]Hepatic-Pancreatico-Biliary Surgical Services and Edinburgh Transplant Unit Royal Infirmary of Edinburgh, Edinburgh, UK

Introduction:

Organs from hepatitis C virus positive (HCV+ve) donors are commonly declined for transplantation because of the risk of disease transmission, but new direct acting antivirals (DAA) open up the possibility that organs from such donors could be safely used. A registry analysis was undertaken to determine the potential impact that use of all organs from HCV+ve donors would have on transplant activity and outcome.

Methods:

The UK Transplant Registry and the Potential Donor Audit were interrogated to identify anti-HCV antibody positive deceased organ donors over the 16-year period from 01/01/2000 to 31/12/2015. Discarded HCV+ve organ quality was assessed using donor quality indices and functional parameters.

Results:

244 HCV+ve deceased donors were identified, of which only 65 (27%) provided organs used for transplantation in 93 recipients (63 liver and 30 other organ transplants). Unadjusted liver recipient patient and graft survival was not adversely impacted by the donor HCV+ve status. Organs from 146 HCV+ve consented donors were declined for transplantation and in most cases (71.4%) this was because of positive virology rather than poor organ function (8.9%). The median eGFR of declined HCV+ve donors was 103 ml/min/m^2 (IQR 70-144) and 49% had a UK donor risk index score of <1.02, suggesting at least 77% of potential transplanted kidneys from such donors would be functioning at 5 years. Cost analysis demonstrated that transplanting an HCV+ve kidney into an HCV-ve recipient and treating them with DAA would be cost neutral with dialysis by 4 years after transplantation.

Conclusion:

Consideration should be to the use of organs from HCV+ve donors for HCV-ve recipients. Donor kidney quality is generally good and the use appears to be cost effective compared to dialysis when taking into account the need for antiviral therapy after transplantation.

P0030

CMV incidence in Scottish renal transplant units allowing comparison between two different approaches to CMV prophylaxis

Anna Kolb[1], Lorna Henderson[1], Colin Geddes[2], David Walbaum[3], Nicola Joss[4], Drew Henderson[5], Annette Alfonzo[6], Michaela Petrie[1]

[1]Royal Infirmary of Edinburgh, Edinburgh, UK, [2]Glasgow Renal and Transplant Unit, Glasgow, UK, [3]Royal Infirmary Hospital, Aberdeen, UK, [4]Raigmore Hospital, Inverness, UK, [5]Ninewells Hospital, Dundee, UK, [6]Victoria Hospital, Kirkaldy, UK

Introduction:

Of the two Scottish renal transplant centres, Glasgow gives 6 months of Valganciclovir prophylaxis only to CMV negative recipients of CMV positive transplants (CMV D+/R-), while Edinburgh gives the same dose and duration of Valganciclovir to all except CMV negative recipients of CMV negative transplants (CMV D-/R-). Neither unit routinely screens for asymptomatic CMV viraemia.

Methods:

Recipients of renal transplants in 2015 in Scotland were identified and minimum 6 months follow-up data were obtained as part of a Scottish Renal Registry transplant outcome census.

Results:

240 kidney transplants were performed in Scotland in 2015: 111 transplants in Edinburgh and 134 in Glasgow. Immunosuppression and baseline characteristics of donor and recipients were comparable between units. There were fewer CMV D-/R- transplants (16 versus 28%, p=0.03) and more CMV D+/R+ transplants (33 versus 21%, p= 0.007) in Edinburgh compared to Glasgow. The proportion developing CMV viraemia in each CMV mismatch group differed between units (see figure 1), with higher rates of viraemia in the West (p= 0.04) but comparable rates of CMV disease between units (p=0.8). However, 75% of Glasgow's CMV cases less than 6 months post-transplant compared to just 33% in Edinburgh (p=0.09). Rejection rates are similar between centres.

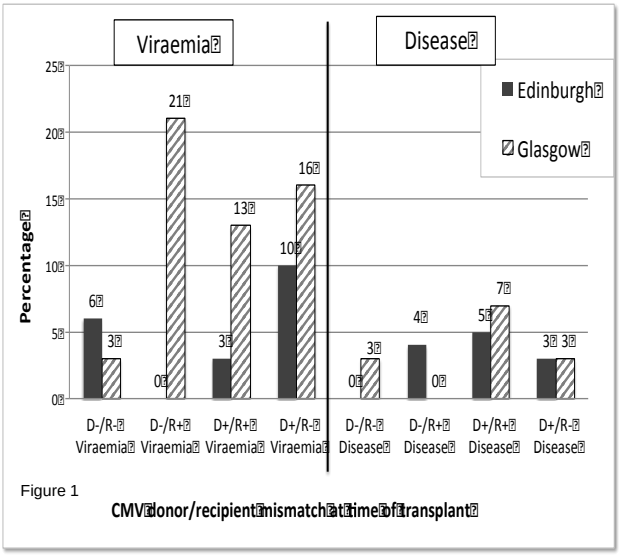


Figure 1

Discussion:

The comparable CMV disease rates may favour the Glasgow approach to prophylaxis, in an effort to minimise pill burden and potential side effects of Valganciclovir. However, the timing of CMV diagnosis, rates of rejection and immunosuppression burden will impact on CMV risk and must be considered when determining local prophylaxis policy.

P0031

Do we need to extend CMV prophylaxis course in high risk patients post transplant? A single centre retrospective study of CMV infection in kidney transplant patients

Mayar Ghazal Aswad, Christopher Smith, Shakeeb Khan, John Black, Shafiq Chughtai, Stalin Dharmayan, Ahmad Ali, Poyyamazhi Rajagopal, Tahir Doughman, Atul Bagul
University Hospitals of Leicester, Leicester, UK

Introduction:
CMV infection is one of the most common viral infection post transplantation. It is associated with multiple morbidities and mortality. Hence most centres give CMV prophylaxis post transplantation. However, the prophylaxis course length varies between three to six months among different units. The study aim is to assess CMV infection incidence in our centre and evaluate the need to extend our current three month CMV prophylaxis course.

Methods:
95 patients who received kidney transplant between April 2015 and March 2016 in our unit were included. Donor and recipient CMV status was checked at the time of transplantation and patients received three month CMV prophylactic course of Valganciclovir if they are CMV -ve and the donor CMV +ve. Patients were followed up for a minimum of 6 months. CMV infection incidence was checked and the length of time to develop the infection was assessed.

Results:
11 patients (11.6%) developed CMV infection. 8 (72.7%) where form the high risk group and received CMV prophylaxis for 3 months whereas 3 (27.3%) where from the low risk group and did not receive prophylaxis post op as per unit protocol. 8 patients (72.7%) developed the infection between four to six months post operatively and 3 patients (27.3%) acquired the infection within three months. Mean creatinine level at 6 months for infected group and negative group was 175 µmol/l and 170 µmol/l respectively.

Discussion:
In our unit around three quarters of the infections occurred 4-6 months post operatively despite having CMV prophylaxis for the initial three months. We recommend from our study that the current three month CMV prophylaxis protocol in high risk patients is extended to six months and a repeat study with larger number of patients in conducted in the future.

P0032

Alemtuzumab induction is associated with a lower incidence of BK virus nephropathy compared with IL2RA induction

Alexander Gueret-Wardle, Sevda Hassan, Gaetano Lucisano, Candice Roufosse, Michelle Willicombe, David Taube

West London Renal and Transplant Centre, London, UK

Introduction:

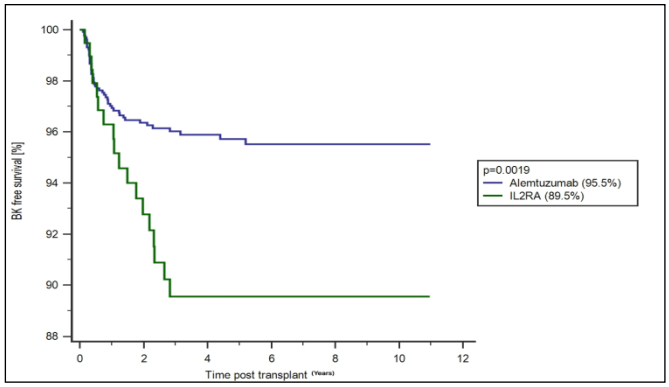
BK polyoma virus associated nephropathy [BKVAN] is a major cause of allograft dysfunction and graft loss occurring in up to 10% of kidney allograft recipients with a mean time to diagnosis of 120 days. Although BKVAN is associated with a higher exposure to immunosuppressive agents, there are few reports describing the incidence and outcomes of BKVAN in patients receiving Alemtuzumab [Az] induction.

Methods:

1503 low risk kidney only transplant recipients received a steroid sparing regimen with Az induction and tacrolimus monotherapy or IL2RA induction with tacrolimus and MMF. BKVAN was only diagnosed by allograft biopsy [viral inclusions, tubular injury and interstitial infiltrates in the areas of tubular damage]. BKVAN was treated by MMF cessation and tacrolimus dose reduction.

Results:

68/1503 [4.5%] patients developed BKVAN. Patients receiving Az induction had a significantly lower incidence of BKVAN 50/1503 [3.81%] compared with patients receiving IL2R induction 18/192 [9.4%, p= 0.0005]. Mean time to development of BKVAN was 370 days. Mean death censored allograft survival was 7.47 $\pm$ 0.55 years for both groups. However censored allograft survival was superior in those patients on MMF at the time of BKVAN diagnosis compared to CNIs alone [p=0.023]



Discussion:

Induction with Az is associated with a lower incidence of BKVAN compared with IL2RA. Patients with BKVAN on MMF at diagnosis had better allograft survival, presumably because we were able to stop MMF.

P0033

Non-directed altruistic kidney donors: characteristics and outcomes of potential donors at multiple UK renal centres

Pippa Bailey[1,2], Charles Tomson[3], Yoav Ben-Shlomo[1]

[1]University of Bristol, Bristol, UK, [2]Southmead Hospital, Bristol, UK, [3]The Freeman Hospital, Newcastle upon Tyne, UK, [4]University Hospital of Wales, Cardiff, UK, [5]Morriston Hospital, Swansea, UK, [6]Royal Preston Hospital, Preston, UK, [7]Addenbrooke's Hospital, Cambridge, UK, [8]Royal Stoke University Hospital, Stoke on Trent, UK

Introduction:

Non-directed altruistic kidney donations (NDADs) are now responsible for approximately 10% of the living kidney donations in the UK. One UK NDAD leading centre has reported 131 potential donors beginning assessment over an 8 year period, with 22% progressing through to donation. However the number and characteristics of individuals presenting to other renal units in the UK, and the likelihood of progression, are not known.

Methods:

Data was prospectively collected on all individuals who presented to seven UK renal units (Bristol, Cambridge, Cardiff, Newcastle, Stoke-on-Trent, Swansea and Preston) for living kidney donor assessment over an 18 months period from 01/08/2014 to 3/01/16.

Results:

Of 856 potential donors, 51 individuals presented for NDAD. One centre had no individuals contact them regarding NDAD. Potential donors had a median age of 54.0 years (IQR 24.0), 58.8% were women, and all were of white ethnicity. The median BMI was 27.1kg/m2 (IQR 5.9). 23.1% had a BMI ≥30.0kg/m^2. Individuals presented equally from all levels of socioeconomic position. 27.5% were retired. 43.1% were married or in a long-term relationship. 57.6% were blood group O. 9 individuals remained in work-up at the time of analysis. Of those 42 individuals who had completed work-up, 9.5% (n=4) donated, 26.2% (n=11) were deemed medically unsuitable, 4.8% (n=2) psychologically unsuitable, 2.4% (n=1) surgically unsuitable, and 45.2% (n=19) withdrew. Reasons for withdrawal included a lack of family support, impact on employment, concerns regarding long-term impact on health, and concerns regarding the psychological assessment required. Median duration of donor assessment for those who progressed through to donation was 301 days (IQR 121 days), and for those who withdrew 43 days (IQR 139 days). Too few individuals donated to allow for meaningful comparison of characteristics between donors and non-donors.

Discussion:

This study has described the characteristics of individuals who presented to seven UK renal units for possible NDAD. The proportion who actually donated was less than half that previously reported from a single UK specialist centre. However, in addition, the absolute number of people presenting for evaluation at these centres was also small. A larger study would allow comparison of the characteristics of actual donors with those of potential donors.

P0034

Medication non-adherence is a leading cause for renal graft loss in childhood: A large centre study

Nabil Melhem[1], Nadeesha Mudalige[1], Pankaj Chandak[2], Grainne Walsh[1], Helen E Jones[1], Stacie Bowden[3], Nicos Kessaris[2], Nizam Mamode[2], Jelena Stojanovic[1]

[1]Department of Paediatric Nephrology, Evelina London Children's Hospital, London, UK, [2]Department of Transplantation, Guy's and St Thomas' NHS Foundation Trust, London, UK, [3]Department of Clinical Psychology, Evelina London Children's Hospital, London, UK

Introduction:

Despite continued advances in transplantation, it has been observed that the rate of renal graft failure is disproportionately high amongst the adolescent population. This study looked into why grafts fail in paediatric population.

Methods:

Retrospective observational study in a single paediatric transplant centre between 2003 and 2016. All patients transplanted during study period and those transplanted previously and already followed up in clinic were included.

Results:

During the study period, 171 paediatric kidney transplants were performed. Median follow up was 8 years (IQR 10years). Thirteen grafts failed before adulthood. Graft loss was caused by recurrent acute rejections in 8 (62%) and chronic AMR in two patients (15.4%).Three grafts were lost early from thrombosis and disease recurrence (excluded from analysis). The mean age at time of transplant was 6.4years and average age at the time of graft loss 15.7years (range 2-17.9). Living and deceased donors were evenly distributed and well matched. HLA antibodies were detected in 70%.

Medication non-adherence was confirmed in 40% of graft losses. These patients were 12-17 years old at the time of graft failure. All were well matched (MM 110/111) with graft lifespan 21-120 months. All had DSA, multiple episodes of rejection (Banff 2b and 4a), with an average of 5 biopsy proven episodes each and low/undetectable CNI levels.

Discussion:

Medication non-adherence was a significant contributor to poor transplant outcomes in the adolescent population with respect to graft losses. We propose a multidisciplinary staged adherence pathway to improve graft outcomes for paediatric transplant recipients.

P0035

Is the current UK practice of transplant professionals preventing unspecified kidney donation? Results from the BOUnD[1] study

Petrut Gogalniceanu[1,2], Rebecca Gare[1,2], Sam Norton[2], Joseph Chilcot[2], Alexis Clarke[3], Lynsey Williams[3], Annie Mitchell[3], Heather Draper[4], Paul Gibbs[5], Paul McCrone[2], Hannah Maple[1,2], Lisa Burnapp[1,6], Nizam Mamode[1,2]

[1]Department of Renal Transplantation, Guy's Hospital, Guy's and St.Thomas' NHS Foundation Trust, London, UK, [2]King's College London, London, UK, [3]School of Psychology, University of Plymouth, Plymouth, UK, [4]Institute of Applied Health Research, University of Birmingham, Birmingham, UK, [5]Renal Transplant Department, Portsmouth Hospitals NHS Trust, Portsmouth, UK, [6]NHS Blood and Transplant, Bristol, UK

Introduction:

Anecdotal evidence suggests that unspecified kidney donors (UKD) encounter variations in practice and mixed responses from transplant professionals (TPs). This study aims to determine attitudes and current practice of TPs as a step towards identifying factors preventing unspecified donation (UD) in the UK.

Methods:

Focus groups were conducted to identify key themes relevant to UD using thematic analysis. These informed the development of a questionnaire that was piloted, validated and distributed nationally to TPs caring for UKD in all 23 UK transplant centres.

Results:

152 TPs were recruited representing all professional subgroups. Altruistic behaviour patterns were highly prevalent: 151 reported at least 1 out of 5 listed behaviours (99%; median 3). TP expressed a strong interest in becoming either deceased (150, 99%) or specified donors (152, 100%). Furthermore, the majority reported actively considering being UKD themselves (113, 74%). Significantly fewer TPs were comfortable with the idea of being unspecified compared to specified (22% vs. 87%, SM=121.7, $p<0.001$) or deceased (22% vs. 94%, SM=112.9, $p<0.001$) donors. Nevertheless, TPs believed that UKD's had genuinely altruistic motivations for donating (mean 0.7, SD 0.7, where range is 0="strongly agree" to 4 "strongly disagree"). It was also believed that UKDs made balanced decisions (mean 1.2, SD 0.8), with no significant opinion variance noted between surgeons/physicians and coordinators/outpatient nurses ($t=-1.7$, $p=0.089$).

Discussion:

The study finds no evidence to suggest that the attitudes and practice of TPs may be preventing UD. Some TPs remain uncomfortable with the concept of UD and further research is needed to determine whether service users actually experience barriers to unspecified donation.

[1] Barriers and outcomes of unspecified kidney donation

P0036

Improved service through renal transplant consent clinic despite low proportion of patients requiring additional investigations

Rachael Czajka, Vivek Upasani, Richard Baker, Clare Ecuyer, Natalie Reeves, Kate Brady, Heather Roberts, Vijayanand Dhakshina, Niaz Ahmad, Lutz Hostert, Adam Barlow, Matthew Welberry Smith
St James' Univesity Hospital, Leeds, UK

Introduction:
We report the development of a dedicated, consultant delivered, consent clinic in our centre, in line with BTS guidelines. We review attendance rates, additional tests ordered, and changes to patient waiting list status that resulted from the clinic.

Methods:
Quantitative analysis of all clinic appointments in the first year of the clinic: number of patients seen, cancellation and DNA rates, tests ordered, and changes made to transplant status. Data obtained using clinic letters, and regional Renal database.

Results:
A total of 447 appointments were sent in the first year. There were 255 attendances, 150 cancellations (35 attended subsequently) and 42 DNAs (9 attended subsequently). 229 patients were seen by a surgeon, 20 by both a physician and a surgeon, and 5 seen by a physician only. 38 patients (16.6%) had investigations requested. 13 patients (5.0%) in total were suspended from the waiting list and 2 (0.7%) permanently removed. There was no difference in cancellation / DNA rates for geographically distant patients from more remote referring units vs. more central units. Initial patient feedback has been extremely positive, commenting particularly on the chance to meet the transplant team and ask questions.

Discussion:
Although there were low numbers of changes to transplant list status, having a dedicated consent clinic provided an improved service, and ensured compliance with BTS guidelines. Patients valued the opportunity to meet the team and see the transplant facilities. In addition to positive initial feedback, formal patient outcome measures analysis will be performed as a next step.

P0037
Ideal kidney oxygenation during ex-vivo normothermic perfusion

Thomas Adams, Keziah Crick, Diogo Fouto, Corrina Fear, Sarah Hosgood, Michael Nicholson
Cambridge Univerisity, Cambridge, UK

Introduction:
Kidney Ex-Vivo Perfusion systems (EVNP) have historically supplied a gas mixture of 95% O_2 and 5% CO_2**;** however**,** evidence suggests that supra-physiological oxygenation can be deleterious. We hypothesised that excess oxygenation during EVNP may abate its conditioning effects.

Methods:
After 10min warm ischaemia (WI) and 2hr cold static storage (CSS), porcine kidneys underwent 1hr of EVNP with 95% (n=8), 25% (n=4), 12% (n=5) or 6% (n=5) O_2 with 5% CO_2 and N_2 balance; or Air (n=6). A further group had 10min WI and 17hr CSS before 1hr EVNP with 95% (n=8) 25% (n=6) or 12% (n=9) O_2; then were reperfused with whole blood for 3hr. A control group underwent 18hr CSS before reperfusion. We took continuous functional measurements and interval samples of blood, urine and cortical tissue.

Results:
Arterial oxygen content (C_AO_2) was significantly higher in the 95% group (P=0.01). Delivery of Oxygen (DO_2) was lower in the air group (p=0.035) and 6% (p=0.016) versus 95% group. There were no significant differences in functional measurements. Mean pH in the Air group was significantly higher after 60min EVNP (7.48, p=0.0001). During reperfusion, oxygen consumption, fractional sodium excretion and urine output were numerically higher in the 25% O_2 group. Tissue concentrations of Hypoxia Inducible Factor 1a (HIF1a) and Liver-type Fatty Acid Binding Protein (L-FABP) were numerically lower in 25% vs 95% groups; High Motility Group Box 1 (HMGB-1) was significantly lower in 12% versus 95% at 3hr (25.67±4.06 vs.16.43±2.99 ng/mL, P=0.012).

Discussion:
Near-physiological oxygenation given during EVNP is not detrimental to kidney function upon reperfusion, and may reduce renal injury. During EVNP, kidney function appears to autoregulate to altered oxygen perfusion despite significant differences in C_AO_2 and DO_2. A high pH during air perfusion suggests 5% CO_2 is essential to maintain acid-base homeostasis.

P0038

Evaluation of outcomes in renal transplantation using machine perfusion for the preservation of kidneys from expanded criteria donors

Emilie Savoye[1], Marie-Alice Macher[1], Michel Videcocq[4], Philippe Gatault[9], Marc Hazzan[3], Imad Abboud[6], Antoine Thierry[7], Dominique Bertrand[8], Sarah Drouin[5], Johnny Sayegh[2], Olivier Bastien[1], Olivier Huot[1], Christian Lamotte[1], Benoit Averland[1], Patrice Guerrini[1], Hélèné Jullian[1], Hélène Logerot[1], Camille Legeai[1], Corinne Antoine[1]

[1A]gence de la Biomédecine, Saint Denis, France, [2]CHU Anger, Angers, France, [3]CHU Lille, Lille, France, [4]CHU Nantes, Nantes, France, [5]CHU La Pitié Salpêtrière (APHP), Paris, France, [6]CHU Saint Louis (APHP), Paris, France, [7]CHU Poitier, Poitier, France, [8]CHU Rouen, Rouen, France, [9]CHU Tours, Tours, France

Introduction:

The shortage of kidney grafts led to retrieve organs from old donors with one or more co-morbidities, considered as “expanded criteria donors” (ECD). In France, since 2012, the Agency of biomedicine (ABM) has recommended the use of machines perfusion (MP) to preserve kidneys from this donor population to improve kidney preservation and the transplantation outcomes, with the creation of a specific lump sum financing the additional costs of this strategy. This study evaluates the impact of MP vs cold storage (CS), for the period 2011-2014 with kidneys from ECD.

Methods:

From the ABM database (Cristal), the effect of MP on the delayed graft function (DGF) was analyzed using a multivariate logistic model excluding pre-emptive transplants and primary non functions (PNF). In addition, transplants from the same donor, whose one kidney preserved by MP and the other by CS (population of twins), were analyzed using a mixed model.

Results:

Co-morbidities of recipients are more frequent and the age of donors and recipients is significantly higher for kidney preserved by MP (n = 801) vs. CS (n = 3515). With 16% of DGF for MP vs. 29% for CS, MP has a protective effect on the DGF (OR adjusted = 0.45, CI [0.36, 0.56]). In the population of the twins (84 pairs, 168 grafts), we observed 7% of DGF for MP vs. 33% for CS and an adjusted OR 0.19 (CI [0.06; 0.58]). The durations of hospitalization and dialysis after transplantation are shorter with fewer sessions of dialysis.

Discussion:

Our results confirm the reduction in the incidence of the DGF of ECD kidneys preserved by machines, with 2.2 times less risk despite a population more at risk in this group, and a lower 5.2 times risk in the population of the kidneys "twins". It remains to assess the impact of the DGF in the long term survival and measure the cost effectiveness of this strategy.

P0039

Deceased organ donors with a history of behaviour associated with an increased risk for the transmission of blood-borne viral infection: The UK experience

Patrick Trotter[1,2], Matthew Robb[2], Dominic Summers[1,2], William Hulme[2], Ines Ushiro-Lumb[2], Christopher Watson[1], James Neuberger[3,2], J A Bradley[1]

[1]Department of Surgery, University of Cambridge, Cambridge, UK, [2]NHS Blood and Transplant, Bristol, UK, [3]Liver Unit, Queen Elizabeth Hospital, Birmingham, UK

Introduction:

Deceased organ donors are routinely screened for behaviours that increase the risk of having a transmissible blood borne viral (BBV) infection (Hepatitis C (HCV), Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) and Human T-lymphotrophic virus), but the impact of this policy on organ donation and transplant outcome is not well documented.

Methods:

The UK Transplant Registry was examined to identify all deceased organ donors with a disclosed history of increased risk behaviour (IRB): intravenous drug use (IVDU), imprisonment and increased risk sexual behaviour (including men who have sex with men) in the UK from 2003 to 2015.

Results:

Of 17,262 potential donors, 659 (3.8%) had IRB for BBV and 285 (1.7%) were seropositive for BBV, of whom half had a history of IRB, mostly IVDU (78.5%). Of proceeding donors with IRB, 393 were seronegative for viral markers at the time of donation. A history of recent IVDU was associated with fewer potential donors proceeding to become actual organ donors (64% vs. 75%, p=0.007). Donors with IRB provided 1,091 organs for transplantation (624 kidney and 467 other organs). Transplant outcome was similar in recipients of organs from donors with and without IRB. There were three cases of unexpected HCV transmission, all from the same active IVDU donor who was HCV seronegative at the time of donation, but had detectable HCV RNA in plasma on retrospective testing.

Conclusion:

Donors with a history of IRB provide a valuable source of organs for transplantation with good transplant outcomes. There is scope for increasing the use of organs from such donors.

P0040

French controlled donation after circulatory arrest (cDCD) program: First results

Corinne Antoine[1], Michel Videcocq[2], B Riou[3], D Dorez[4], G Cheisson[5], I Martin-Lefevre[6], Louise Durand[1], Emilie Savoye[1], G Karam[2], O Skowron[4], E Savier[3], B Barrou[3]

[1]Agence de la Biomédecine, Saint Denis, France, [2]CHU Nantes, Nantes, France, [3]CHU Pitié La Salpétrière, Paris, France, [4]CH Annecy, Annecy, France, [5]CHU Bicêtre, Kremlin Bicêtre, France, [6]la Roche sur Yon, la Roche sur Yon, France

The national protocol for the cDCD program authorised in France since 2014 demands selection criteria as donor age ≤65 y, functional warm ischemia time (fWIT) <30 min (liver), <90 min (lung), <120 min (kidney), in situ kidney perfusion performed by normothermia regional perfusion (nRP), machine perfusion use (except liver) and short cold ischemia times (CIT). Only non-urgent recipients awaiting a 1st transplant were eligible.

Out of 101 potential cDCD donors (2015-10/2016), 50 have been retrieved, mean age 49 y. Causes of death are mainly hypoxic brain damage (59%) and trauma/head injury (27%). Procurement failure are (mainly) secondary to relatives' refusal (27 %) and agonal delay >180 min (8%) and logistical problem (7.6%). Mean fWIT are 36 min (kidney only), 22 min (liver and kidney). nRP was used in all utilised donors after mean circulatory arrest delay of 25 min. Mean renal CIT was 10,4h.

The aim of this study was to compare primary non function (PNF), delayed graft function (DGF) and length of stay in hospital after 1st single kidney transplantation (KTR) with 2 types of donors: cDCD (92 KTR from 12/2014 to 10/2016) and donors after brain death (DBD) aged 18-65 y (5176 KTR from 1/2013 to 8/2016). Rate of PNF (1 vs 2.5%), mean creatinine (164 vs 179 µmol/l) and renal clearance (49 vs 46 ml/mn) at discharge are comparable. DGF rate (9% vs 19%) are significantly lower in case of cDCD.

24 liver transplants and 1 bilateral lung transplant were also performed without EAD and with excellent transplant outcomes

These good results ensue from a national consensual protocol, with aim to limit warm ischemia times and injuries, thanks to nRP use, optimal graft preservation and recipient selection. cDCD program represents an optimal and additional source of valuable transplants.

P0041

Initial clinical experience of two UK centres with ex vivo normothermic perfusion (EVNP) of deceased donor kidneys

Pankaj Chandak[1], Avinash Sewpaul[2], Benedict L. Phillips[1], Rodrigo Figueiredo[2], Raphael Uwechue[1], Chris J. Callaghan[1], Colin H. Wilson[2], Sarah A. Hosgood[3], Mike L. Nicholson[3]
[1]Guy's Hospital, London, UK, [2]Freeman Hospital, Newcastle, UK, [3]Addenbrooke's Hospital, Cambridge, UK

Introduction:
Kidney EVNP may reduce delayed graft function (DGF) and can also be used to assess organ viability in marginal organs at high risk of discard. Thus far, its use has been pioneered by a single UK group. If EVNP is to fulfil its early promise it is essential that the technique is translatable to other centres. We describe the first clinical experience of kidney EVNP outside of the Cambridge group.

Methods:
EVNP was authorised as a new procedure at Guy's Hospital and the Freeman Hospital. Formal EVNP training programmes took place with the Cambridge group, with proformas used to assess competencies. EVNP of discarded deceased donor kidneys (n=5) was used in each unit to demonstrate technical proficiency before clinical EVNP programmes began in March 2016 (Freeman) and July 2016 (Guy's). Kidneys from extended criteria donors, DCD donors, or those with sub-optimal cold flush underwent 60 minutes of EVNP at a target pressure of 75mmHg. Viability was assessed using a validated scoring system (1 best – 5 worst). Significant adverse technical events during EVNP were prospectively recorded, as were post-transplant outcomes.

Results:
Ten kidneys from 8 DCD donors underwent EVNP at the two new centres. Median (range) donor age was 65 (51-72) years. One kidney had transient arterial decannulation; no other significant adverse technical events occurred during EVNP. Median (range) viability score was 1 (1-4). One kidney scored 4 on EVNP and was therefore deemed untransplantable; 9 organs were implanted into 7 recipients. Two dual kidney transplants were performed at Guy's Hospital. Median (range) recipient age was 60 (48-64) years, and time from donor cross-clamp to recipient reperfusion was 16hr19 (10hr52-24hr00). Three recipients (43%) had DGF, and median (range) one-month eGFR was 51.5 (13-62.6) mL/min/1.73m^2. Graft and patient survival is 100%. No major infectious complications occurred post-transplant in EVNP kidney recipients.

Discussion:
Two UK units have initiated clinical EVNP programmes in deceased donor kidney transplantation, with acceptable early outcomes. The first use of EVNP prior to dual kidney transplantation is described. Rapid transfer of EVNP skills is feasible with a supervising centre providing a training programme, support, and mentorship.

P0042

Assessment and transplantation of declined human kidneys using *ex-vivo* normothermic kidney perfusion

Sarah Hosgood[1], Mazin Hamed[1], Avi Sawpaul[2], Rod Figueiredo[2], Kourosh Saeb-Parsy[1], Colin Wilson[2], Michael Nicholson[1]
[1]*University of Cambridge, Cambridge, UK,* [2]*Newcastle University, Newcastle, UK*

Introduction:
Ex-vivo normothermic kidney perfusion (EVKP) allows a functional assessment of a kidney prior to transplantation. Applying this technology may prevent the unnecessary discard of donated kidneys. The aim of this study was to use EVKP technology to assess the quality of kidneys declined for transplantation and if suitable, transplant them.

Methods:
Ethical approval was granted for this research study. After being declined for transplantation by all UK transplant centres and approval granted for research, kidneys were offered to the research team by the NHSBT duty office. Kidneys underwent 60 minutes of EVKP with an oxygenated plasma-free cell solution at 35.2 ± 0.2°C. During EVKP the quality of each kidney was assessed using a scoring system based on macroscopic appearance during perfusion, renal blood flow and urine output.

Results:
In a 12 month period, 74 kidneys from 51 donors were offered to the research study. Eight kidneys were accepted for EVKP assessment and 3 of these were successfully transplanted. Two of the recipients had initial graft function and 1 delayed graft function. The other 5 kidneys were not transplanted due to the following reasons; prolonged cold ischaemia due to delayed access to theatre (n =1), high Remuzzi biopsy score (n = 2), poor perfusion parameters during EVKP (n = 2).

Eighty nine percent of the kidneys offered were not recruited into the study due to a combination of adverse donor factors. Prolonged cold ischaemia at the time of offering was a significant factor in many of cases and the primary reason for non-recruitment in a third of the cases.

Conclusion:
EVKP technology has unrealised potential to increase the number kidney transplants by assessing their quality prior to transplantation. Identifying these kidneys at an earlier stage to minimise the cold ischaemic time would allow more kidneys to be assessed and potentially transplanted.

P0043

Virulent pathogens grown from microbiological sampling of deceased donor organ perfusate are associated with inferior recipient outcomes in renal transplantation

Shakeel Mohamed, Joanna Belcher, David Taube, Michelle Willicombe
Imperial College Renal and Transplant Centre, London, UK

Introduction:

Perfusate contamination with commensal organisms is not uncommon in deceased organ transplantation. However, there is a paucity of evidence demonstrating the clinical impact on patients with a positive perfusate growth (PG) determined by organism pathogenicity. We aim to analyse the outcomes of patients with a commensal PG (CPG) compared with those with a virulent PG (VPG). In this study a virulent pathogen was defined as one which was not considered a commensal micro-organism.

Methods:

250 perfusate samples were sent for microbiological examination from deceased kidney donors between 2012-2016, and the clinical outcomes of the corresponding recipients were analysed.

Results:

114/250 (45.6%) samples had a PG, of which 47/114 (41.2%) had a VPG. In those patients with a PG, VPG was more likely in donors of increasing age, p=0.019. DCD kidneys were more likely to have a PG, p=0.001 but there was no difference between donor type when considering virulence. Allograft outcomes are shown in the table below.

	CPG [N=67]	VPG [N=47]	p value
Overall patient survival	97.4%	77.4%	0.02
Death with functioning graft	93.5%	80.4%	0.07
Censored allograft survival	97.1%	87.2%	0.11
Rejection free survival	89.5%	87.8%	0.54
Infection free survival	72.5%	47.9%	0.045
UTI free survival	82.8%	59.4%	0.028

Discussion:

The virulence of perfusate pathogens impact on clinical outcomes, and microbiological examination of perfusate is important. Addition of antibiotics to the perfusate may help improve outcomes, especially in cases with a virulent pathogen.

P0044

Direct comparison of hypothermic and normothermic organ preservation in a porcine ex-vivo kidney model

Natalie Vallant[1], Bynvant Sandhu[1], Nienke Wolfhagen[3], Charles Pusey[1], Vassilios Papalois[1]
[1]Imperial College London, London, UK, [2]Medical University Rotterdam, Rotterdam, The Netherlands

Introduction:
Hypothermic machine perfusion is a well established method for deceased donor organ preservation as well as pre-transplant assessment and preconditioning. Recent translational and clinical studies have shown that normothermic perfusion offers similar and, perhaps, greater advantages. However, there does not exist sufficient data on a direct comparison of the two methods.

Methods:
14 porcine kidneys from 7 donor pigs were retrieved in an abattoir and stored on ice for 24 hours. They were then either perfused hypothermically (4°C, n=7) or normothermically (37°C, n=7) for 4 hours using an RM3 pulsatile perfusion machine. Both kidneys were then reperfused with whole blood for 2 hours at 37°C. Physiological parameters including the resistance index, perfusate flow rate, urinary output and oxygen consumption rates were compared. The effects at a cellular level were assessed by measuring mRNA expressions of the inflammatory markers TNFα, IL-1β, NGAL and EDN-1 using RT-PCR. Statistical analysis was performed using ANOVA.

Results:
Hypothermically perfused kidneys showed significantly higher urinary output rates (3.7ml/min ± 1.5ml/min vs. 1.6ml/min ± 0.9ml/min, p=0.022) as well as oxygen consumption rates (p=0.027) and perfusate flow rates (p=0.0013) at reperfusion than normothermically perfused kidneys. Interestingly, at mRNA level, expressions of proinflammatory markers were higher for hypothermically perfused kidneys, which reached significance for the expression of EDN-1 (12,37 ± 7,44 vs 3,03 ± 1,96, p=0,02), compared to the housekeeping gene.

Discussion:
We found that in a direct comparison to normothermic machine perfusion, hypothermic machine perfusion of porcine kidneys resulted in significantly improved physiological parameters and led to significantly increased urinary output rate despite showing a higher upregulation of inflammatory markers at mRNA level. Further investigations of the physiological and immunological parameters of both preservation methods are needed to optimise outcomes.

P0045
Donor derived HLA-specific antibodies after kidney transplantation

Sarah Peacock[1], Sarah Maxfield[1], Nicholas Torpey[1], Vasilis Kosmoliaptsis[2], Christopher Watson[2], J. Andrew Bradley[2], Craig Taylor[1]
[1]Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK, [2]University of Cambridge, Cambridge, UK

Introduction:
We reported previously the early appearance of de novo (dn) HLA-specific antibodies in two kidney transplant recipients, caused by the adoptive transfer of donor alloreactive passenger B-cells/plasma cells. It is important to recognise and distinguish between the passive transfer of donor-derived antibodies from that of recipient derived de novo donor HLA-specific antibodies (DSA) and third-party HLA-specific antibodies that occur in response to the transplanted organ.

Methods:
Of 100 deceased donor kidney and 25 simultaneous pancreas kidney (SPK) transplants performed in the 12 months from May 2015, post-transplant HLA-antibody testing within six-months was performed in 76 (76%) and 19 (76%) recipients respectively.

Results:
Of 56 kidney/SPK recipients that were non-sensitised at the time of transplantation, two developed de novo DSA (both SPK recipients) and three developed de novo third-party HLA-specific antibodies (Table). For 39 kidney/SPK recipients that were sensitised at the time of transplantation, three produced de novo DSA (2 kidney and 1 SPK) and one produced de novo third-party HLA-specific antibodies (Table 1B).

Non-sensitised recipients	**No.**	**dn DSA**	**dn 3rd party HLA antibodies**
Kidney	42	0 (0%)	2 (5%)
SPK	14	2 (14%)	1 (7%)
Sensitised recipients			
Kidney	34	2 (6%)	0
SPK	5	1 (20%)	1 (20%)

Of the four recipients with de novo third-party HLA-specific antibodies, archived donor serum was available for three and all showed HLA-specific antibodies that corresponded to those observed in the respective recipient serum.

Discussion:
Detection of post-transplant dn HLA-specific antibodies early after kidney and pancreas transplantation warrants testing of donor serum to distinguish passively acquired donor derived antibodies from those arising from a recipient immune response.

P0046

Preliminary results of a large retrospective analysis of acute antibody mediated rejection in renal transplant recipients in the UK

Michelle Willicombe
on behalf of, The UK AMR Study Group, UK

Introduction:

With no available evidence on how to best manage acute AMR [AAMR], treatment around the UK varies and the overall outcomes remain poor. A retrospective analysis of AAMR cases in the UK is ongoing, and the results thus far have helped towards the design and powering of a RCT to determine the efficacy of AAMR treatments.

Methods:

160 cases of AAMR from 9 units have been collected so far and their 1 year outcomes analysed.

Results:

1 year patient and allograft survival (GL) was 96.1% and 75.6%, respectively.
Function at the time of diagnosis predicted outcome, GL was 83.5% and 58.8%, p=0.0001, in patients who were dialysis independent and dependent respectively. There was a trend towards superior survival in those patients with no DSA at the end of treatment compared with DSA persistence, at 86.6% and 76.3%, p=0.15. On univariate analysis, histological features associated with GL were C4d, arteritis and tubulitis. On multivariate analysis, only C4d was a poor prognostic histological marker, HR 1.55(1.01-2.38), p=0.04. On univariate analysis of favourable treatments, there was a trend for benefit with ivIg and plasma exchange (PE). On multivariate analysis, only PE appeared to influence outcomes, HR 0.48(0.24-0.93), p=0.03. Multivariate analysis of all significant patient demographics, histological features and treatments, resulted in only the presence of arteritis being significant for GL, HR 2.80(1.16-6.71), p=0.02.

Discussion:

There is considerable heterogeneity within these patients, however, we believe this to be one of the largest series of AAMR reported. Continued collaboration within the study group will provide invaluable information, which may lead to a more uniform approach to managing AAMR, prospective studies and improving outcomes.

P0047

Differential effect of antibody removal on ABO blood group type chain specific antibodies over time

Andrew Bentall[1], M Jeyakanthan[2], Jean Pearcey[2], Bruce Motyka[2], Lori West[2], Simon Ball[1]
[1]University Hospital Birmingham, Birmingham, UK, [2]University of Alberta, Edmonton, Canada

Introduction:

A & B blood group antigens are defined by a minimal trisaccharide epitope. Antibody binding may also involve A & B antigen subtypes (I-VI) defined by the immediately proximal residue: generating a tetrasaccharide. Jeyakanthan et al. 2015 showed ABH subtype II to be the only subtype expressed on cardiac vascular endothelium. Following paediatric ABO-incompatible heart transplantation (ABOiHTx) there is evidence of humoral tolerance to this but not other allograft blood group antigen subtypes. This study reports subtype-specific antibody quantification in adult ABOi kidney transplant (ABOiKTx) recipients.

Methods:

Plasma samples were obtained from 68 ABOiKTx recipients with blood group A donors recruited to the ABOUT-K study. Antibody to ABH subtype antigens I-VI was quantified using a microarray platform in which the mean fluorescence intensity (MFI) of binding is proportionate to the concentration of antibody and in a highly reproducible haemagglutination (HA) assay.

Results:

Before and after a course of plasma exchange (PEx) or trisaccharide-based immuno-adsorption (IA), haemagglutination did not differ between treatment types. In the microarray assay, PEx reduced MFI of IgG and IgM binding to all blood group A subtypes and the Galili antigen. IA reduced the MFI of IgG binding to subtype II & VI equivalent to PEx, but the MFI of IgG binding to subtype III, IV & V remained significantly higher following IA ($p<0.005$) compared to PEx; the MFI of Galili antigen binding was unaltered. At 12 months post-ABOiKTx, the MFI of IgG binding to all subtypes had increased compared with pre-ABOiKTx (post-PEx /-IA), although IgG subtype binding remained significantly below that measured before any treatment ($p<0.01$). The greatest relative reduction in the MFI of IgG binding at 12 months was to subtype II, as previously reported in paediatric ABOiHTx, but many adults nevertheless maintain moderate antibody levels even to this subtype.

Discussion:

These data demonstrate that IA preferentially removes IgG to subtype II compared to IgG to subtypes III/IV (subtypes for which there is evidence of that these tetrasaccharides contribute to epitope generation). They also indicate that accommodation, as well as modulation of antibody production, may be more important in adult ABOiKTx than in pediatric ABOiHTx, in which there is evidence that tolerance is the most important phenotype. Potential mechanisms for accommodation in this setting are currently under investigation.

POSTERS

THE EXHIBITION HALL

P0048

Complement activating donor specific antibodies are associated with poor renal allograft outcome

Adarsh Babu[1,3], David Briggs[3], Dan Mitchell[2], Nithya Krishnan[1], Rob Higgins[2], Natasha Khovanova[2], Sunil Daga[2,4]

[1]University Hospitals Coventry and Warwickshire, Coventry, UK, [2]University of Warwick, Coventry, UK, [3]NHS Blood and transfusion, Birmingham, UK, [4]Leeds Teaching Hospitals, Leeds, UK

Introduction:

Presence of complement fixing donor specific antibodies (DSA) at the time of rejection, post-transplant is associated with poor graft outcome. However, no study has explored the role of antibodies in complement activation, especially in Human leucocyte Antigen- Antibody incompatible transplants (HLA-AIT). C3d (breakdown product of complement C3) deposition occurs following complement system and amplification loop activation.

Methods:

We analysed samples from 121 HLA-AIT who had pre-transplant DSA and subsequently underwent direct transplantation. C3d (Immucor) assay was performed at two time points (preconditioning/pre-transplant and day 14 post-transplant) and the results were correlated with early antibody mediated rejection (AMR) and allograft survival. We also compared the five year graft survival against standard transplantation at our centre. Statistical analyses performed using IBM SPSS software.

Results:

Out of 121 HLA-AIT, C3d was positive in 37 cases pre-transplant and 32 cases post-transplant. Pre-transplant C3d positive DSA did not correlate with episodes of AMR (p=1.00) but it correlated significantly with poor graft survival (p = 0.001). Day-14 C3d positive result also correlated with significant poor graft survival (p=0.012). Cases that had persistent positive C3d DSA had the worst graft survival (Figure) (p=<0.001).

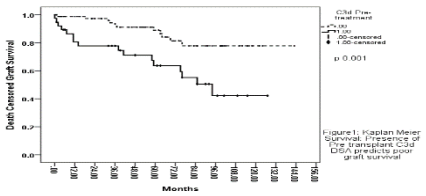


Figure1: Kaplan Meier Survival. Presence of Pre transplant C3d DSA predicts poor graft survival

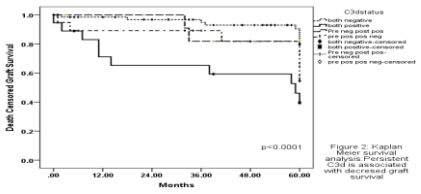


Figure 2: Kaplan Meier survival analysis.Persistent C3d is associated with dismal graft survival

Discussion:

Pre- and post-transplant complement activating donor specific antibodies strongly predict renal allograft survival. In our cohort, survival of renal allograft in C3d negative patients is comparable to HLA non-sensitised standard living donor transplants. This may enable the differentiation of IgG antibodies of varying pathogenicity and the potential role of C3d as additional biomarker in monitoring transplant patients.

P0049

Does C3d assay predict positive cross-match: Potential additional biomarker for virtual cross-match

Sunil Daga[4,3], Adarsh Babu[2,3], David Briggs[2], Dan Mitchell[2]
[1]University Hospitals Coventry and Warwickshire, Coventry, UK, [2]University of Warwick, Coventry, UK, [3]NHS Blood and Transfusion, Birmingham, UK, [4]Leeds Teaching Hospitals, Leeds, UK

Introduction.

C3d is a breakdown product of complement C3 and is a robust marker for complement activation, after the formation of antigen-antibody complex. No study has looked at the correlation of positive C3d and cross-match (XM) status.

Methods:

We analysed samples from 121 HSP who had pre-transplant DSA and subsequently underwent direct transplantation.C3d (Immucor) assay was performed at preconditioning/pre-transplant and the results correlated with complement dependant cytotoxicity (CDC) and Flow (FC) XMs.

Results:

Of 121 patients, 25 were CDC positive and 61 were FC positive. 35 patients were crossmatch negative but positive for single antigen bead. There was no linear correlation between: C3d MFI values and IgG MFI (R^2 0.39); C3d MFI and CDC titres (R^2 0.30); C3d MFI and Flow highest RMF (R^2 0.07). We compared C3d positivity with the XM status. There is significant association between C3d positivity and overall XM ($p < 0.0001$); CDC positivity ($p < 0.0001$); FC (excluding CDC cases) $p = 0.025$.

C3d presence has very high specificity to predict crossmatch as detailed in table 1.

	Overall	CDC XM	FC
Sensitivity	41.17%	80%	24.6%
Specificity	97.14%	82.29%	94.2%
Positive predictive value (PPV)	97.24%	54%	88.21%
Negative predictive value (NPV)	48%	94%	41.82%

Table 1: Predictive power of C3d assay compared to positive crossmatch (CDC and Flow)

Discussion: Overall, C3d positivity is strongly associated with crossmatch positivity and is associated with poor allograft survival (submitted abstract). No correlation between C3d MFI values and cross-match titres is not, entirely unexpected as they are different tests and techniques. High specificity may make this test very useful in virtual cross-match, as allograft survival in C3d negative cohort is equivalent to standard living donor transplantation.

P0050

***De novo* donor-specific antibodies after allograft nephrectomy**

Gaetano Lucisano[1], Paul Brookes[2], Eva Santos-Nunez[2], Michelle Willicombe[1], Nicola Firmin[2], Nicola Gunby[2], Sevda Hassan[1], Alexander Gueret-Wardle[1], David Taube[1]

[1]*Renal and Transplant Centre, Imperial College Healthcare NHS Trust, London, UK,* [2]*Histocompatibility and Immunogenetics, Imperial College Healthcare NHS Trust, London, UK*

Introduction:

Although the development of donor-specific antibodies [DSAs] is a known event after allograft nephrectomy [Nx], there are few studies describing the tempo, class and predictors of DSAs development in patients after graft failure undergoing Nx.

Methods:

Anti-HLA antibodies were assessed for class I and class II HLA (DSA number and PRA) at the time of graft Nx/failure and 3, 6, 12 and 24 months using a single antigen Luminex assay. A mean fluorescence intensity value >1,000 was considered positive.

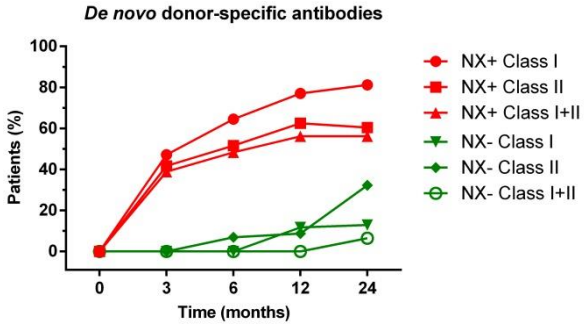
Results:

Only patients with a first failed graft and undetectable DSAs at the time of graft Nx/failure were considered for the analysis. 63 patients [Nx+] underwent Nx and 49 patients whose grafts failed, but were not nephrectomised [Nx-] acted as controls. Tacrolimus [tac] was discontinued at the time of Nx in 51/63 and by 3 months after Nx in 12/63 patients, but continued in 47/49 Nx- patients. The figure below shows that DSA formation (class I, II and I+II) was significantly greater ($p<0.001$) in Nx+ group compared with the Nx- group and DSA formation was delayed in the Nx- group. Tac withdrawal in both groups was associated with an increased incidence of DSA production ($p<0.001$ at all time points).

Discussion:

Graft Nx is followed by significant and continuing DSA production compared with Nx- patients. However Nx- patients do develop DSA 12 months after graft failure, albeit less frequently.

These results suggest that Nx and Tac withdrawal for non essential reasons should be avoided particularly in patients suitable for retransplantation.



P0051
Significant allosensitisation despite early, within 24 hour, graft nephrectomy

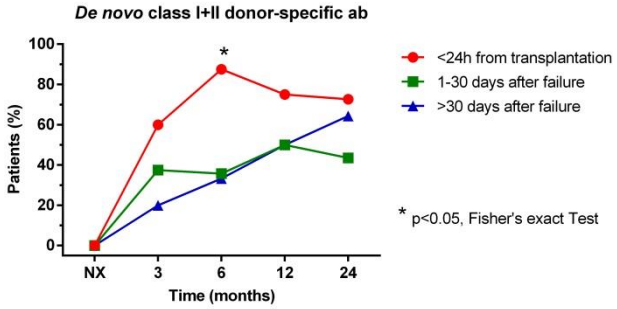
Gaetano Lucisano[1], Paul Brookes[2], Eva Santos-Nunez[2], Michelle Willicombe[1], Nicola Firmin[2], Nicola Gunby[2], Sevda Hassan[1], Alexander Gueret-Wardle[1], David Taube[1]
[1]*Renal and Transplant Centre, Imperial College Healthcare NHS Trust, London, UK,* [2]*Histocompatibility and Immunogenetics, Imperial College Healthcare NHS Trust, London, UK*

Introduction:
Although it is well known that **a**llograft nephrectomy [Nx] is followed by the development of donor-specific antibodies [DSAs] there are few reported large studies demonstrating the timing of the development of DSA formation in previously unsensitised patients.

Methods:
63 patients were studied and assigned to three groups according to the time of the Nx: Group 1 within 24hrs (n=13); Group 2 1-30 days (n=27) and Group 3 >30days (n=23) from transplant failure. None of the patients had DSAs at the time of transplant or had a previous kidney transplant. Patients were screened for class I and class II HLA at the time of Nx and after 3, 6, 12 and 24 months using the single antigen Luminex assay. A mean fluorescence intensity value >1,000 was considered positive.

Results:
The figure below shows a rising prevalence of DSA positive patients with time in all groups. Surprisingly, Group 1 showed a higher rate of patients developing both class I and II DSAs at 6 months (p=0.03). All 4 patients in this group who received monoclonal antibody induction developed DSAs.

Discussion:
Even a brief exposure to the allograft can lead to the early production of DSAs and persistent sensitisation despite monoclonal antibody induction.
This group of patients require further investigation and development of strategies to prevent sensitisation, particularly if they are suitable for retransplantation.



P0052

De novo, non-donor specific HLA antibodies are associated with inferior allograft outcomes after kidney and simultaneous kidney-pancreas transplantation

Sevda Hassan[1], Gaetano Lucisano[1], Eva Santos[2], Nicola Firmin[2], Denise Mckeown[3], Dawn Goodall[1], Alexander Gueret-Wardle[1], Adam McLean[1], Paul Brookes[2], Michelle Willicombe[1], David Taube[1]

[1]Renal and Transplant Centre, Imperial College Healthcare NHS Trust, London, UK, [2]Histocompatibility and Immunogenetics, Imperial College Healthcare NHS Trust, London, UK, [3]Blood Transfusion, Imperial College Healthcare NHS Trust, London, UK

Introduction:

Donor specific antibodies [DSAs] occurring after transplantation are associated with poorer outcomes. However the significance of non-donor directed HLA antibodies [ndHLAs] after transplantation in *unsensitised* patients is less well understood. In this study, we establish the significance of ndHLAs in a large unsensitised cohort of transplant patients

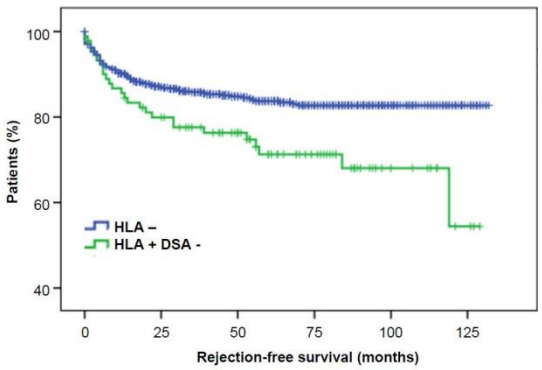
Methods:

We retrospectively analysed 752 non-sensitised patients who underwent a kidney or SPK transplant from November 2005 to December 2015. All patients received monoclonal antibody induction, followed by tacrolimus monotherapy. Patients were screened for HLA and DSA at 3, 6, 12 months and yearly thereafter by Luminex technology. Positivity was defined as the presence of the antigen in at least 2 samples.

Results:

91/752 [12%] developed ndHLAs; [Class I: 73%, Class II: 24%, Class I+II: 3%].

Patients with ndHLAs were more likely to have rejection [p=0.004], in particular T-cell mediated [p=0.006] and graft loss [p=0.005]. This risk remained following correction for total mismatch, graft number and DGF [HR 1.85(1.20-2.86), p=0.005]. Patient loss was not significant [p=0.072]. Multivariate analysis showed that previous pregnancies [OR 2.21(1.25-3.91), p=0.006] and transfusions within the first year of transplantation [OR 1.72(1.03-2.86), p=0.039] were associated with ndHLA development. The median time to developing HLA from transplantation was 849 days [97-1882]; this was quicker in patients with previous pregnancies [p=0.018].



Discussion:

ndHLA development in unsensitised patients is associated with a significant risk of rejection and graft loss and are associated with pregnancy and transfusions.

P0053

Treatment of early accelerated AMR with eculizumab in antibody incompatible renal transplantation

Anna Maria Adamusiak[1], Miriam Manook[1], Bynvant Sandhu[1], Olivia Shaw[2], Robert Vaughan[2], Irmen Generalao[1], Linda Ross[1], Nicos Kessaris[1], Anthony Dorling[1], Nizam Mamode[1]

[1]Department of Nephrology and Transplantation, Guy's Hospital, London, UK, [2]Clinical Transplantation Laboratory, Guy's Hospital, London, UK

Introduction:

Early accelerated antibody-mediated rejection (AMR) within 2 weeks after antibody-incompatible renal transplantation can be defined as sudden deterioration in graft function with oligoanuria that requires re-commencing on dialysis does not improve with pheresis and often results in graft loss. The most common mechanism of AMR is binding of antibodies to antigens on endothelial cells in the kidney followed by complement activation. Eculizumab is a monoclonal antibody that specifically targets and blocks action of complement. It can be used as a salvage therapy in AMR refractory to standard treatment.

Methods:

Over a period of 6 years 10 patients who underwent antibody incompatible living donor renal transplantation were treated with eculizumab. 4 of them were blood group (ABOi) and 6 were HLA-antibody incompatible (HLAi). The initial protocol was 5 doses on weekly bases. One of the patients had a 9 weeks course and one a 4 weekly course. All patients were receiving standard AMR treatment including antibody removal with no improvement in renal function.

Results:

Mean age of patients treated was 43±17 years (ranged 18 – 66) and 9 of 10 were female. Mean baseline donor specific antibody (DSA) level for HLAi patients was 49280± 21230 MFI (ranged 26526 – 84022). 2 patients lost their grafts and underwent nephrectomy (both ABOi) and 2 patients died with no evidence of graft recovery (both HLAi) before finishing a scheduled treatment with eculizumab. Follow-up of patients ranged between 2 months and 2 years. Mean creatinine on the last visit was 133±53umol/L. Efficacy of eculizumab in our cohort was 60%. Relative risk of treatment failure with standard AMR treatment versus salvage therapy with eulizumab was 2.5 (95%CI 1.17 – 5.34) p=0.02; number needed to harm = 1. 67 (3.37 – 1.11). There was no statistically significant difference in either baseline DSA pre transplant or highest level of DSA post transplant between patients whose graft function did and did not recover. Mean DSA value on the last follow up was 14710±11342 MFI (ranged 3251 – 26218).

Discussion:

Eculizumab can be successful in treatment of accelerated antibody mediated rejection. Multicentre analysis of treatment outcomes may allow better identification of patients who would likely benefit from short course of eculizumab as a salvage therapy.

P0054

Cell-subset diversity in adipose derived regenerative cells used in renal ischemic reperfusion injury treatment

Rashida Lathan[1], Ryan Ghita[2], Dianne Hillyard[1], Rhian Touyz[1,2], Patrick Mark[1,2], Marc Clancy[1,2]
[1]University of Glasgow, Glasgow, UK, [2]Queen Elizabeth University Hospital, Glasgow, UK

Introduction:

Studies in our novel hybrid model of transplantation/ischemic reperfusion (IRI) in rat has demonstrated significant improvement in kidney function post injection of adipose-derived regenerative cells (ADRCs) through the renal artery. This therapeutic technique has high translational value in human transplant surgery as ADRCs provide a robust supply of cell from a very accessible source of tissue, don't require culturing, and can be generated/delivered at point of care during the time of transplant. Our aim is to better understand the active cell subsets represented within ADRC's, their mode action, and their potential deleterious effects.

Methods:

Initial studies were performed with flow cytometry to understand the cell diversity within the rat ADRC model. Analysis was performed on ADRCs extracted from inguinal and perirenal tissue of the rat. Cells were surveyed for markers that identify viability, immune cells, epithelial cells, pericytes, and mesenchymal stem cells.

Results:

We show a 15-20% fraction of injected ADRCs were non-viable cells. We also discovered cell subsets rich in lymphocytes and containing variable levels of epithelial and pericyte cells. Stem cell like markers identify 3-5% of the total ADRC cell population.

Discussion:

Our study defines ADRC's as a pleomorphic cell suspension with multiple potential active subsets including lymphocytes, macrophages and mesenchymal stem cells. Further studies will seek to determine which components provide the inhibitory effects on IRI and determine biodistribution and persistence of these cells after intra-arterial injection. Additional analysis also aims to identify secreted factors and subset effects in renal tissue.

P0055

Uterine transplantation in the United Kingdom: The move from the animal model into the human setting

Srdjan Saso[1,2], Benjamin Jones[1,2], Joseph Yazbek[1,2], Meen Yau Thum[3], J Richard Smith[1]
[1]Imperial College NHS Trust, London, UK, [2]Imperial College London, London, UK, [3]The Lister Fertility Clinic, London, UK

Introduction:
Uterine transplantation (UTx) has been proposed as a treatment option for women diagnosed with absolute uterine factor infertility (AUFI). AUFI renders a woman 'unconditionally infertile', with the only fertility options to date being surrogacy and adoption. 21 UTx procedures have now been undertaken worldwide, with five reported live births, one of whom is pregnant for a second time.

Methods:
Overview of UK UTx research over a 15 year period.

Results:
The UK UTx team has made important advances into several fields which define UTx in both human and animal models. These include donor graft retrieval, minimisation of ischaemic-reperfusion and allorejection-related injury, optimisation of surgical techniques to allow for an adequate uterine blood supply, imaging techniques, pregnancy following allogeneic UTx and psychological assessments of potential patients. The UK team has established both long term survival and pregnancy following an allogeneic UTx animal model. Further work has demonstrated support for the project amongst our colleagues and potential patients. This background research has led us to the brink of performing UTx in the human model, with our UK trial expected to commence in early 2017 and the anticipation is to perform ten uterine transplants over a two-year period.

Discussion:
UTx is now a recognised feasible procedure, albeit within a research context. Pregnancy following organ transplantation is complex but now commonplace. Closing on half a century of experience with pregnancy in solid organ recipients, an abundance of data has accumulated indicating satisfactory maternal and neonatal outcomes. Future UTx candidates, likely to represent a group not burdened by multiple co-morbidities, should be the beneficiaries of an even better prognosis. Whether UTx makes the transition from research concept to viable treatment option is dependent upon the results of future trials and developments. The belief is that UTx has now become a matter of 'when next' rather than 'if'.

P0056

The immunology of uterine transplantation: Applying the animal model to the human setting

Srdjan Saso[1,2], Benjamin Jones[1,2], Isabel Quiroga[3], Michelle Willicombe[1], Joseph Yazbek[1,2], Meen-Yau Thum[4], Sadaf Ghaem-Maghami[1,2], J Richard Smith[1]

[1]Imperial College NHS Trust, London, UK, [2]Imperial College London, London, UK, [3]Oxford University Hospitals NHS Trust, Oxford, UK, [4]The Lister Fertility Centre, London, UK

Introduction:

Uterus transplantation (UTx) has been proposed as a quality of life transplant for the cure of absolute uterine factor infertility (AUFI). In order to proceed in humans, a greater appreciation of the immunological mechanisms that underlie UTx is desirable.

Methods:

Since the first human UTx, work using small and large animal models, has demonstrated the uterus to be a very different but manageable organ when immunologically compared to other organs. Our work focused on the acute rejection response in nine rabbit allogeneic UTx. Peripheral blood samples were obtained to measure markers of rejection using flow cytometry.

Results:

In our long-term survivor, acute rejection appears to have been adequately controlled, with IgM, CD11b and CD8 levels suppressed. The graft did not exhibit visible signs of rejection at embryo transfer and pregnancy was achieved. The UK trial plans to perform ten human UTx over a two-year period. Our immuno-monitoring protocol will involve standard pre-UTx investigations to ensure compatibility, a cross-match process, and post-UTx antibody and tissue monitoring. Immunosuppression will follow KDIGO/BTS recommendations.

Discussion:

A series of 10 cases performed in Sweden in 2012-13 have led to healthy live births. UTx is now a recognised feasible procedure. A number of potential immunological pitfalls have therefore been addressed. Namely, graft rejection, immunomodulation of a pregnant 'grafted' uterus and the effects of immunosuppression on the fetus. Specifically exploring immunological issues relating to UTx in both the non-pregnant and pregnant setting, is a valuable and necessary part of the inevitable scientific process leading to successful human UTx.

P0057
Immunogenicity of cultured human extrahepatic cholangiocyte organoids

Olivia Tysoe, Negar Pirmadjid, Fotios Sampaziotis, Kathleen Elliott, Nikitas Georgakopoulos, Nikola Dolezalova, Sylvia Rehakova, Ludovic Vallier, Kourosh Saeb-Parsy
University of Cambridge, Cambridge, UK

Introduction:
Current treatments for end-stage cholangiopathies such as primary schlerosing cholangitis and biliary atresia are limited to liver transplantation due to the lack of alternative cells and tissues suitable for therapeutic use. We have recently developed a novel 3D organoid culture system capable of expanding primary human extrahepatic cholangiocytes *in vitro* for cellular therapy. We aimed to assess the immunogenicity of this novel cellular therapy as a pre-requisite for its clinical translation.

Methods:
Cultured cholangiocytes organoids were generated from primary biliary epithelium retrieved from deceased organ donors with appropriate ethical approval and informed consent. Expression of potential determinants of immunogenicity (HLA I, HLA II, and costimulatory molecules CD80, CD86 and CD40) were assessed *in vitro* by qPCR, under control culture conditions and after exposure to the cytokines IFN-γ, TNF-α, TGF-β and IL-10 to mimic the inflammatory *in vivo* milieu. Protein expression of immune markers was assessed by immunofluorescence and FACS analysis. *In vivo* immunogenicity of cultured cholangiocytes was assessed in an allogeneic humanised mouse model by transplantation under the kidney capsule of immunodeficient NOD-scid-Il2rγ$^{-/-}$ (NSG) mice reconstituted with human splenocytes ten weeks later.

Results:
Exposure to IFN-γ resulted in significant upregulation of HLA I and HLA II mRNA and protein after short-term culture, with a lesser degree of upregulation seen after TNF-α exposure. Engraftment into immunodeficient mice resulted in formation of duct-like structures expressing human CK7 and CK19. These structures were lost after splenocyte reconstitution and infiltration of human CD45-positive cells was observed in the graft.

Discussion:
Our data show that extrahepatic cholangiocytes organoids express HLA II after exposure to pro-inflammatory cytokines, potentially increasing their immunogenicity. As expected, cultured cholangiocyte cellular therapies are likely to be rejected in an allogeneic setting, necessitating immunosuppression during clinical use. Additional experiments are ongoing to further characterise the dominant immunogenic determinants of allogeneic cholangiocytes and to confirm non-immunogenicity of autologous cultured cholangiocyte organoids.

P0058

The immunophenotype of peritubular capillaritis in renal transplant biopsies

Tai-Di Chen[1], Liam Rasch[1], Tariq Al-Johani[2], Hilary McPhail[1], Michelle Willicombe[3], Adam McLean[3], Jack Galliford[3], Terry Cook[1], Candice Roufosse[4]

[1]Imperial College, Centre for Complement and Inflammation Research, London, London, UK, [2]King Saud University, Riyadh, Saudi Arabia, [3]Imperial College Healthcare NHS Trust, Dept Renal Medicine, London, London, UK, [4]Dept Cellular Pathology, Imperial College Healthcare NHS Trust, London, London, UK

Introduction:

Peritubular capillaritis (ptc) and glomerulitis are defining features of activity in antibody-mediated rejection (ABMR) in the renal allograft. Neither are entirely specific, and can be seen in other causes of graft inflammation such as glomerulonephritis, T-cell mediated rejection (TCMR), pyelonephritis (PN), and BK nephropathy (BK). The immunophenotype of ptc has not been extensively investigated.

Methods:

We performed a pilot study 35 renal transplant biopsies: 11 ABMR/suspicious for ABMR, 13 TCMR/borderline for TCMR, and 11 PN/BK. We performed double labelling for vascular marker CD34 with CD3, CD68, CD16 and CD14. Cells of each type were counted in 100 peritubular capillaries in the most inflamed areas and expressed as a mean number of cells/capillary. Counts in the 3 diagnostic categories were compared using Kruskal-Wallis (GraphPrism software).

Results:

The median and interquartile range for mean numbers of positive cells per ptc are shown in the table. Significant differences are seen when comparing CD14 (p=0.0368), CD16 (p=0.0325), and CD68 (p=0.0133). In particular, Multiple comparisons show there is a significant difference in TCMR vs ABMR for these cell types.

Discussion:

Transplant biopsies with inflammation show T-cells (CD3-positive) in peritubular capillaries in similar mean numbers, whatever the cause, but in ABMR the mean numbers of various types of monocytes is increased, in particular compared to TCMR. Comparing monocyte markers, the mean number of CD68+ cells is surprisingly consistently lower than that of CD16+ cells, indicating that CD68 may not be a good marker for intraluminal monocytes in ptc. CD16+ cells are the most abundant in ABMR, but their exact nature(s) remains to be defined.

		CD3	CD14	CD16	CD68
PN/BK	Median (IQR)	0.22 (0.07-0.35)	0.08 (0.03-0.11)	0.14 (0.05-0.27)	0.085 (0.045-0.13)
TCMR	Median (IQR)	0.14 (0.075-0.225)	0.04 (0.02-0.07)	0.08 (0.045-0.17)	0.05 (0.02-0.13)
ABMR	Median (IQR)	0.26 (0.12-0.44)	0.11 (0.08-0.19)	0.36 (0.1425-0.695)	0.16 (0.135-0.24)

P0059

Succinate accumulation during warm and cold ischaemia in mouse, pig and man: Mechanistic and therapeutic implications for transplant ischaemia-reperfusion injury

Jack Martin[1], Ana S.H. Costa[2], Anja Gruszczyk[3], Mazin Hamed[1], Nikitas Georgakopoulos[1], Gavin Pettigrew[1], Andrew M. James[3], Christian Frezza[2], Mike Murphy[3], Kourosh Saeb-Parsy[1]
[1]Department of Surgery, Cambridge, UK, [2]MRC Cancer Unit, Hutchison/MRC Research Centre, Cambridge, UK, [3]MRC Mitochondrial Biology Unit, Cambridge, UK

Introduction:
Recent evidence from rodents suggests that the burst of reactive oxygen species associated with ischaemia-reperfusion (IR) injury is mediated through a specific metabolic pathway involving mitochondrial accumulation of the metabolite succinate. We hypothesized that succinate accumulation during ischaemia is a fundamental process that is shared by mouse, pig and man and may underlie the greater detrimental impact of warm ischaemia compared to cold ischaemia.

Methods:
Hearts from anaesthetised mice were exposed to varying periods of warm or cold ischaemia (n=5-8 per group). Porcine (n=5) or human (n=4) apical heart tissue was procured immediately after exsanguination (porcine) or following cross-clamp during donation after brainstem death (DBD) with appropriate ethical approval and informed consent. The apical tissue was rapidly divided into full-thickness myocardial sections and stored for variable periods of warm and cold ischaemia. Metabolite concentrations were determined using mass spectrometry and compared to background levels in fully oxygenated tissue snap-frozen immediately upon removal.

Results:
Similar metabolic changes were observed in mice, pigs and humans. Succinate accumulation was at least 2 fold higher after 12 mins of warm ischaemia than 240 mins of cold ischaemia (human; 8.0±1.4 vs 3.2±0.9 [n=4] p=0.03, pig; 5.2±0.9 vs 1.9±0.6 [n=5] p=0.02 (mean±SEM change compared to normoxic control). Thus compared to cold ischaemia, warm ischaemia resulted in a much greater and more rapid increase in succinate levels.

Discussion:
Greater succinate accumulation during warm ischaemia may underlie increased IR injury and organ dysfunction following donation after circulatory death (DCD). Prevention of succinate accumulation using inhibitors of the enzyme succinate dehydrogenase is therefore a promising therapeutic strategy to ameliorate IR injury in organ transplantation.

P0060

Transcriptomic and proteomic analysis of the human kidney provides a reference dataset and demonstrates profound differences between cortex and medulla

John Ferdinand[1], Alexandra Riding[1], Elizabeth Wlodek[2], Miriam Berry[1], Robert Kirkpatrick[3], Menna Clatworthy[1]

[1]University of Cambridge Department of Medicine, Cambridge, UK, [2]University of Cambridge Department of Surgery, Cambridge, UK, [3]R&D Alternative Discovery & Development, GSK, Collegeville, Pennsylvania, USA

Introduction:

The use of more marginal donors to combat organ shortage can result in sub-optimal long-term graft function. There is a need to identify biomarkers that predict outcomes, and to understand the mechanisms that lead to good or poor allograft function. Global transcriptomics and proteomics provide hypothesis-free methods to identify biomarkers and pathways. To facilitate their use in kidney transplantation, we first sought to establish a reference dataset to determine inter-individual variation, the relationship between the transcriptome and proteome, and the extent to which variation in the anatomical region of the kidney sampled (cortex versus medulla) might impact the data generated.

Methods:

Paired cortex and medulla samples were isolated from N=5 human kidneys donated for transplantation, but deemed unsuitable for use. RNASeq was used to assess gene transcription and the proteome analysed by triple mass spectroscopy.

Results:

Principle component analysis of the transcriptomic data showed that the biggest contributor to variance was the anatomical site from which the sample was obtained (ie, cortex vs medulla). Of the 22,655 genes identified, and after correction for multiple testing, 2913 genes were found to be significantly (adjusted p value (padj) < 0.05) enriched in the cortex and 2282 in the medulla. Gene set enrichment analysis revealed an enrichment of pathways associated with metabolism and NF-kB signalling in the cortex and K-Ras signalling in the medulla. Analysis showed that the transcriptome closely reflected the proteome.

Discussion:

These results have a number of important implications; since the variation in gene expression between individuals is smaller than the variation within the tissue, differences in the amount of medullary tissue in a core biopsy will change the gene signature independent of any intervention or pathway activated. Our dataset allows the generation of a gene list that can be used to quantify ‘medullary contamination’. Furthermore, the close alignment of transcript & protein levels suggests that transcriptomic studies (which are less costly, and have a more global coverage) provide a useful method to identify genes that could subsequently be taken forward as protein biomarkers.

P0061 – Poster withdrawn

P0062

Biodistribution of adipose derived regenerative cells administered via the renal artery in novel rat transplant model

Ryan Ghita[1,2], Rashida Lathan[1], Dianne Hillyard[1], Patrick Mark[1,2], Marc Clancy[1,2]
[1]University of Glasgow, Glasgow, UK, [2]Queen Elizabeth University Hospital Glasgow, Glasgow, UK

Introduction:
A novel rodent model of ischaemia- reperfusion injury (IRI) has shown significant improvement in renal function and histology after administration of adipose derived regenerative cells (ADRCs). However the exact mechanism on how these regenerative cells ameliorate IRI is not fully understood. Our research aims to build on the basic science behind ADRCs. Initial studies were performed to look at the spacial and temporal movement of the ADRCs.

Methods:
ADRCs were extracted from the inguinal fat of the Fisher 344 rat, labelled with a near infrared lipophilic dye, DiR, and injected via the renal artery of our surgical IRI rat model. Whole body imaging was performed using the IVIS spectrum imaging system. Organs (kidneys, heart, lung, brain, spleen, liver) were then removed and imaged at various time points and also imaged post ClearT2 tissue clearance.

Results:
Alone, DiR labelled cells strongly fluoresced. Whole body scanning of the rat demonstrated no signal from DiR-labelled ADRCs. However, high ADRC cell numbers (>2x10^5) were detected in various ex vivo organs at different time points. Low cell numbers (<2x10^5) were undetectable. Clearing the ex vivo organs with ClearT2 did not improve visibility in select tissues.

Discussion:
Histology and cytometry will be performed to refine localization of injected ADRCs. Data will support our experiments that investigate microenviromental effects of ADRCs.

P0063

Extraction of green fluorescent protein labelled Mesenchymal Stromal Cells to investigate their mechanisms of action on Ischemia- Reperfusion Injury in a rat kidney transplant model

Natalie Vallant, Jacques Behmoaras, Kevin Woollard, Ana Garcia-Diaz, Theresa Page, Bynvant Sandhu, Charles Pusey, Vassilios Papalois
Imperial College London, London, UK

Introduction:
Mesenchymal stromal cells (MSC) have been shown to dampen immune response and promote tissue repair. The application of exogenous MSCs to ameliorate IRI is being investigated in several animal-, preclinical and clinical studies and beneficial effects are reported. The use of green fluorescent MSCs coming from transgenic rats could lead to a better understanding of underlying mechanisms as cells can be traced in in-vivo experiments. This study aimed to investigate the in vitro immunomodulatory and anti inflammatory actions of MSCs extracted from transgenic GFP+ rats compared to MSCs coming from wildtype WKY animals.

Methods:
Bone marrow derived MSCs were extracted from the femurs and tibias of male WKY- wildtype and -GFP+ rats, respectively. MSC identity was confirmed using flow cytometry for CD44, CD90, CD45 and CD34 in both cell types. In vitro, the effects of MSC culture supernatants from cells at passages 0-10 on LPS- induced cytokine production from WKY wildtype macrophages were investigated using qPCR.

Results:
MSCs from WKY-wildtype, as well as from WKY-GFP+ rats could be successfully differentiated in culture. The expression of GFP in cells from GFP+ rats was strong and green fluorescence was present up to passage 10. Supernatants coming from WT-MSCs had a significantly higher upregulatory effect on Mrc1 expressions of macrophages than supernatants from GFP+cells ($p=0.03$) and could even reverse the inflammatory stimulus of LPS treatment.

Discussion:
MSCs from transgeneic WKY rats positive for the expression of GFP show strong green fluorescence throughout passages 0-10 and therefore, application in a rodent model of kidney transplantation will be promising to reveal possible effects of these cells on ischemia-reperfusion injury (IRI). Supernatants from MSCs do influence the immunogenic profile of macrophages suggesting chemotactic immunomodulatory effects of the cells. In order to find the most promising anti-inflammatory MSC phenotype, further studies are needed.

P0064

Cytotopic thromboregulation attenuates ischaemia-reperfusion induced injury to the microvascular endothelium

Bynvant Sandhu[1], Maria Prendecki[1], Jim Crawley[1], Neil Galloway-Phillips[1], Natalie Vallant[1], Justin Mason[1], Anthony Dorling[2], Richard Smith[2], Charles Pusey[1], Vassilios Papalois[1]
[1]Imperial College, London, UK, [2]King's College, London, UK

Introduction:
Microvascular endothelial susceptibility to ischaemia-reperfusion (IR) injury affects outcomes in all solid organ transplants. Microvascular dysfunction post-reperfusion of the ischaemic endothelium manifests as cellular necrosis and enhanced endothelial permeability. This study examines the effect of endothelial pre-treatment with a novel cytotopic direct thrombin inhibitor (Thrombalexin) on cellular injury.

Methods:
Human microvascular endothelial cells (HMECs) were used in an *in vitro* model of ischaemia-reperfusion injury. Cell monolayers were exposed to hypoxic conditions using a modular hypoxia chamber stored at 4°C, prior to reperfusion conditions (normoxia, 37°C). Cellular apoptosis and necrosis were assessed using Annexin V/Propidium Iodide staining on flow cytometry. Endothelial permeability post-reperfusion was assessed by measuring Fluorescein isothiocyanate (FITC)-dextran passage through HMECs seeded on a semi-permeable Transwell insert.

Results:
Fluorescence microscopy demonstrated successful tethering and adherence of a fluorescently tagged variant of Thrombalexin to confluent HMEC monolayers. Exposure of the microvascular endothelium to ischaemia-reperfusion resulted in a significant increase in endothelial permeability compared to HMECs maintained at resting conditions (119 vs. 36 Mean Relative Fluorescence Units respectively, p=<0.0001). Pre-treatment of the microvascular endothelium prior to cold ischaemia with Thrombalexin abrogated this effect (IR untreated 119 vs. IR treated 38.5 RFU; p=<0.0001). Pre-treatment with Thrombalexin reduced the percentage of Annexin V/PI positive cells from 3.1% to 2.0% (p=0.0287). Annexin V/PI negative cell percentages increased in Thrombalexin treated cells also (0.47% to 14.4% respectively, p=0.0007).

Discussion:
Pre-treatment with cytotopic thromboregulation effectively protects the microvascular endothelium from deleterious reperfusion injury.

P0065

Metabolic dysregulation and mitochondrial dysfunction are key features of injury profiles of donor kidneys after brain and circulatory death

M Letizia Lo Faro[1,2], M Zeeshan Akhtar[1], Honglei Huang[1,2], Maria Kaisar[1,2], Rolando Rebolledo[3], Karl Morten[1], Lisa Heather[1], Anthony Dona[4], Henri Leuvenink[3], Susan Fuggle[2], Benedikt Kessler[1], Christopher Pugh[1,2], Rutger Ploeg[1,2]

[1]University of Oxford, Oxford, UK, [2]Oxford Transplant Centre, Churchill Hospital, Oxford, UK, [3]University of Groningen, Groningen, The Netherlands, [4]University of Sydney, Sydney, Australia

Introduction:

DBD and DCD organ donors are an important source for kidney transplantation. However, brain death and warm ischaemia affect the organs rendering them susceptible to reperfusion injury once transplanted. It is vital to understand how kidneys are injured by these processes, as this will allow to develop novel strategies protecting organs in the donor, especially in higher risk donors.

Methods:

In pre-clinical Brain Death (BD) and Ischaemia-Reperfusion Injury (IRI) models (unilateral 45min renal ischaemia followed by 24h reperfusion), cellular pathways were found to be altered compared to healthy controls using proteomics and metabolomics techniques. Omics findings were further validated (by western blot and enzymatic, amperometric and luminescent assays) and highlighted disturbances in ATP, mitochondrial function and oxidative stress.

Results:

Proteomics and metabolomics results suggested extensive mitochondrial dysfunction. Mitochondria from DBD and IRI kidneys both showed decreased O_2 consumption (Figure 1) ($p<0.05$) which correlated with decreased tissue ATP levels, compared to controls. In DBD, mitochondrial morphology showed significant fragmentation (EM) and mitochondrial dysfunction was associated with increased inflammatory response (NFkB mRNA levels, p=0.01) and increased oxidative stress (p=0.01), when compared to controls.

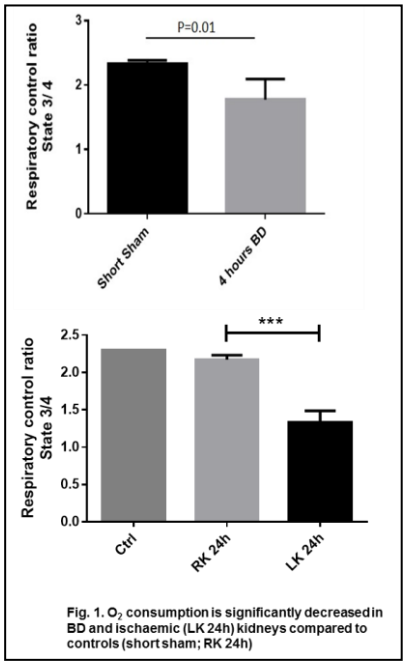


Fig. 1. O_2 consumption is significantly decreased in BD and ischaemic (LK 24h) kidneys compared to controls (short sham; RK 24h)

Discussion:

BD and IRI result in concerted alterations of metabolic pathways in the kidney leading to dysregulated mitochondria and oxidative stress contributing to injury of the graft-to-be. This renders the grafts more susceptible to reperfusion injury once transplanted and potentially increases the risk of DGF. DBD and DCD donor samples from the UK QUOD biobank are currently being investigated to establish whether these phenotypes are also present in deceased human donors.

Mitochondrial protective strategies are now possible interventions and may reduce injury to donor organs improving outcomes after transplantation.

P0066

Supporting clinical audit and research in the future: The set up of collaboration for the semi-automated collection and sharing of high-granularity clinical and omics data for renal transplantation

Paramit Chowdhury[2], The NIHR Health Informatics Collaborative[5], Menna Clatworthy[1], Bolaji Coker[2,5], Florence Delaney[2], Stevo Durbaba[2,5], Syed Hasan[2,5], Maria Hernandez-Fuentes[2], Nicos Kessaris[2], Rosa Montero[2], Adam McLean[3], Jonathan C Smith[2,5], Naomi Simmonds[3], Anastasia Spiridou[5,2], Rutger Ploeg[4]
[1]Cambridge University Hospitals NHS Foundation Trust and University of Cambridge, Cambridge, UK, [2]Guy's and St Thomas' NHS Foundation Trust and King's College London, London, UK, [3]Imperial College Healthcare NHS Trust and Imperial College London, London, UK, [4]Oxford University Hospitals NHS Trust and University of Oxford, Oxford, UK, [5]http://www.hic.nihr.ac.uk/, Cambridge, London & Oxford, UK

Introduction:

Clinical practice in renal transplantation has evolved rapidly with an increasing need for personalised medicine. Novel "omics" approaches have the potential to enable this. Biomarker discovery is reliant on high quality clinical phenotypic data. The increasing use of electronic systems in clinical practice allows an opportunity for efficient automated extraction of data. The challenge is ensuring the collection of high granularity and large volume data is reliable and reproducible so we can establish relevant outcomes in an efficient manner.

The NIHR Heath Informatics Collaborative is a UK-government-funded initiative to improve access to quality and quantity of patient phenotypic data to aid clinical research. The Transplantation theme involves four Biomedical Research Centres that together perform one third of all renal transplants in the UK.

Methods:

Patient information and outcomes are being extracted directly from all the different electronic patient record systems and requested from national registries (NHS-Blood and Transplant and Renal Registry). Challenges include the standardisation of data from different centres and interpretation of unstructured data, such as biopsy reports. The latter is being overcome using natural language programming. Data collected is being matched, cleansed and pseudo-anonymised before being stored in a data warehouse. It is then loaded into tranSMART, an open source translational research platform, for exploratory data analysis. Access to data from tranSMART is based on defined research studies. To demonstrate the success of the collaboration, an exemplar study looking at the incidence of recurrent disease in kidney allografts and the clinical and genetic factors that influence its development will be carried out.

Results:

To date the Transplantation theme has defined 250 attributes to be collected from patients transplanted at the centres from 2005 onwards, currently amounting to a total of approximately 14,000 recipients and donors.

Discussion:

Here we describe the progress to date of the collaborative and preliminary results. This will demonstrate the effectiveness of the collaborative and automated approach to understanding outcomes.

P0067

Pancreas allograft thrombosis: Suggestion for a CT grading system and management algorithm

Abdul Hakeem[1], John Chen[1], Satheesh Iype[1], Menna Clatworthy[2], Christopher Watson[1], Edmund Godfrey[3], Sara Upponi[3], Kourosh Saeb-Parsy[1]

[1]Department of Surgery, University of Cambridge and NIHR Cambridge Biomedical Research Centre, and NIHR Blood and Transplant Research Unit in Organ Donation and Transplantation, Cambridge, UK, [2]Department of Medicine, University of Cambridge and NIHR Cambridge Biomedical Research Centre, and NIHR Blood and Transplant Research Unit in Organ Donation and Transplantation, Cambridge, UK, [3]Department of Radiology, Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK

Introduction:

Pancreas allograft thrombosis (PAT) remains the leading cause of non-immunological graft failure after pancreas transplantation. There is currently no consensus on the reporting and management of partial pancreatic allograft thrombosis. Herein we propose a new CT grading system of PAT for identification of patients at risk of allograft loss and outline a management algorithm.

Methods:

We carried out a retrospective review of all pancreas transplants performed at our centre between 2009 and 2014, including donor, operative and recipient factors and outcomes. Triple phase CT scans were retrospectively graded independently by two radiologists as; Grade 0: No allograft thrombosis, Grade 1: Minimal peripheral thrombosis, Grade 2: Intermediate thrombosis and Grade 3: Central and occlusive thrombosis.

Results:

103 consecutive pancreatic transplants were performed, of which 24 (23.3%) were diagnosed with PAT during the index admission. Three (2.9%) grafts were lost due to thrombosis; all portal vein thrombosis (two grade 3 and one grade 2). On multivariate analysis, pancreas after kidney transplantation (OR 1.09, CI 0.01-0.97, p=0.047), acute rejection (OR 1.25, CI 0.07-0.90, p=0.034) and CT finding of pancreatitis (perigraft fat stranding) (OR 1.23, CI 0.08-0.72, p=0.011) were risk factors for PAT. Retrospective review of CT images revealed more grade 1 and 2 thromboses than were initially reported during the index admission, thus enabling comparison of outcomes in patients with grade 1 or 2 thrombosis who were anticoagulated with those who were not anticoagulated: There was no significant difference in graft or patient survival, length of stay or morbidity, suggesting that therapeutic anticoagulation is not necessary for grade 1 and 2 arterial thrombosis and grade 1 venous thrombosis.

Discussion:

Using this proposed radiological grading system, our data suggest that grade 1 and 2 arterial thrombosis and grade 1 venous thrombosis can be managed safely without formal anticoagulation, thereby lowering the risk of immediate post-operative bleeding complications and associated morbidity. The proposed grading system will assist clinicians in therapeutic decision making and can be used in future studies to provide standardised scoring to further interrogate the risk factors for and impact of PAT.

P0068

The effect of PXR activation on survival following simultaneous pancreas and kidney transplantation

Aimen Amer[1,2], Aditya Kanwar[1], Rodrigo Figueiredo[1,2], Colin Wilson[1,2], Derek Manas[1,2], Matthew Wright[2], Steven White[1,2]

[1]Institute of Transplantation, Freeman Hospital, Newcastle upon Tyne, UK, [2]Institute of Cellular Medicine, Newcastle University, Newcastle upon Tyne, UK

Introduction:

We have previously identified an improvement in graft function due to activation of the pregnane x receptor (PXR) in liver transplant recipients. Our aim was to explore the survival benefit of PXR activation in a different transplant population (simultaneous pancreas and kidney [SPK] transplant recipients).

Methods:

Data was collected retrospectively for patients receiving SPK transplants from DBD donors over a 5-year period between 2010 and 2015 at a single transplant centre. Patients were divided into low and high PXR activation groups based on the potency and total number of PXR-activating drugs given over the first 7 days post-transplantation. Patient and graft (pancreas and kidney) survival was compared between the two groups.

Results:

Thirty one patients were included in this study (70% male, mean age 42). Of these, 10 patients were classed in the high PXR activation group. No differences were identified between the two groups in donor characteristics, recipient demographics, or immunosuppression drugs. Kaplan Meier survival analysis showed no difference in patient or graft survival between the two groups (5-year patient survival: 85.7% versus 95.2% in high and low PXR activation groups respectively; P=NS).

Conclusion:

No survival benefit was identified from activation of the PXR in SPK recipients. This may be due to the relatively lower expression of the PXR in renal and pancreatic tissue compared to the liver. Further studies with a larger sample size are necessary to confirm these findings.

P0069

The role of pancreas transplant exocrine secretions in urinary tract infection

Matthew Byrne, Aminder Singh, Catherine Mowbray, Ali Ased, Judith Hall, Colin Wilson
Newcastle University, Newcastle, UK

Introduction:

Pancreas transplantation restores endocrine insulin secretion in type-1 diabetes mellitus. The pancreas graft also produces exocrine digestive enzymes, which can be drained enterically (ED) or via the bladder (BD). BD recipients can experience a high incidence of urinary tract infections (UTI), but have a lower rate of anastomotic leakage and the urinary amylase levels can be monitored for rejection.

Methods:

Quantitative PCR analyses determined AMP gene expression in infected bladder RT4 cells and these data were used to direct Human β-defensin 2 (HBD2) and Lipocalin (LCN2) measurements via ELISAs in urines of ED (n=29) and BD (n=22) patients. Urine amylase was determined using a colorimetric assay (Sigma). Bacterial growth curves and time-kill assays were used to evaluate *in vitro* the effects of AMPs and pancreatin 31,250U/L ± 12,500U/L and pancreatin (mimicking urine amylase levels) on uropathogenic Escherichia coli.

Results:

Results: In the presence of 31,250U/L pancreatin a significant increase (p=0.001) in bacterial growth rate was demonstrated. Patient urine LCN2 concentrations were negatively correlated with amylase (r^2=0.57, p=0.01), although HBD2 concentrations were not (r^2=0.06, p=0.42). *In vitro*, significant killing (mean survival=60%; p=0.003) of all strains was observed with HBD2 (300ng/mL), but in presence of pancreatin no bacterial killing was detected (mean survival=125%).

Discussion:

These *in vitro* and *in vivo* data support the hypothesis that pancreatic exocrine secretions impact on the bladder environment and reduce the bladder innate defences predisposing to recurrent UTIs.

P0071
The value of gestation; Patient perspectives of uterine transplantation

Benjamin Jones[1,2], Srdjan Saso[1,2], Thomas Bacarese-Hamilton[2], Maria Jalmbrant[1], Joseph Yazbek[1,2], Sadaf Ghaem-Maghami[1,2], Meen-Yau Thum[3], J Richard Smith[1]
[1]Imperial College NHS Trust, London, UK, [2]Imperial College London, London, UK, [3]The Lister Fertility Clinic, London, UK

Introduction:
Absolute Uterine Factor Infertility (AUFI) affects one in 500 women of childbearing age. Present options to acquire motherhood include adoption or surrogacy, both of which are associated with moral and ethical difficulties in addition to complex legal, financial and religious considerations. Uterine Transplantation (UTx) is a novel procedure, which may overcome such difficulties and offer a realistic treatment option for AUFI.

Methods:
A questionnaire was sent to 121 women with AUFI who had previously expressed an interest in UTx to survey their perceptions to adoption, surrogacy and UTx.

Results:
110 women participated. 56% (n=61) had considered adoption, but only 6% (n=7) had attempted it, with just one successful attempt. With surrogacy, 80% (n=88) had considered it, 14% (n=15) had attempted it, and two women had achieved successful surrogate births. Overall, 79% of women (n=86) preferred UTx to both adoption and surrogacy. With adoption, 57% (n=63) preferred UTx to enable them to experience pregnancy whilst 39% (n=42) favoured having a biologically related child. Regarding surrogacy, the majority (n=70; 63%) again wanted to experience pregnancy, whilst 18% (n=20) were deterred by legal concerns and 12% (n=13) were apprehensive o financial considerations. 5% of women, all of whom had MRKH, favoured UTx over adoption and surrogacy to 'feel like a woman'.

Discussion:
UTx is still a research concept. Initial promising results have provided proof of concept and given hope to thousands of women with AUFI, for whom adoption or surrogacy are not available or acceptable. This data reiterates the barriers associated with adoption and surrogacy but most notably highlights the overriding benefit of UTx is the ability to experience gestation. Whilst there are significant risks involved, UTx is the only option that allows women with AUFI the opportunity to conceive, carry pregnancy and bear biologically related children themselves.

P0072

Uterine transplantation in the UK: SNOD and ITU nurse perspectives

Benjamin Jones[1,2], Srdjan Saso[1,2], Isabel Quiroga[3], Joseph Yazbek[1,2], Sadaf Ghaem-Maghami[1,2], Henk Giele[3], Peter Friend[3], J Richard Smith[1]

[1]Imperial College NHS Trust, London, UK, [2]Imperial College London, London, UK, [3]Oxford University Hospitals NHS Trust, Oxford, UK

Introduction:

Uterine Transplantation (UTx) is a potential therapeutic modality for women with absolute uterine factor infertility, a condition that affects one in 500 women of childbearing age. 21 UTx procedures have been performed worldwide, four of which have been undertaken using donation after brainstem death (DBD). HRA REC approval has been granted to perform 10 UTx procedures in the UK, and the NSHBT Research, Innovation and Novel Technologies Advisory Group (RINTAG) committee has recently formally supported the project. To facilitate this process, feedback was sought from Specialist nurses in Organ Donation (SNODs) and Intensive Care Unit (ICU) Nurses to identify potential concerns.

Methods:

A questionnaire was created to highlight potential concerns about implementing UTx into the multi-retrieval process.

Results:

15 SNODs and 27 ICU nurses completed the questionnaire. When asked about potential concerns about approaching donor families for consideration for UTx (Q1), no concerns were raised. One (6.6%) SNOD and two (7.4%) ICU nurses expressed concern regarding the necessary pre-operative investigations (Q2), whilst a single SNOD (6.6%) and no ICU nurses highlighted the time of ten minutes needed on the unit to perform these investigations (Q3). More than a quarter of the SNODs (n=4; 26.6%) and over half of the ICU nurses (n=16; 64%) were concerned about the possibility of potential media intrusion stating it may be 'difficult for the donor family' and emphasised the need to 'maintain confidentiality' (Q4). Whilst no SNODs were concerned about asking additional questions about the donor's history, one ITU nurse expressed concern (Q5).

Discussion:

Engagement with key stakeholders involved in the multi-organ retrieval is essential in the development of novel concepts and techniques. This data suggests that UTx is generally well supported amongst ICU nurses and SNODs, but highlights the need for a all-encompassing public relations strategy to minimise the risk of potential media intrusion.

Figure 1

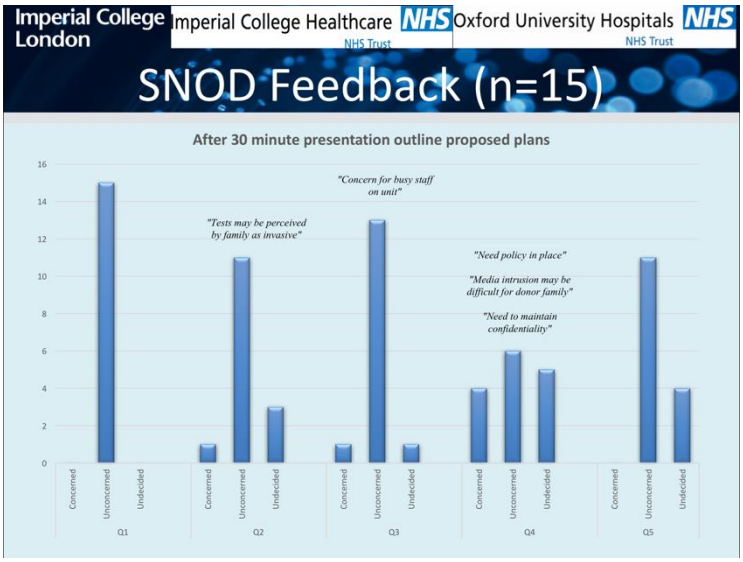
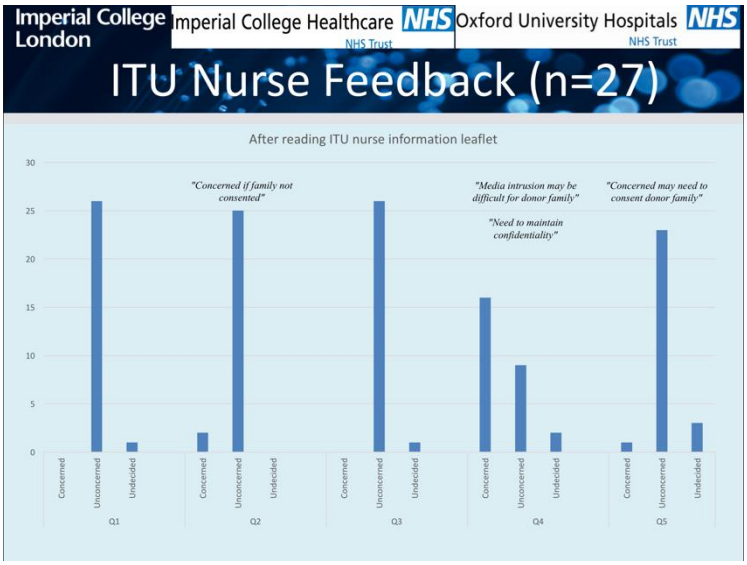


Figure 2


Imperial College London
Imperial College Healthcare NHS Trust
Oxford University Hospitals NHS Trust
ITU Nurse Feedback (n=27)
After reading ITU nurse information leaflet
"Concerned if family not consented"
"Media intrusion may be difficult for donor family"
"Need to maintain confidentiality"
"Concerned may need to consent donor family"
30
25
20
15
10
5
0
Concerned
Unconcerned
Undecided
Q1
Q2
Q3
Q4
Q5

P0073

A UK survey assessing the perceptions of healthcare professionals towards uterine transplantation: Level of support amongst colleagues

Srdjan Saso[1,2], Benjamin Jones[1,2], Meen-Yau Thum[3], Joseph Yazbek[1,2], J Richard Smith[1]
[1]Imperial College NHS Trust, London, UK, [2]Imperial College London, London, UK, [3]The Lister Fertility Clinic, London, UK

Introduction:
Women with absolute uterine factor infertility (AUFI) are considered as being 'unconditionally infertile'. Potentially, these women may benefit from uterine transplantation (UTx). The overall aim was to investigate the opinions and views of healthcare professionals towards UTx.

Methods:
UK transplant professionals (surgeons, nurses, operating room staff, and donor coordinators) and obstetricians and gynaecologists (trainees, members and fellows of the Royal College of Obstetricians and Gynaecologists) participated in a large, in-depth survey investigating health care professionals' opinions on UTx.

Results:
528 participants participated in the study. With respect to overall support for UTx and as a possible future therapeutic option for AUFI, 93.8% (n=495) felt that UTx should take place if considered appropriate medically, surgically and ethically. 42.6% (n=225) of the surveyed population believing that it should take palace 'as soon as possible'. Therefore, 51.1% (n=270) support the eventual commencement of the human UTn programme in the UK but not in its current state. 57.2% (n=302) thought it was an achievable objective. Issues related to immunology of UTx and pregnancy post-UTx were unanimously thought of as most important.

Discussion:
This study is the first in literature to try to sample the opinions and concerns of health-care professionals towards UTx. The most important finding of this study suggests that this 'level of support' is already there with regards to UTx. A substantial majority of the participants support the development of the UTx research programme and believe that UTx should be performed in the near future. More effort is required to educate health care professionals about all aspects of UTx.

P0074

Critical appraisal of international clinical practice guidelines in kidney transplantation using the Appraisal of Guidelines for Research and Education (AGREE) II tool: A systematic review

Katriona O'Donoghue[1], Rhiannon Deierhoi Reed[2], Simon Knight[1,3], John O'Callaghan[1,3], Anam Ayaz-Shah[1], Sevda Hassan[4], Annemarie Weißenbacher[3], Peter Morris[1,3], Jayme Locke[2], Liset Pengel[1,3]

[1]Centre for Evidence in Transplantation, Clinical Effectiveness Unit, Royal College of Surgeons of England, London, UK, [2]University of Alabama at Birmingham, Comprehensive Transplant Institute, Alabama, USA, [3]Nuffield Department of Surgical Sciences, University of Oxford, Oxford, UK, [4]West London Renal and Transplant Centre, Hammersmith Hospital, Imperial College Healthcare NHS Trust, London, UK

Introduction:

Whilst variation in the quality of Clinical Practice Guidelines (CPGs) has been documented in other areas of medicine, the critical appraisal of CPGs in transplantation is absent. We aimed to review the quality of recent International CPGs in kidney transplantation (Ktx) using the AGREE II Instrument.

Methods:

CPGs in Ktx and donation published between 2010 and 2015 were identified from MEDLINE, Embase, National Guideline Clearinghouse, NHS and NICE Evidence Searches, and the websites of transplant societies. Using the AGREE II instrument three appraisers, including one clinician and two methodologists, assessed the quality of CPGs across six domains, rated the overall quality of the CPG and whether they would recommend it for future use. Domain scores were reported as a percentage of the maximum possible score for that domain. Inter-rater reliability was measured using the intraclass correlation coefficient (ICC).

Results:

Searches identified 2,573 records of which 98 CPGs met our inclusion criteria. The highest scoring domain across all CPGs was **Scope and Purpose (78%),** followed by **Clarity of Presentation (77%)**. The poorest scoring domain was **Applicability (31%)** followed by **Stakeholder Involvement (41%)**, **Rigour of Development (48%)** and **Editorial Independence (53%).** Top scoring items were “Key recommendations are easily identifiable”, “Overall objectives of the guideline are specifically described” and “Population to whom the guideline is meant to apply are specifically described”. Items that scored poorest were “Views and preferences of the target population have been sought”, “Procedure for updating the guideline is provided” and “Potential resource implications of applying the recommendations have been considered”. Most CPGs were recommended for future use either with modifications (65%) or without modifications (20%). A small number were not recommended for future use (11%) or reviewers did not agree on recommending the CPG (4%). The overall mean CPG quality score was 4 out of 7 (Range: 2-7). The mean ICC was 0.73 indicating a substantial agreement among reviewers.

Discussion:

Overall the quality of CPGs was satisfactory, however our review identified key aspects of methodological robustness and transparency of the guideline process that are lacking in most CPGs. Targeting such areas could improve the international standard of CPGs in Ktx.

P0075

"What if this is my chance to save my life?" The patient perspective on public solicitation of living kidney donors

Mathilde Pronk[1], Dorthe Slaats[1], Willij Zuidema[1], Medard Hilhorst[2], Frank Dor[1,3], Michiel Betjes[1], Willem Weimar[1], Jacqueline van de Wetering[1], Emma Massey[1]

[1]Erasmus MC, University Medical Center, Dept. of Internal Medicine, Section of Nephrology and Transplantation, Rotterdam, The Netherlands, [2]Erasmus MC, University Medical Center, Dept. of Medical Ethics and Philosophy, Rotterdam, The Netherlands, [3]West London Renal and Transplant Centre, Department of Renal and Transplant Services, Hammersmith Hospital, Imperial College, London, UK

Introduction:
An increasing number of patients use public solicitation (PS) to find a living kidney donor. This study explores the decision-making and experiences of these patients.

Methods:
Semistructured interviews were conducted with 20 Dutch public solicitors who had publicly solicited between 2011 and 2015. Interviews were transcribed and analyzed for general themes.

Results:
Before considering PS participants had not been able to find an eligible donor in their social network. They also rejected the option of paid donation. Participants were motivated to engage in PS by the ease of social media, encouragement by others, patient/donor autonomy, and despair, but feared a public disclosure of vulnerability and feared being (perveiced to be) selfish. During PS participants experienced hope, support, and positive donor contact, but PS was also a time and energy-consuming process which was emotionally taxing. Participants had to manage unequal relationships and act as health professionals, screening donor motives. During PS they experienced limited cooperation from health professionals and had to rely on their skills/personality to manage their donor search.

Discussion:
These results call for improved communication about the new Dutch policy on PS with patients who are considering engaging in PS, and the development of better support systems to relieve patients of their screening and educating role during the PS process. Greater openness by professionals about this topic may encourage patients to discuss their donor search prior to undertaking PS and create an opportunity for education and counseling during the process.

P0076

Towards a conditional approach to anonymity in the Netherlands? A multi-center prospective study among anonymous donors and recipients

Mathilde Pronk[1], Dorthe Slaats[1], Ine Dooper[2], Desiree Pilzecker[2], Janneke Vervelde[3], Karlijn van der Pant[3], Regien Meijer[4], Marjon van Vliet[5], Carla Schrauwers[5], Franka van Reekum[6], Judith Wierdsma[6], John Dackus[7], Philip Ulrichts[7], Frank Dor[1,8], Willem Weimar[1], Jacqueline van de Wetering[1], Willij Zuidema[1], Emma Massey[1]

[1]Department of Internal Medicine, Nephrology and Transplantation, Erasmus MC, Rotterdam, The Netherlands, [2]Department of Nephrology, Radboud UMC, Nijmegen, The Netherlands, [3]Department of Internal Medicine/Nephrology, Renal Transplant Unit, Academic Medical Center, Amsterdam, The Netherlands, [4]Department of Nephrology, UMCG, Groningen, The Netherlands, [5]Department of Nephrology, VUmc, Amsterdam, The Netherlands, [6]Department of Nephrology, UMC Utrecht, Utrecht, The Netherlands, [7]Department of Nephrology, UMC Maastricht, Maastricht, The Netherlands, [8]West London Renal and Transplant Centre, Department of Renal and Transplant Services, Hammersmith Hospital, Imperial College, London, UK

Introduction:

Anonymity of donors and recipients is a recurrent topic of discussion among transplant professionals. This prospective study aimed to investigate donors' and patients' experiences with and attitude towards anonymity.

Methods:

Anonymous donors and recipients completed a questionnaire before (T0) and 3 months after surgery (T1). Questions concerned experiences with and satisfaction about anonymity; their attitude towards anonymity and demographic and medical characteristics. Non-parametric tests were used to assess group differences and associations.

Results:

Seventy-two donors and 50 recipients participated in the study (response rates 81% and 63% respectively). Participants were content with anonymity at T0 and T1. Fourteen percent of participants wanted to meet at T0 and 23% wanted to meet at T1. If the other party expressed the wish to meet, 50% (T0) and 55% (T1) would be open for a meeting. Two donors accidentally met their recipient. Most participants agreed with the principle of anonymity both before and after surgery, but also agreed that a meeting should be allowed if both parties agree to that. Attitude towards anonymity was not associated with type of transplant program and did not differ between donors or recipients and between T0 or T1.

Discussion:

Even though the majority of donors and recipients are satisfied with absolute anonymity (for their own procedure), they believed that (other) pairs should be allowed to meet if both parties agree to that. Such a conditional approach to anonymity would require effort from transplant professionals to accurately register individuals' wish to meet and to educate them on potential advantages and disadvantages of non-anonymity. Based on our findings we will provide recommendations for standardized education on anonymity.

P0077

Integrating mental and physical healthcare in kidney transplant patients: Psychological wellbeing and health beliefs about immunosuppression medication

Sharon Frame[1], Hayley Wells[1], Amy Carroll[1], Anna Simpson[2], Sanchika Campbell[2], Viviana Shepherd[2], Antonia Cronin[1,2]

[1]Guys and St. Thomas' NHS Foundation Trust, London, UK, [2]Kings' College, London, London, UK

Introduction:

There is an increased prevalence of depression and anxiety in long-term kidney transplant patients (LKT), and this is associated with medication non-adherence, co-morbidity and mortality. Integrating physical and mental health care is a key national priority in the UK. IMPARTS (Integrating Mental and Physical Health Care in Research Training and Services) is a screening package that has been developed to facilitate this through the electronic collection of patient reported data. In this pilot study we investigated LKT psychological morbidity and health beliefs about immunosuppression (IS).

Methods:

Between September and November 2016 we screened LKT (>7 years from transplant) using an electronic tablet. Screening measures for included: (i) Patient Health Questionnaire (PHQ-9); (ii) Generalised Anxiety Disorder Questionnaire (GAD-7); and (iii) Renal Health Beliefs Questionnaire (RHBQ).

Results:

There were a total of n=50 screening encounters. The mean age of patients screened was 53.1 years. On average 49% screened were female. 44 patients reported symptoms of depression. Of those 30 (68.2%) had mild symptoms, 10 (22.7%) had moderate symptoms and 4 (9.1%) had moderately sever depression. 12 patients reported symptoms of anxiety. Of those 6 (50%) had a probable generalized anxiety disorder. All patients who reported psychological difficulties were offered follow up with a clinical psychologist. Referrals were also made to liaison psychiatry and community mental health teams. 24 (48%) of patients reported that the health of their kidney significantly affected their lives. 15 (30%) reported little or not control over their risk of kidney transplant failure. All patients reported that their IS interfered with their lives. 47 (94%) agreed their health, at present, depended on these medications. 16 (30%) patients reported that IS gave unpleasant side-effects. Only 8 (16%) patients reported avoiding using IS where possible, however 34 (68%) forget to take IS on a regular basis.

Discussion:

These preliminary results demonstrate significant psychological morbidity in LKT. General understanding about the importance of IS in this cohort was good, however despite this a significant proportion of patients are non-adherent with IS. Further analyses to identify association between physical and mental health parameters on medication adherence are underway, the results of which we anticipate will, in time, inform targeted treatment and management to improve medication adherence.

P0078

Legal implications of transplanting suboptimal organs: Negligence and product liability

Matthew Dyson[2], J Andrew Bradley[1], Kathleen Liddell[1], Christopher Watson[1], Kourosh Saeb-Parsy[1]
[1]University of Cambridge, Cambridge, UK, [2]University of Oxford, Oxford, UK

Introduction:

A shortage of suitable donor organs for transplantation has led to increasing use of 'sub-optimal' or less-than-ideal organs. We aimed to review the legal regulation of transplanting such sub-optimal organs.

Methods:

Using a multi-disciplinary panel of legal, clinical and other experts, we reviewed English and European legal regimes applicable to transplantation of sub-optimal organs, including analysis of court decisions.

Results:

Two actions in tort law are relevant to transplantation of sub-optimal organs: negligence and product liability. Negligence is relevant to all medical practice and holds a defendant liable if he fails to take *reasonable* care of someone he owed a duty of care and they suffer loss. It includes care in professional skill and in obtaining fully informed consent. It is also likely that organs are products under the Consumer Protection Act and thus subject to 'product liability' or 'strict (no-fault) liability'. Importantly, unlike negligence, this legal framework does not assign fault or blame for the 'defectiveness' of sub-optimal organs, but aims to establish a fair mechanism for compensating recipients for adverse consequences. Product liability raises complex issues concerning identification of the 'producers', determination of 'defectiveness' of an organ, and the impact of a patient's awareness of risks and informed consent on strict liability.

Discussion:

Legal considerations should not encourage clinicians towards more defensive or conservative behaviour. On the contrary, understanding regulation of transplantation by tort law could strengthen aspects of medical care relating to transplanting suboptimal organs by informing multidisciplinary discussions and guidelines, public engagement and education, including improving patient expectations and the process of informed consent.

P0079

Pre-mortem intervention in donation after circulatory death: A framework for ethically, legally and scientifically appropriate action

Kathleen Liddell[1], J Andrew Bradley[1], Matthew Dyson[2], Christopher Watson[1], Kourosh Saeb-Parsy[1]
[1]*University of Cambridge, Cambridge, UK,* [2]*University of Oxford, Oxford, UK*

Introduction:
The detrimental impact of warm ischaemia during organ donation after circulatory death may be ameliorated by pre-mortem treatment of the potential donor, but Department of Health (DoH) Guidelines published in 2009 advise that pre-mortem heparinisation is unlawful in the UK. We aimed to identify a framework that would enable evaluation and adoption of proposals for pre-mortem interventions in an ethically, legally and scientifically appropriate manner.

Methods:
Using a multi-disciplinary panel of legal, clinical and other experts, we reviewed existing professional guidelines and the legal framework relevant to pre-mortem interventions in organ donation.

Results:
The Mental Capacity Act only permits interventions that are in the best interest of the donor prior to declaration of death. Contrary to the categoric stance in the DoH Guidelines, a donor's best interests may be compatible with pre-mortem interventions if a donor has an interest in effective altruism (ie, successful organ donation). The Court of Protection may also have a role in informing the practice of pre-mortem interventions. Improved data on risks and benefits of pre-mortem interventions and factors that can predict circulatory arrest after withdrawal of cardiorespiratory support are essential for resolving current legal controversies.

Discussion:
Greater engagement with the public, donor families and those on the organ donor register should include education about the risks and benefits of pre-mortem interventions. A specialist review panel, that includes input from clinicians, ethicists, patients, NHSBT, DoH and lawyers, should be established to guide urgent redrafting of DoH and professional guidelines. This expert panel should also assess, approve or reject research proposals for pre-mortem interventions following review of the available evidence on the risks and benefits.

P0080

A qualitative analysis and review of the informed consent process for recruiting deceased donor kidney transplant recipients to research in the EMPIRIKAL Study

Nicola Johnson[1], Theodoros Kassimatis[1,2], Laura Nichols[2], Naomi Hare[1], Karen Williams[1], Jonathon Olsburgh[1], Martin Drage[1]

[1]Guy's and St Thomas NHS Foundation Trust, London, UK, [2]King's College, London, UK

Introduction:

The EMPIRIKAL study aims to evaluate the efficacy of Mirococept in reducing the incidence of delayed graft function in deceased donor renal transplantation.

Voluntary informed consent is fundamental to research participation (RCN 2011). For consent to be valid, participants need to understand important information about the study (e.g. purpose of the research, what participation involves, potential risks and benefits). Adequate time for reading research information and answering questions is required. This is challenged by the nature of organ availability, timing of admission and conflicting priorities in preparing the patient.

Methods:

Review of current practice; questions frequently asked during the consent process and received patient feedback was undertaken. Results were used to guide future practice and improve the consent process.

Results:

Feedback from recruited participants indicated some faced difficulties in digesting information amid anxieties about surgery. Some wanted more time to consider the research. Questions during consent included drug safety information, number of participants enrolled to date and what side effects were expected.

Discussion:

This review highlights that providing patients with research information and allowing time for questions prior to admission for surgery is essential to the consent process and may improve comprehension of research material. An invitation letter and study participation information is posted to patients on the deceased donor register. This is now followed up with a telephone call to confirm receipt and answer questions. Coordination between admission and research teams maximises opportunities for patients to better understand consent to research studies and may enhance recruitment.

RCN (2011) *Informed consent in health and social care: RCN Guidance for Nurses.* Royal College of Nursing: London

P0081
Trust and risk in publicly solicited living organ donation

Greg Moorlock, Heather Draper
University of Warwick, Warwickshire, UK

Introduction:
Living organ donation can involve non-medical, as well as medical, risks. Some risks, such as exploitation, coercion and commodification, arise due to the potential for complex relationships between donors and recipients. These risks also affect health services, who may unintentionally facilitate unethical/unlawful donations featuring these undesirable elements. As these risks arise from the often-clandestine actions of individuals, they cannot be eliminated entirely. Operating a living donation system therefore relies upon a level of trust. Where this trust should be placed, and by whom it should be placed, differs according to the type of donation.

Methods:
We apply the concept of trust to risk mitigation, and consider where the locus of trust should lie in three types of living donation: living-related donation, non-directed altruistic donation, and publicly solicited altruistic donation (PSD).

Results:
i) Living-related donation: risk is mitigated by existing trust between donor and recipient formed as a result of a long-standing relationship.
ii Non-directed altruistic donation: risk is mitigated by trust in the *processes* that maintain anonymity because there is no pre-existing relationship between donor and recipient.
iii) PSD: risk arises from rapidly-formed relationships and lack of anonymity. Trust must be placed elsewhere.

Discussion:
We argue that trust for PSD should be located in *service delivery*. This requires a service that removes obstacles to PSDs that are ethically unproblematic, but that also safeguards against those that feature exploitation, coercion and commodification. To mitigate risk the service needs to be reliable and robust: *trustworthy*, in other words.

P0082

Facilitating unspecified kidney donation: Is the UK infrastructure good enough? Results from the BOUnD Study

Petrut Gogalniceanu[1], Rebecca Gare[1], Sam Norton[2], Joseph Chilcot[2], Alexis Clarke[3], Lynsey Williams[3], Annie Mitchell[3], Heather Draper[4], Paul Gibbs[4], Paul McCrone[2], Lisa Burnapp[1,6], Hannah Maple[1], Nizam Mamode[1]
[1]Department of Renal Transplantation, Guy's and St Thomas' NHS Foundation Trust / King's Colege London, London, UK, [2]Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, UK, [3]School of Psychology, University of Plymouth, Plymouth, UK, [4]Institute of Applied Health Research, University of Birmingham, Birmingham, UK, [5]Renal Transplant Department, Portsmouth Hospitals NHS Trust, Portsmouth, UK, [6]NHS Blood and Transplant, Bristol, UK

Introduction:
The BOUnD Project[2] is a national mixed-methods study assessing the status of unspecified donation (UD) in the UK. It aims to assess regional variations in UD practice and infrastructure.

Methods:
A validated questionnaire interrogated transplant professionals (TPs) in 23 UK centres to elucidate practice patterns regarding resources, protocols, age restrictions and the role of mental health assessments in UD.

Results:
152 TPs reported being confident in dealing with UD (mean 0.6, SD 0.8, where range is 0="strongly agree" to 4 "strongly disagree") with the majority (107, 71%) having >2 years' experience working in this field. TPs felt that local and national UD facilities were adequate (122, 80% and 121, 68%, respectively) and sufficient staff training was available (96, 63%). However, UD assessment was thought to be more resource intensive, requiring a higher number of investigations (mean 2.1, SD 0.9) and being more time consuming (mean 1.8, SD 1.0) compared to specified donors (SD). Nevertheless, only small proportion felt that UD should be centralised in specialist units (35, 23%). The commonest reasons for not proceeding with UD were perceived as being physical (mean 1.5, SD 0.7) and mental health fitness (mean 2.0, 0.7), as well as lack of family support (mean 2.1, SD 0.8) and change of mind/anxiety (mean 2.1, SD 0.7).

Discussion:
Our study suggests sufficient resources are available, but UD assessment may be more resource intensive. Failure to proceed to UD doesn't appear to be related to centre-related factors. However, the role of TPs in addressing donor anxiety and family support needs to be further clarified.

[2] Barriers and Outcomes of Unspecified Kidney Donation

P0083

Attitudes and views on deceased organ donation of UK renal patients of different ethnic backgrounds

Maria Theodosopoulou[1], Frank Dor[2], Daniel Casanova[3], Thanos Athanasiou[1], George Baskozos[4], Charles Pusey[1], Vassilios Papalois[1]

[1]Imperial College, London, UK, [2]Hammersmith Hospital, London, UK, [3]University of Cantabria, Santander, Spain, [4]University of Oxford, Oxford, UK

Introduction:

A project running at a major UK University Hospital studies issues of health literacy and family network communication patterns regarding Deceased Organ Donation. The part of the project presented in this analysis focused on the attitudes, views and communication patterns about deceased organ donation of renal patients.

Methods:

A survey was distributed among renal patients (on dialysis and transplanted); 146 patients participated. The questionnaire was developed based on thorough literature search and extensive discussions of focus groups. The final version consisted of 32 questions and went through formal validation process (Kappa statistic 0.714 between perfect and random agreement).

Results:

The vast majority of renal patients (84%) supported deceased organ donation, however almost a quarter (24.4%) expressed concerns regarding the information provided and the trustworthiness of the health system. 75% of the respondents feel that some kind of financial incentives could potentially help organ donation. Patients of different age (p-value 0.02) and ethnicity (p-value 3.35317e−69) prefer different sources to get information. In addition, practices of communication patterns differ significantly across patients of different ethnicity, such as to whom they shared their views regarding deceased donation (p-value 3.9172e−37), focused discussions within the family (p-value 9.09597e−84), the participants' own wish for family consent (p-value 4.02532e−31), and their reasons to support organ donation (p-value 9.90219e−21).

Discussion:

The results of the survey allow more in depth knowledge regarding the influence of ethnic background on attitudes and views on organ donation and facilitate the design of relevant health literacy campaigns.

P0084

Comparison of the official national organ donation websites of the UK, Spain and the Netherlands

Maria Theodosopoulou[1], Frank Dor[2], Daniel Casanova[3], Thanos Athanasiou[1], Charles Pusey[1], Vassilios Papalois[1]

[1]Imperial College, London, UK, [2]Hammersmith Hospital, London, UK, [3]University of Cantabria, Santander, Spain

Introduction:

Reliable, clearly communicated and easily accessible information help shape people's health literacy. Differences in the presentation of issues related to deceased organ donation shed light into different areas of awareness and motivation for action. In this analysis, the official websites of three countries - NHS Blood and Transplant (UK), the NTS (the Netherlands), and the ONT (Spain) were studied in order to find how they approached these issues.

Methods:

Using thematic analysis we focused on the information regarding the interaction between healthcare professionals, donors, and/or families.

Results:

Treatment of the donor, consent, retrieval and transplantation procedures are major themes addressed. Information on the UK website adopts an approach of concise brief information, setting the donor as the focal point, whose wishes are carried out by family and healthcare professionals. The Dutch website highlights the transparency of the medical procedures, explaining criteria of entrance on waiting lists and protocols for determining brain and circulatory death. The Spanish website emphasises the importance of the family role in consent, the individuality of patient treatment, and the rigorous quality control of the national coordination and retrieval processes.

Discussion:

Studying the different ways of presenting information regarding deceased organ donation in three different European countries can be a very useful tool for the development of future relative health literacy campaigns.

P0085
Implementation of a school education programme to increase organ donation

Matthew Byrne, Amy Smit, Matthew Symington, Jasper Mogg, Jonathan Mayes, Eilish McKenna, Nidhi Singhal, Colin Wilson
Newcastle University, Newcastle, UK

Introduction:
Ninety percent of the general public are in favour of the organ donor registry yet only thirty-one percent are organ donors.

Methods:
Medical students gave a fifteen-minute presentation about transplantation and organ donation to school students. Students were then asked to complete a feedback form assessing opinions towards the organ donor registry and issues in transplantation on a five-point Likert scale.

Results:
The talk was given to 300 students and 191 feedback forms were completed. 50% of students were aged 16, 42% were 17, and 7% were 18 years old. 82% of students were not on the organ donor register. Following the intervention, 71% of the students not on the register planned to join the register, and 2% “may join at a later date”. Reasons for not planning to join the registry included: religious reasons, needing time to think about the decision, and ineligibility. 93% found the talk informative and 93% would recommend the talk to their friends. Before the talk, 53% agreed and 12% strongly agreed that they were aware of the issues in transplantation, after the talk 51% agreed and 43% strongly agreed that they were aware of the issues in transplantation.

Discussion:
Talks provided by medical students increases school students understanding of the issues in transplantation and positive opinions towards the organ donor registry and thus may increase organ registry sign up. Future studies will assess the effect on registry sign up by providing access to the online sign up form after the talk.

P0086
Evaluation of quality of online information for patients (EQUIP) in transplantation

Matthew Byrne, Jasper Mogg, Jonathan Mayes, EQUIP Collaborative
Newcastle University, Newcastle, UK

Introduction:
The Internet is increasingly used as a source of information by transplant recipients and donors. However, the quality of the information that is accessed has not been formally assessed.

Methods:
An iterative search strategy through Google Trends was used to identify unique search terms relating to each solid organ transplant separately. These terms were entered into Google, Yahoo!, and Bing, and URLs on the first page collected. Four individuals reviewed each URL independently using the DISCERN tool to assess the quality of information and to stratify the information as 'poor' (serious or extensive shortcomings), 'moderate' (potentially important but not serious shortcomings), or 'good' (minimal shortcomings).

Results:
1654 unique URLs were identified from 366 search terms. 393 URLs met inclusion criteria, covering 90% of all website traffic globally. 14% of webpages were identified as good, 46% moderate, and 40% as poor. No correlation was found between page popularity and quality. Analysis of the 16 DISCERN domains revealed the best performance was in: providing other sources of information, and information relevance. Domains with moderate performance included: describing risks and benefits of transplantation. Finally, the poorest performance was in: the effect of transplantation on quality of life, and support for shared decision-making.

Discussion:
Deficits in online patient information are likely to negatively affect informed consent and organ donation. Therefore, health care practitioners should focus on providing extra information in these domains, particularly relating to: shared decision making, risks and benefits of transplantation, and the effect transplantation has on recipient quality of life.

P0087

Is HLA-DR matching in paediatric kidney transplant patients, necessary? A systematic review

A.M Smak Gregoor[1], J.D.G. Hageman[1], K. Cransberg[1], C. Sloots[2], H. de Jong[1], N. Mamode[3]
[1]Dept of Paediatric Nephrology, Erasmus University Medical Center, Sophia's Children's hospital, Rotterdam, The Netherlands, [2]Dept of Paediatric Surgery, Erasmus University Medical Center, Sophia's Children's hospital, Rotterdam, The Netherlands, [3]3Department of Transplantation, Guy's Hospital, Guys and St Thomas' NHS Foundation Trust, London, UK

Introduction:
For successful kidney transplantation a certain degree of HLA matching is crucial. Matching at DR loci has traditionally been considered important in paediatric transplantation, but the evidence for this is unclear. The question therefore is, is there a significant difference in graft survival (primary outcome) and waiting time for second transplant (secondary outcome) between paediatric kidney transplant recipients receiving a 0, 1 or 2 HLA-DR mismatched organ?

Methods:
A systematic review was performed. The PubMed database was used to search for studies concerning HLA-DR mismatches and graft survival in paediatric (living donor and deceased donor) kidney transplantation published from 01/01/1995 to 22/09/2016. The following search term was used: "Kidney Transplantation"[Mesh] AND ("Infant"[Mesh] OR "Child"[Mesh] OR "Adolescent"[Mesh])) AND HLA.

Results:
Of the 641 selected publications, ultimately 12 articles fulfilled the inclusion criteria, covering over 45.000 patients. For 0 HLA-DR mismatches the average graft survival at 5 year was 77.98%, for 1 HLA-DR mismatch 76.03% and for 2 HLA-DR mismatches 69.92%. The odds ratio (OR) for graft loss for 0 vs 1 HLA-DR mismatch was 0.93 [CI 95%, 0.86, 1.00] ($p = 0.06$). The OR for 0 vs 2 HLA-DR mismatches was 0.69 [CI 95%, 0.63, 0.76] ($p < 0.00001$). The OR with 1 vs 2 HLA-DR mismatch was 0.75 [CI 95% 0.69, 0.81] ($p < 0.00001$). Only two studies reported about waiting time for a second transplant. Both agree that the waiting time after a prior 0 or 1 HLA-DR mismatch is not different. The studies did not agree on the waiting time after a prior 2 HLA-DR mismatch kidney, one reported no effect while the other showed a prolongation of the waiting time for a second transplant**.**

Discussion:
Graft survival in paediatric kidney transplant patients receiving a 0 or a 1 HLA-DR mismatched donor kidney is similar, while 2 HLA-DR mismatches has a worse outcome. Furthermore the waiting time for a second transplant after a prior 0 or 1 HLA-DR mismatched kidney is not different. Although 2 HLA-DR mismatched transplants have a lower graft survival, it is unclear whether this represents selection bias, or the effect that this has on a wait for a subsequent transplant.

P0088

Use of C1q or C3d assays in risk assessment before HLAi renal transplantation

Olivia Shaw[1], Louise Howe[1], Nicos Kessaris[2], Lisa Silas[2], Irmen Generalao[2], David Game[2], Anthony Dorling[2], Robert Vaughan[1], Nizam Mamode[2]

[1]Clinical Transplantation Laboratory, Guys Hospital, Viapath, London, UK, [2]Guys and St Thomas NHS Foundation Trust, London, UK

Introduction:

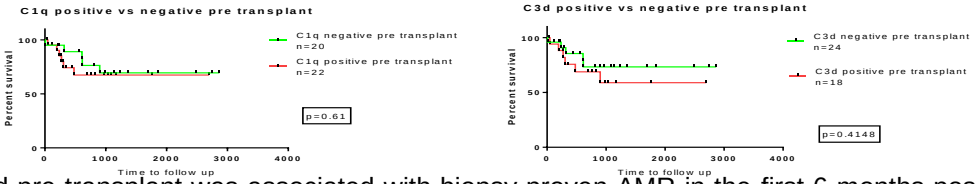
With the continued mixed outcomes of HLA antibody incompatible renal transplantation further identification of potential risk factors pre-transplant is vital to adequately council patients of the risks prior to the decision to proceed.

Methods:

We have retrospectively analysed sera from 42 patients taken pre-treatment for HLAi renal transplantation to assess the ability of the donor specific antibodies to fix C1q (OneLambda) or bind C3d (Immucor), following the manufacturers protocols, and assess their association with long term outcome. Patients were all transplanted with a flow crossmatch reduced to negative following multiple sessions of antibody removal and followed up for a median of 1216 days (range 9 – 3381).

Results:

22/42 patients had C1q positive DSA pre-transplant. 18/42 patients had C3d positive DSA pre-transplant. As shown in the figure below, neither C1q nor C3d pre-transplant were significantly associated with long term outcomes, however the presence of C3d pre-transplant shows a trend towards poorer long term graft survival.



C3d pre transplant was associated with biopsy proven AMR in the first 6 months post transplant with 82% of C3d patients having AMR vs 26% in C3d negative group (p=0.001).

44% of C3d positive patients lost their graft during the course of study vs 29% C3d negative (p=0.35)

Discussion:

The presence of donor HLA specific antibody with the ability to trigger C3d deposition pre-transplant is better associated with episodes of early AMR than C1q and may be linked to poorer long term graft survival. The addition of C3d testing to the pre-transplant repertoire could assist in donor selection, identification of higher risk antibody specificities and recipient risk assessment.

P0089

Virtual crossmatching reduces the Cold Ischaemic Time for local, but not imported kidneys

B. Sean Carey[1], Kirsty Russell[1], Andrew Connor[1], Anthony Poles[1,2]
[1]Derriford Hospital, Plymouth, UK, [2]NHSBT, Filton, UK

Introduction:

To reduce Cold Ischaemic Times (CIT), virtual crossmatching (VxM) was introduced at our centre in 2011. At this time the majority (74%) of deceased donor transplants were from local donors. Following the change in policy for allocation of non-heart beating donor kidneys (DCDs), only 36% of kidneys are now allocated locally and we were concerned that CIT would be increased by prolonged travel times.

Methods:

Deceased donor kidneys (DBD and DCD) transplanted in this centre from November 2009 to March 2015 were included in the study.

We analysed CIT for patients in receipt of a kidney using VxM compared to non-VxM and whether there was a difference between local compared to imported donor kidneys. Where both kidneys were used at this centre we also examined if there was an effect of the first donor CIT on the second transplant times.

The effect of CIT on serum creatinine and estimated Glomerular Filtration Rate (eGFR) at six and twelve months post-transplant were also analysed.

Results:

The median CIT for local donor kidneys (DCD and DBD) following VxM was 11.7hr compared to 15.5hr for non-Vxm (P=0.004). This benefit was lost for imported kidneys (16.6hr vs 17hr, p=0.8, ns).

Where both kidneys from the same donor were offered to this centre, the advantage of VxM in shortening the time to theatre for the first transplant tended to enable the second kidney to be transplanted more quickly (median 16.4hr vs 18.1hr, p=0.11 ns)
We were unable to demonstrate any benefit of reduced CIT on eGFR, creatinine or graft function at six or twelve months.

Discussion:

Virtual crossmatching continues to result in reduced CIT for kidneys from local donors. The reason why this benefit is lost for imported kidneys is of concern and will be investigated.

P0090

Investigation into the significance of antibodies to denatured HLA Class I antigen on renal transplantation

Mohammed Waqidul Islam[1,2], Olivia Shaw[1,2], Robert Vaughan[1,2]
[1]*King's College London, London, UK,* [2]*Viapath, Guy's Hospital, London, UK*

Introduction:

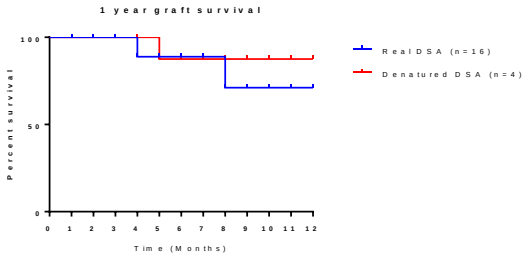
It has become apparent that there is lack of correlation between HLA Class I specific antibody results using Luminex beads and cross-match results. This has led us to question whether these antibodies are a real contraindication to transplantation or bind to epitopes expressed on the recombinant single antigen HLA class I beads via mis-folding.

Methods:

80 serum samples from highly sensitised patients were tested using single antigen HLA class I beads which had been denatured by acid treatment. This treatment dissociates the β2-microglobulin, leading to mis-folding and the expression of unnatural cryptic epitopes.

Results:

Significant differences were seen in the cRF% of patients sera (64%) with antibodies detected to hidden epitopes compared to normal beads. When these cryptic specificities were removed from the patients' antibody profile the correlation with the cross-match result was better. The chance of a transplant increased for those on the transplant waiting list. This was not significant due to small numbers and other factors which may have influenced the offer of a transplant.



Discussion:

The specificities that I have detected on denatured beads have been identified in previous studies. These antibodies may not be significant to the outcome as a trend for better one-year graft survival was seen in patients with denatured DSA compared to real DSA. There could be a negative impact of these specificities as patients are potentially being incorrectly categorised with a high cRF% reducing their chances of being offered a transplant. The presence of antibodies to denatured HLA apparently has no influence on graft survival.

P0091

Variability in CNI metabolism in Africans-the need for individualized immunosuppression: a case example

Ngozi Aikpokpo[1,2], Ahmed Halawa[1], Ajay Sharma[1]
[1]University of Liverpool, Liverpool, UK, [2]Babcock University Teaching Hospital, iIisan/Ogun State, Nigeria

Introduction:

The ideal immunosuppressive agent in Africans is unknown. Calcineurin inhibitors (CNIs) are often included in the immunosuppressive regimen.

CNIs are metabolized by the cytochrome P450 enzyme. However African variations in expression of these P450 genes affect the metabolism of the drug and its blood levels. The choice of immunosuppressive agent should therefore be individualized. This need is illustrated in a 48-year old Nigerian woman.

Case report:

A 48year old Nigerian woman with end stage renal failure secondary to diabetes mellitus had a live donor transplant 16months ago in another centre. Induction therapy was with basiliximab. Tacrolimus, mycophenolate and prednisolone as maintenance. Post op period was uneventful and despite low tacrolimus trough levels (<2.0ng/ml) serum creatinine remained stable at about 1mg/dl. A year after transplant the patient was transferred to our centre with progressive rise in creatinine 3mg/dl and proteinuria. Tacrolimus doses were increased. Adherence and no significant drug-drug interactions were ensured. Despite these trough levels remained <2.0mg/dl and diabetic control was more difficult. The patient was switched to cyclosporine and C2 levels were 1101ng/ml with consequent reduction of the creatinine values to baseline. Proteinuria responded well to Lisinopril with no effect on serum creatinine.

Discussion:

This case highlights the difficulties in managing transplant patients in resource-limited settings. Transplant costs are borne entirely by the patient. Resources were wasted in the use of tacrolimus for several months despite persistently low trough levels. This led to inadequate immunosuppression and consequent rise in the creatinine with proteinuria. A switch to cyclosporine reversed this trend hence no biopsy was required. It has been shown in several studies that Africans require a higher dose of CNIs, adding CYP450 gene assays to the pre-transplant assessment would help tailor drug regimen to individualized patients. This can be done by collaborations with centres that have more available resources.

P0092

Everolimus and prednisolone alone as maintenance immunosuppressive treatment in a patient receiving chemotherapy for metastatic cancer colon

Michael Habeeb[1], Maher Ramzy[1], Ajay Sharma[2], Ahmed Halawa[2]
[1]*Misr Kidney Center, Cairo, Egypt,* [2]*Liverpool University, Liverpool, UK*

Introduction:
Immunosuppressive medications have several adverse effects such as infections, cardiovascular accidents and malignancies. The incidence of gastrointestinal malignancies is higher in transplant recipients in comparison with general population. Malignancy is considered one of the leading causes of death along with cardiovascular accidents and infections. Conversion to everolimus is considered in patients developed malignancy specially skin cancers.

Methods:
A 64-year-old male patient with chronic kidney disease due to renal amyloidosis secondary to familial Mediterranean fever (FMF) with no family history of any cancer underwent living non-related kidney transplantation. 7 months after transplantation he developed cancer colon for which extended left hemicolectomy was done. Histological analysis of the specimen revealed adenocarcinoma grade IIB, PET scan revealed liver metastases, the immunosuppressant medications was modified as follow everolimus 0.75 mg twice daily and prednisolone 20 mg which reduced gradually to 10 mg.

Results:
Minimization of immunosuppressants is needed in recipients who developed malignancy, in our case the patient was kept only everolimus 0.75 mg twice daily and prednisolone 10 mg daily for 28 months till now with good graft function without any rejection episodes, with stabilization of liver metastases.

Discussion:
Kasiske et al. concluded that, there is two-fold higher risk of colorectal carcinoma (CRC) development in the first year after transplantation, which increases to 2.2-fold times higher risk after the third year compared to the general population**.** The duration and intensity of immunosuppression are directly related to the likelihood of developing malignancy post-transplantation**.** Therefore, modification of immunosuppressant should be carefully done balancing between risk of graft rejection with decreased immunosuppressant and progression of the malignancy as a result of more aggressive immunosuppressive regimen**.**

Conclusion:
According to our knowledge, it is the first case in which everolimus and steroid alone are successfully used, large scale studies are needed.

P0093

Bortezomib treatment in a renal transplant patient with combined rejection and myeloma: One year of follow up

Farid Ghalli[2,1], Ajay Sharma[1], Ahmed Halawa[1]
[1]*University of Liverpool, Liverpool, UK,* [2]*University Hospital of Wales, Cardiff, UK*

Introduction:
Treatment with the proteasome inhibitor (PI) bortezomib was shown to be effective in reducing light chain production and giving an opportunity for recovery in multiple myeloma. Recently, regimens based on (PI) provided promising results in managing antibody mediated rejection (AMR). This case is unique being a renal transplant patient with both diagnoses of myeloma and rejection with biopsy proof of myeloma kidney effect.

Methods:
A 50 years old lady who had a cadaveric renal transplant after cardiac death in 2011. Baseline Creatinine at end of 2014 was 220- 240 mol/l and eGFR 19-21 ml/min. In 2015, gradual deterioration happened and serum creatinine peaked up to a peak of 479 mol/l consistent with eGFR of 8 ml/min. Renal Biopsy at Feb 2015, suggested antibody-mediated rejection. Biopsy supported that kappa light chain was contributing to renal injury although this was not a disease-specific pattern. Bone marrow biopsy showed light chain myeloma. Patient was treated with 4 cycles of bortezomib (Velcade®) (Millenium), thalidomide and dexamethasone (started end of July 2015) with a partial response and continued on Velcade® maintenance till the 8th cycle.

Results:
This regimen stabilised her myeloma parameters. Serum creatinine plateaued with the last reading was 317 mol/l and eGFR 13 ml/min at end of July 2016 (i.e. after 3 months of the last dose of Velcade® which was at end of April 2016) .

Discussion:
In our case bortezomib (Velcade®) showed an effect not only on improving the kidney function but also to maintain serum creatinine over the one year of management and follow up. After three months of stopping Velcade® renal function remained stable. This drug was of double benefit as it helped to stabilize myeloma as well. In spite of the partial response, it helped in keeping patients away from dialysis even after discontinuation of Velcade® .Side effect profile was no different from non transplant patients with good tolerance.

P0094

Over-exposure of obese patients with standard body-weight based tacrolimus dosing

Viren Ahluwalia, Iain MacPhee
St George's, University of London & St George's University Hospitals NHS Foundation Trust, London, UK

Introduction:

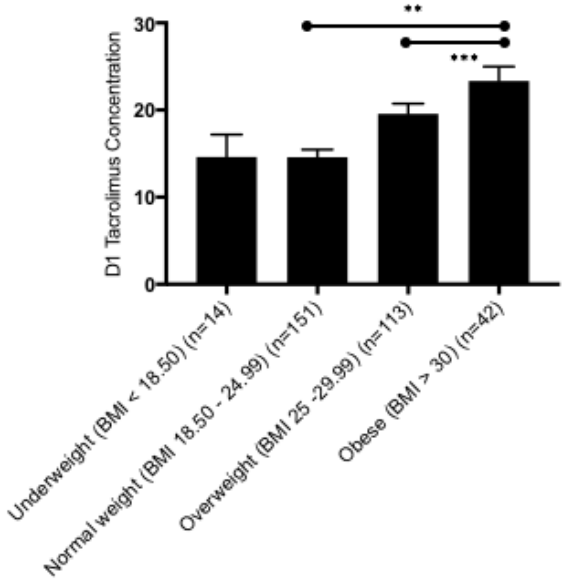
With standard body-weight based dosing, tacrolimus blood concentrations within the therapeutic range on the first blood concentration measurement are only achieved in around 30% of renal transplant recipients. Dosing according to body weight assumes a linear relationship between tacrolimus distribution and measured weight, which may not apply to obese individuals. This study assessed the association between patient Body Mass Index (BMI) and tacrolimus blood concentrations immediately after renal transplantation.

Methods:

The study had ethical approval and all patients gave written informed consent. Initial tacrolimus total daily dose was 0.15-0.2 mg/kg, or 0.3 mg/kg for Black patients (n=36). Blood concentrations were measured by immunoassay on day 1 to 3 after transplantation (first measurement). Height and weight at the time of transplantation were used to calculate BMI.

Results:

A total of 320 patients had complete data to be included in this study. Kruskal-Wallis analysis comparing different BMI categories with tacrolimus concentration found general differences between all BMI populations (P<0.0001). Post-hoc analysis found normal weight individuals had a lower tacrolimus concentration compared with overweight patients (P=0.0038) and obese patients (P=0.0009).



Spearmans correlation analysis comparing BMI against tacrolimus concentration found a significant positive correlation (r=0.36, 95% C.I. 0.21 to 0.48, p<0.0001).

Discussion:

Obese patients tend to be over-exposed to tacrolimus with standard body-weight based dosing. It may be more appropriate to use ideal body weight than actual weight when dosing patients with tacrolimus.

P0095

Incidence of CMV infection in Alemtuzumab vs. Basiliximab based immunosuppression regimes in Simultaneous Pancreas and Kidney (SPK) transplantation

Aditya Kanwar, Tom Bradish, Aimen Amer, Rohan Thakkar, Rodrigo Figueiredo, George Hawche, Jeremy French, Colin Wilson, Gourab Sen, David Talbot, Derek Manas, Steven White
Freeman Hospital, Newcastle upon Tyne, UK

Introduction:

Alemtuzumab is (anti CD52 antibody) a potent lymphocyte depleting induction agent that allows steroid avoidance after SPK transplantation. We introduced Alemtuzumab for all our SPK recipients from March 2008 onwards along with a changed immunosuppression regime of Tacrolimus and MMF (from day 7) alone. Prior to this, we used Basiliximab along with our standard immunosuppression regime of a CNI, MMF and steroids. Some studies have associated higher rates of CMV viraemia with T-cell depleting agents. Our study aimed to compare the 2 different regimes and assess rates of CMV infection.

Methods:

We performed a retrospective analysis of all our SPK transplant patients between 2003 -2015. Information was gathered using electronic records and patient notes. Data was analysed using Microsoft Excel 2011 and SPSS 23. Fischer exact test was used to compare the groups.

Results:

A total of 80 SPK transplants were performed. Patients were divided into 2 groups, Alemtuzumab (n=49) and Basiliximab (n=30). One patient was lost to follow up. 7 patients (14.2%) in the alemtuzumab group developed CMV infection at mean of 7.7 months (range 1.5 – 11 months) since transplantation. 3 patients (10%) in the basiliximab group developed CMV infection (at 6 months, 11 months, 5 years) post-transplant (p=ns). Of those with CMV, 2 patients died (including 1 pancreatic graft loss) in the Alemtuzumab group and 1 (with a functioning graft) in the Basiliximab group.

Discussion:

Alemtuzumab induction can be safely used as a potent induction agent without any significantly increased risk of CMV infection when compared to Basiliximab.

P0096

How much eculizumab should be replaced after antibody removal for treatment of antibody-mediated rejection?

Anna Maria Adamusiak[1], Bynvant Sandhu[1], Miriam Manook[1], Olivia Shaw[2], Robert Vaughan[2], Irmen Generalo[1], Nicos Kessaris[1], Anthony Dorling[1], Nizam Mamode[1]

[1]Department of Nephrology and Transplantation, Guy's Hospital, London, UK, [2]Clinical Transplantation Laboratory, Guy's Hospital, London, UK

Introduction:

Antibodies directed against either ABO blood group or HLA antigens can damage endothelial cells in the renal allograft by activation of the complement cascade. Eculizumab inhibits complement protein C5 preventing formation of the membrane attack complex and protects the graft from the deleterious effect of circulating antibody. Eculizumab is being increasingly used in the treatment of antibody-mediated rejection (AMR) in combination with antibody removal. A supplementary dose of eculizumab is recommended after each plasma exchange procedure to ensure a therapeutic concentration. There are no studies evaluating the need for eculizumab replacement after double filtration plasmapheresis (DFPP) and immunoadsorption (IA).

Methods:

We have measured levels of eculizumab before and after DFPP and Therasorb IA in a patient treated for antibody-mediated rejection. Drug levels over time were calculated using the formula C1 = C0*e^(-log/T*t), where C1 = concentration after time t, C0 = initial concentration, T = half-life.

Results:

Eculizumab concentration decreased from 265.3 ug/mL to 114.8 ug/mL after DFPP and from 168.7 ug/mL to 109.9 ug/mL after Therasorb IA (43.7% and 65.1% of the concentration prior to antibody removal procedure, respectively). Taking into consideration the half-life of eculizumab (on average 261 – 271 hours), in both cases a concentration higher than 50 µg/mL (recommended concentration in the treatment of aHUS) would persist for 12 days (313 – 325 and 297 – 308 hours respectively). A supplementary dose of 600 mg was given in both cases with peak levels after 1 hour of infusion of 347.9 ug/mL and 257.2 ug/mL respectively. A concentration higher than 50 µg/mL would last for at least 26 days (730 – 758 and 617 – 649 hours respectively).

Discussion:

Even though Eculizumab concentration decreases during DFPP and Therasorb IA, a supplementary dose is probably not necessary after a single antibody removal procedure. It should be consider if two or more antibody removal sessions are required.

P0097

The escalating impact of hepatocellular carcinoma on UK liver transplantation; an analysis of the United Kingdom Liver Transplant database

David Wallace[1,2], Susan Charman[1,2], Abid Suddle[3], Nigel Heaton[3], Jan van der Meulen[1,2]
[1]Department of Health Services Research and Policy, London School of Hygiene & Tropical Medicine, London, UK, [2]Clinical Effectiveness Unit (CEU), Royal College of Surgeons of England, London, UK, [3]Institute of Liver Studies, King's Healthcare Partners at Denmark Hill campus, Kings College Hospital, London, UK

Introduction:
The exponential rise in the incidence and mortality of hepatocellular carcinoma in the UK is placing a huge demand on liver transplantation services.

Methods:
The United Kingdom Liver Transplant Audit database was explored (1994-2012) to assess the frequency of adults receiving a first elective liver transplant for hepatocellular carcinoma, hepatitis C, hepatitis B, primary sclerosing cholangitis, primary biliary cirrhosis, alcoholic liver disease, autoimmune liver disease, metabolic liver disease and 'other' indications. Graft and patient survival were estimated for all indications and across four successive eras from 1994-2012. Cox regression analysis was calculated to compare survival across all indications for liver transplantation with HCC used as the reference (HR = 1).

Results:
Hepatocellular carcinoma was the fastest growing indication for transplantation and now accounts for 22.5% of all UK liver transplants. Post-transplantation survival for all primary liver diseases improved across the study period. HCC had the poorest overall five and ten-year graft and patient survival (5-year; 60.5% and 63.5% respectively, 10-year; 44.3% and 47.3% respectively) and the worst comparative risk-adjusted mortality (all other indications HR < 0.8).

Discussion:
Strategies to increase the donor pool and decrease the demand are vital to improve the capacity of UK liver transplantation services to cope with the escalating burden of HCC.

P0098

The impact of Acute Kidney Injury on early mortality and long term renal function following Orthotopic liver transplantation

Francis Robertson[1], Mark Harber[2], Barry Fuller[1], Brian Davidson[1,2]
[1]University College London, London, UK, [2]Royal Free Hospital, London, UK

Introduction:
Acute Kidney Injury(AKI), a common complication post Orthotopic Liver Transplantation(OLT) is associated with increased inpatient mortality and length of stay. Recent small animal studies show that even if renal function is normalized, AKI can result in progressive fibrosis of the renal parenchyma leading to end stage renal disease. Understanding the association between AKI and long term renal function following OLT will allow clinical scientists to focus efforts at treating disease when it may be reversible.

Methods:
A single centre prospectively collected liver transplant database was analysed between 1988 and 2012 to allow long term follow up analysis. Creatinine levels were measured pre-operatively, at days 1,3,7,15, 30 and 90 post-operatively and annually thereafter and were documented along with donor, recipient and transplant variables. AKI was calculated according to the AKIN criteria of an increase in creatinine levels to 150% from baseline within 3 days post-operatively. A creatinine ratio was calculated by dividing each measurement by the pre-operative value. Patients requiring pre-operative renal support or with a pre-operative creatinine >200µmol/L were excluded to negate the bias of pre-existing renal impairment. Patients were followed up till death or annually.

Results:
1152 patients(592M/557F) were analysed. Median length of follow up was 7 years. Median recipient age was 50 yrs and median donor age was 43 years. 1119 patients(97%) received a DBD graft. 597 patients(52%) developed a post operative AKI, 350 diagnosed within the first 24 hours. Patients who developed an AKI had lower median pre-op creatinine levels(77 vs 91, $p<0.001$) but the recipient cohorts were otherwise well matched including MELD score. The development of AKI was associated with significantly lower 30(5% vs 8%, $p=0.03$) and 90 day mortality(6% vs 13%, $p=0.001$). Patients who developed early post-op AKI had significantly worse annual creatinine ratios maintained up to 10 years. Long term renal function was worse following severe and/or prolongued AKI.

Discussion:
Patients who develop AKI post OLT have significant and sustained impaired renal function. Strategies to protect the kidneys during OLT may improve short and long term renal function and therefore have significant benefits to improving patients' quality of life and reducing health care costs.

P0099

The effect of BMI extremes on survival and graft vascular thrombotic complications after liver transplantation: A single-centre retrospective study

Emmanouil Giorgakis[1,2], Michele Tedeschi[1,3], Eliano Bonaccorsi-Riani[1,4], Shirin Elizabeth Khorsandi[1], Hector Vilca-Melendez[1], Krishna Menon[1], Wayel Jassem[1], Andreas Prachalias[1], Parthi Srinivasan[1], Nigel Heaton[1]
[1]King's College Hospital, London, UK, [2]Mayo Clinic, Phoenix, USA, [3]Hôpital Paul Brousse, Paris, France, [4]Universite Catholique de Louvain, Brussels, Belgium

Background:
The effect of BMI and its extremes (BMI<18.5 or >35 kg/m2) on liver transplant (LT) outcome is yet to be defined. Aim of this study was to analyse the effect of BMI extremes (underweight, morbidly obese and severe morbidly obese) on post-LT mortality, graft loss, primary non-function (PNF) and graft vascular and biliary complications in a single-center cohort.

Methods:
Data was retrieved from a prospectively maintained database (n=2115, time period 2/2004-9/2015) on adult recipients (>16 years). The cohort was stratified into six BMI classes: BMI ≤18.5, BMI 18.5-24.9, BMI 25-29.9, BMI 30-34.9, BMI 35-39.9 and BMI≥40kg/m2. For continuous variables, comparisons were performed via independent t-testing or one-way analysis of variance. Categorical variables were compared via Pearson's χ^2. The graft and patient survival (primary outcomes) were calculated and compared across the BMI groups with Kaplan-Meier analysis. The effect of BMI categories on graft vascular and biliary complications was assessed via logistic regression. The BMI effect on post-LT thrombotic events was corrected to recipient age group.

Results:
Average BMI was 24.3 kg/m2, underweight and obesity prevalence in recipients was 3.1% and 27.9% respectively. Average MELD was similar across groups. LT etiology varied among BMI groups, with NASH prevalence increasing with rising BMI, dominating in BMI≥35kg/m2. Autoimmune causes of liver failure were prevalent among underweight adults. Primary outcomes, PNF and biliary complications were independent of BMI. However, BMI extremes showed a tendency for inferior long term, graft and patient survival. Risk of hepatic artery thrombosis (HAT) tripled in underweight adults.

Conclusions:
Graft and patient survival are independent of BMI. BMI extremes are not a contraindication for LT after appropriate recipient selection. Morbid obesity and underweight status in adults are linked to inferior long-term survival. Underweight status is an independent risk factor for HAT.

P0100

Ex-situ arterial reconstruction during normothermic perfusion of the liver: Taking surgical technique to the next level

David Nasralla[1], Paolo Muiesan[2], Hynek Mergental[2], Andrew Butler[3], Chris Watson[3], Peter Friend[1], Thamara Perera[2]

[1]Nuffield Department of Surgical Sciences, University of Oxford, Oxford, UK, [2]Queen Elizabeth Hospital, Birmingham, UK, [3]Addenbrooke's Hospital, Cambridge, UK

Introduction:

Approximately 30% of donor livers will have aberrant hepatic artery (HA) anatomy, with many cases requiring reconstruction either during cold preservation or in situ in the recipient after establishing the main arterial inflow. Normothermic machine perfusion (NMP) involves perfusing a liver with oxygenated blood at 37^{o}C in a heparinised circuit. It also offers a medium where a surgical intervention can be evaluated ex-vivo prior to implantation. We report the first case series of ev-vivo NMP arterial reconstruction.

Methods:

As part of the COPE RCT of NMP vs static cold storage in liver transplantation, five livers required hepatic artery reconstruction which was performed ex-vivo during NMP.

Results:

A description of the important features of the five cases is shown in table 1 below.

Donor details				Preservation details		Recipient details				Post-operative details		
Age	Type	ET-DRI	Arterial anatomy	Total pres time (mins)	Details of reconstruction	Age	Cause of liver failure	MELD	*In-vivo* HA anastom time *(mins)*	Peak AST (IU/L)	ITU stay (days)	Hospital admission (days)
72	DBD	2.11	CHA + aRHA from SMA	1167	RHA to GDA	53	PBC	13	28	197	2	7
73	DCD	3.09	aRHA from SMA	685	RHA to SA	58	HCC	9	36	1191	4	9
41	DBD	1.38	aRHA from SMA	469	RHA to SA	39	PCLD	9	40	462	2	5
57	DBD	1.70	aRHA from SMA	1277	RHA to SA	65	HCC	11	52	173	1	7
55	DBD	1.51	aRHA from SMA (cut short)	580	IA to RHA and CHA	43	ALD	21	27	144	7	15

Table 1: Summary of details for ex-vivo arterial reconstruction cases. Key: ET-DRI - Euro-transplant Donor Risk Index; CIT - cold ischaemic time; CHA - common hepatic artery; aRHA - aberrant right hepatic artery; SMA - superior mesenteric artery; SA - splenic artery; GDA – gastroduodenal artery; IA – iliac artery; PBC – primary biliary cirrhosis; HCC – hepatocellular carcinoma; PCLD – poly-cystic liver disease; ALD alcoholic liver disease; MELD – model of end stage liver disease

There were no cases of cholangiopathy or vascular complications reported at 6 months.

Discussion:

Ex-vivo HA reconstruction during NMP is safe, feasible and, from our early experience, does not appear to compromise outcomes or increase the risk of vascular complications. This should represent only the first step in a broader exploration of the potential of ex-vivo NMP surgery.

P0101

Simultaneous Liver Transplantation (OLTx) combined with Thoracic/Cardiac surgery: Is it feasible?

Aditya Kanwar, Steven White, Rohan Thakkar, Aimen Amer, Rodrigo Figueiredo, Asif Hasan, John Dark, Steven Masson, Mark Hudson, Jeremy French, Colin Wilson, Gourab Sen, David Talbot, Derek Manas
Freeman Hospital, Newcastle upon Tyne, UK

Introduction:

Experience of simultaneous liver transplant combined with thoracic/cardiac surgery in the UK is extremely limited. There are a number of reasons for this but with continuing improvements in the technical aspects of surgery, immunosuppression/graft survival and post-operative care the indications are likely to expand. We present our experience of simultaneous liver transplants combined with thoracic/cardiac surgery.

Methods:

A retrospective review of all such procedures carried out within our unit since 1995 were evaluated from available medical notes and electronic records.

Results:

6 (4M:2F age range 17-56 yrs) patients underwent combined procedures. A variety of procedures were performed including Simultaneous liver and lung (SiLivLunTx) for cystic fibrosis (n=2), Simultaneous liver and heart (SiLivHTx) (n=2) (for familial hypercholesterolemia n=1 and cardiogenic cirrhosis following a previous Fontan's procedure n=1). A further 2 patients had liver transplantation combined with either an aortic valve replacement (n=1) or CABG (n=1). Two patients received liver re-transplants one for hepatic artery thrombosis at day 6 and another after 14 years for ductopaenic rejection who also required a pacemaker after a cardiac arrest following SiLivHTx. 2 patients required endoscopic management of biliary strictures. Patient mortality at 30 days was 0%. Follow up ranges from 18 mths to 20 years during this time 5/6 patients are currently alive and well, one patient who received SiLivCABG died after 8 years due to cardiac complications.

Discussion:

Despite the complexities and considerable risks involved, along with overcoming the logistics of performing 2 major procedures in a single centre, simultaneous liver transplants performed with major thoracic/cardiac procedures including either lung or heart transplantation excellent long-term results can be achieved with zero inpatient mortality even if immediate re-transplantation is needed.

P0102

The use of arterial embolization to facilitate multivisceral transplantation

Neil Russell[2], Lisa Sharkey[2], Fay Gilder[2], Andrew Butler[1], Dunecan Massey[2], Irum Amin[1], Teik See[2]
[1]*University of Cambridge, Cambridge, UK,* [2]*Addenbrookes Hospital, Cambridge, UK*

Introduction:

Multivisceral transplantation is a very challenging procedure requiring extensive enterectomy in the context of multiple previous surgical procedures and often with severe portal hypertension. This is commonly complicated by severe blood loss resulting in cardiovascular and haematological instability and life threatening metabolic disturbance.

We have recently performed 5 intestine containing multivisceral transplants utilising arterial embolization either prior to or following the commencement of surgery.

Methods:

Arterial embolization of either both the coeliac axis and superior mesenteric arteries or the SMA alone was performed in theatre by the interventional radiology team. This was undertaken following anaesthesia and line placement either prior to the commencement of surgery or in one case once the decision to progress to liver small bowel transplant was made.

The time for embolization, blood loss, volume of blood products required intraoperatively, highest intraoperative lactate and lowest base excess were all measured and are compared with a similar group of patients who did not undergo embolization.

Results:

There was a dramatic reduction in blood loss and blood product requirenment in the embolization group. There was an increase in time from cessation of anaesthesia to knife to skin time although this did not overall affect the duration of the procedure.

There has been a substantial improvement in haemodynamic instability intraoperatively reflected in the degree of acidosis experienced and the need for inotrope support.

Discussion:

The introduction of arterial embolization as an adjunct in multivisceral transplantation has had a major impact on the intraoperative course for this challenging surgical procedure.

P0103
Stoma reversal in small bowel transplant patients

Neil Russell[2], Lisa Sharkey[2], Jeremy Woodward[2], Charlotte Rutter[3], Irum Amin[1], Andrew Butler[1]
[1]University of Cambridge, Cambridge, UK, [2]Addenbrookes Hospital, Cambridge, UK, [3]Southampton Hospital, Southampton, UK

Introduction:
Transplants containing small bowel are complicated by high rates of rejection. Diagnosis of rejection is complicated by limited availability of serological markers. The consequences of rejection and its subsequent treatment are severe and life threatening. As a result a stoma is usually fashioned to provide ready access to the small bowel for biopsy. Small bowel biopsy is the gold standard for the diagnosis of rejection. Patients are keen for their stomas to be reversed in most cases (where anatomically possible). We offer stoma reversal to patients post small bowel transplantif there have been no episodes of rejection for at least 6 months.

Methods:
We retrospectively reviewed the notes of 16 patients who had undergone stoma reversal following transplantation of a small bowel containing graft. The notes were reviewed to look for evidence of complications at the time of reversal and for development of rejection after reversal. In addition the impact of the reversal on fluid balance and renal function was examined.

Results:
Sixteen patients underwent stoma reversal over the past 5 years. Seven had received a full multivisceral transplant, four a liver and small bowel transplant, two a modified multivisceral transplant and three a small bowel transplant.

There was one episode of post operative bleeding, one episode of transplant related thrombotic microangiopathy requiring immunosupression switch and one chest infection. There were no episodes of anastamotic leaks. One patient developed rejection following stoma reversal requiring pulsed methyl prednisolone. There was no consistent improvement in renal function post reversal.

Discussion:
Stoma reversal post intestinal transplant is safe and well tolerated. It results in a good functional outcome and patient satisfaction. In our experience it has not resulted in a consistent improvement in renal function.

P0104
GVHD in small bowel transplant patients

Neil Russell[2], Sarah Peacock[2], Steve Middleton[2], Andrew Butler[1], Charlotte Rutter[3], Craig Taylor[2], Dunecan Massey[2], Lisa Sharkey[1]
[1]University Department of Surgery, University of Cambridge, Cambridge, UK, [2]Addenbrookes Hospital, Cambridge, UK, [3]Southampton Hospital, Cambridge, UK

Introduction:
Graft versus host disease (GVHD) is a feared complication of solid organ transplantation the management of which is often difficult and frequently unsuccessful. Because of the volume of lymphoid tissue transplanted with the small bowel, intestinal transplantation is associated with a high rate of GVHD. We describe our experience of 5 patients with GVHD and one with significant chimerism.

Methods:
A retrospective review of the notes of patients receiving an intestinal containing graft over the past 9 years in our institution was undertaken.

Results:
Five patients out of 73 transplants developed GVHD and one patient had macrochimerism (up to 50%). All patients with GVHD developed a characteristic skin rash and two developed bone marrow failure. The patient with chimerism developed a significant and continuous fever and bone marrow failure but no rash. In three patients immunosuppression was enhanced with pulsed methyl prednisolone, basiliximab and campath. In 3 patients tacrolimus was stopped.
One patient had a non liver containing graft (but did receive a spleen as part of his transplant), 4 had full multivisceral transplants and one had a liver small bowel transplant. One of the three patients in whom immunosupression was enhanced survived and the other two died of bone marrow failure.

In two patients with GVHD, tacrolimus was stopped, chimerism was lost and they are alive 7 months and 35 months post transplant. The patient with macrochimerism had tacrolimus discontinued and chimerism was lost. They died of PTLD at 4 months post transplant.

Discussion:
The treatment of chimerism in intestinal containing transplants is difficult but we would advocate the minimisation of immunosuppression together with enhanced monitoring for rejection.

P0105
Combined liver and kidney transplantation: a single centre experience

Samuel Turner, Neal Banga, Bimbi Fernando
Royal Free University Hospitals NHS Trust, London, UK

Introduction:
Combined liver kidney transplantation (CLKT) can improve liver allograft and overall survival in patients with end stage liver and renal failure. We aimed to analyse our experience and confirm that there is still a role for this procedure in modern transplantation.

Methods:
A retrospective analysis of patient notes and electronic records was performed. All CLKT performed at a single centre were included.

Results:
A total of 31 CLKT were performed in 30 patients at a single centre over a 26 year period. In 15 the indication was a metabolic disease, principally methylmalonic acidaemia and primary oxalosis; of the remainder 6 had alcoholic liver disease and 3 had hepatitis C with associated renal conditions, 2 had polycystic disease and 3 were re-transplants. Mean donor age was 37 years (7-71); when separated into subgroups prior to 2010 and from 2010 onwards, the later group were significantly older (43 vs 34 years). 2 donors were DCD, both performed in 2013. Mean liver cold ischaemia time was 582 minutes and mean kidney CIT was 799 minutes. 22 patients remain alive, 20 patients have functioning CLKT liver allografts, and 18 patients have functioning CLKT renal allografts after a median follow-up of 57 months (7 days-25 years). Causes of death were multiple organ failure (6), septicaemia (1) and mesenteric infarction (1). Causes of liver allograft failure leading to re-transplant were vascular thrombosis (2), primary non-function (1) and ductopenic rejection (1). Causes of renal allograft failure were primary non-function (1), DWFG (6), cellular rejection (2), sepsis (2) and cessation of immunosuppression (1). There were 3 renal delayed graft functions; 2 of these and the only PNF were in the older post 2010 subgroup.

Discussion:
CLKT is an appropriate and safe treatment for select group patients. Ischaemia times, complications and outcomes are similar to transplanting either organ alone. The recent increase in renal delayed graft function reflects an increasing reliance on older donors. Liver and kidney teams need to offer a combined approach to management of these patients in order to achieve the best outcomes.

P0106

Live donor knowledge of provided information: A prospective nationwide inventory study

Kirsten Kortram[1], Emerentia Spoon[1], Sohal Ismail[1], Daan Nieboer[1], Frank d'Ancona[2], Maarten Christiaans[3], Ruth Dam[4], Sijbrand Hofker[5], Arjan Hoksbergen[6], Karlijn Van der Pant[7], Raechel Toorop[8], Jacqueline Van de Wetering[1], Jan IJzermans[1], Frank Dor[1,9]

[1]Erasmus MC University Medical Center, Rotterdam, The Netherlands, [2]Radboud University Medical Center, Nijmegen, The Netherlands, [3]Maastricht University Medical Center, Maastricht, The Netherlands, [4]Leiden University Medical Center, Leiden, The Netherlands, [5]niversity Medical Center Groningen, Groningen, The Netherlands, [6]VU Medical Center, Amsterdam, The Netherlands, [7]Academic Medical Center, Amsterdam, The Netherlands, [8]Utrecht University Medical Center, Utrecht, The Netherlands, [9]Imperial College Renal and Transplant Centre, London, UK

Introduction:

Informed consent is mandatory for every (surgical) procedure, but is even more important when it comes to living kidney donors, undergoing surgery for the benefit of others. Donor education, leading to informed consent, needs to be carried out according to certain standards. Informed consent procedures for live donor nephrectomy vary per center, even per individual healthcare professional. By assessing the information donors need to know, to prepare them for the operation and convalescence, the basis for a standardized, uniform surgical informed consent procedure for live donor nephrectomy can be created.

Methods:

Donor knowledge of the procedure and postoperative course was prospectively evaluated by means of pop quizzes in a multicenter national study. All potential donors who were seen for the first time at the Live Donor Clinic (Cohort A) completed a pop-quiz about the details of the donation procedure, prior to receiving any information. A second group of donors completed the same pop-quiz on the day of admission for donor nephrectomy (Cohort B). The primary endpoint was donor knowledge. Secondary endpoints were donor satisfaction, and current informed consent practices in the different centers.

Results:

A total of 604 pop-quizzes were completed; 378 in Cohort A and 226 in Cohort B. Average donor score was 6.9 out of 25 (±3.9, range 0-18) in Cohort A and 10.4 (±2.8, range 0-17.5) in Cohort B. Donors generally scored best on duration of admission and convalescence, and worst on long-term complications. Younger donors, donors with a higher educational level and those who were registered as deceased donors scored higher in Cohort A, only donors who were registered as deceased donors scored higher in Cohort B. Donors felt relatively well prepared for surgery after receiving all information: 8.3 (±1.3) out of 10, and average postoperative satisfaction with the informed consent procedure was 8.1 out of 10 (±1.6, range 0.6-10).

Conclusion:

Donor knowledge of the procedure and postoperative course improves during the informed consent process but is still low. Long-term complications deserve more attention during the preoperative educational process of living kidney donors. Incentives to standardize the informed consent procedure will further improve donor knowledge and satisfaction, and will benefit consult efficiency at the outpatient clinic.

P0107

Donor knowledge of provided information during the informed consent process for live donor nephrectomy

Kirsten Kortram[1], Emerentia Spoon[1], Caspar Looman[2], Hendrikus Kimenai[1], Jan IJzermans[1], Frank Dor[1,3]
[1]Department of Surgery, Division of HPB&Transplant Surgery, Erasmus MC University Medical Center, Rotterdam, The Netherlands, [2]Department of Public Health, Erasmus MC University Medical Center, Rotterdam, The Netherlands, [3]Imperial College Renal and Transplant Centre, London, UK

Purpose:
To gain insight in the surgical part of the informed consent procedure in the largest national kidney transplant center; to assess donor knowledge regarding perioperative details and events and to determine the best design and set-up for the nationwide study on informed consent in live donor nephrectomy.

Methods:
46 Potential living kidney donors were observed during their preoperative surgical outpatient clinic visit. Provided information was scored using standardized checklists, team members received an “informer score” (max. 20). Immediately after their clinic visit, and again on the day of admission, donors received a questionnaire testing their knowledge of the operation (max. 20).

Results:
Median informer score was 12 points (range 2-20). Median donor score was 6 (2-11). Donors scored best on duration of admission and convalescence, worst on long-term complications. Risk of mortality was disclosed by 91% of informers, but only reproduced by 22% of donors at the outpatient clinic and 14% on admission. Donors living with children under 18, donors with a higher educational level and registered (post-mortem) donors scored significantly better. Median donor satisfaction was 9 (4-10).

Conclusion:
There were marked variations between information provided by different informers; important complications were not always disclosed. Overall donor scores were low. Whether donors are actually well enough informed at the time of giving consent remains debatable.

P0108

Perioperative events and complications in minimally invasive live donor nephrectomy: A systematic review and meta-analysis

Kirsten Kortram, Jan IJzermans, Frank Dor
Department of Surgery, Division of HPB&Transplant Surgery, Erasmus MC University Medical Center, Rotterdam, The Netherlands

Background:
Minimally invasive live donor nephrectomy has become a fully implemented and accepted procedure. Donors have to be well educated about all risks and details during the informed consent process. For this to be successful, more information regarding short-term outcome is necessary.

Methods:
A literature search was performed; all studies discussing short-term
complications after minimally invasive live donor nephrectomy were included. Outcomes evaluated were intraoperative and postoperative complications, conversions, operative and warm ischemia times, blood loss, length of hospital stay, pain score, convalescence, quality of life, and costs.

Results:
One hundred ninety articles were included in the systematic review,
41 in the meta-analysis. Conversion rate was 1.1%. Intraoperative complication rate was 2.3%, mainly bleeding (1.5%). Postoperative complications occurred in 7.3% of donors, including infectious complications (2.6%), of which mainly wound infection (1.6%) and bleeding (1.0%). Reported mortality rate was 0.01%. All minimally invasive techniques were comparable with regard to complication or conversion rate.

Conclusions:
The used techniques for minimally invasive live donor
nephrectomy are, safe and associated with low complication rates and minimal risk of mortality. These data may be helpful to develop a standardized, donor-tailored informed consent procedure for live donor nephrectomy.

P0109

Is the assessment of renal arterial perfusion in live donors accurate from CT alone?

Mohammad Hossain[1,2], Mahmoud Soliman[2], Harkiran Sran[2], Abbas Ghazanfar[2], Mohamed Morsy[2], Uday Patel[2], Atul Bagul[3]

[1]Cambridge University Hospital NHS Foundation Trust, Cambridge, UK, UK, [2]St Georges Hospital NHS Trust, London, UK, UK, [3]Leicester General University Hospital, Leicester, UK

Introduction:

Multiple renal arteries occur in 25% of donor kidneys. Pre-operative imaging (either CT or MRI) can identify accessory arteries with >98% accuracy, but the fractional renal volume supplied has not been studied. We studied the accuracy of three radiological parameters (diameter, cross-sectional area of artery and segmented renal volume) for predicting volume of kidney supplied and compared with intra-operative assessment during implantation.

Methods:

Seven donors undergoing laparoscopic nephrectomies with multiple renal arteries were assessed prospectively. On Maximum Intensity projections (MIP), maximum diameter and cross sectional area of each artery was recorded. Volume of renal tissue supplied was calculated by manual segmentation of arterial territory using proprietary volumetric software. Intra-operatively the surgeon estimated the area of kidney supplied by each artery independent of radiologist readings. Graft outcome was recorded at days 7, 30 and 3 months follow up.

Results:

Mean CT estimate of kidney perfusion supplied by main renal artery was 81.5%(range 62-95). Percentage Volume supplied by each artery showed no statistically significant difference between the CT and intra-operative estimation. Positive correlation between CT volume and intra-operative volume supplied ($r^2 = 0.97$; $p < 0.001$) was observed.

Discussion:

Pre-operative fractional segmentation on CT studies can help predict the volume of kidney supplied by each artery. This may help in deciding which accessory artery can be potentially sacrificed without affecting the graft outcome.

P0110

Tubulopathies need not preclude living kidney donation: a case of successful transplantation from a donor with Gitelman syndrome

Daniel Stewart[1], Peter Rowe[1], Aisling Courtney[2], Andrew Connor[1]
[1]South West Transplant Centre, Plymouth, UK, [2]Belfast City Hospital, Belfast, UK

Introduction:

A 76-year old man with hypertensive nephropathy received an offer via the Kidney Sharing Scheme of a living kidney transplant from a 68-year old donor with an incidental diagnosis of Gitelman syndrome in 1995, but no other comorbidities. The donor was asymptomatic with normal serum potassium levels on 40mg amiloride daily. The offer was considered in the recipient centre's Transplant MDT. The benefits of a kidney from a living donor with lifelong low-normal blood pressure due to mild salt wasting were felt to outweigh the potential electrolyte abnormalities that might arise. The recipient was counselled about potential complications and the offer was accepted.

Methods:

The standard immunosuppression protocol (basiliximab/methylprednisolone, then tacrolimus, mycophenolate and prednisolone) was adhered to. The recipient's urinary electrolytes were closely monitored in the post-operative period in addition to routine monitoring of serum electrolytes, renal function and blood pressure.

Results:

Serum creatinine fell immediately to a baseline of 110-130 umol/L. Serial serum and urinary electrolyte concentrations revealed transference of the classic Gitelman biochemical phenotype to the recipient: hypomagnesaemia with inappropriate renal magnesium losses; hypocalciuria and mild hypercalcaemia; a trend towards alkalosis; and, a reduction in serum potassium levels (although never below 3.0 mmol/L and not requiring supplementation). An unexpected profound hyponatraemia was probably multifactorial and resolved. There was a marked reduction in the recipient's antihypertensive medication requirement.

Discussion:

This case demonstrates that tubulopathies need not preclude living donation - biochemical abnormalities may be transferred but can be anticipated and treated. Furthermore, tubulopathies may in fact confer benefits. In this case, firstly, the donor renal parenchyma had benefitted from lifelong low normal blood pressure as a consequence of the Gitelman syndrome and, secondly, the reduction in functional NCC receptors in the distal tubule of the donor kidney prevented their upregulation by tacrolimus and this might be anticipated to mitigate the drug's more common complications (renal tubular acidosis, hypertension, hyperkalaemia and hypercalciuria) and prevent toxicity.

P0111

The impact of donor Body Mass Index (BMI) on post-operative pain and complications following totally laparoscopic living donor nephrectomy

Luke McGuiness[1], S Babiker[2], Rajan Verratterapillay[1], Toby Page[1], Allison Callaway[2], Naeem Soomro[1], David Rix[1], Alistair Rogers[1], Caroline Wroe[2]

[1]Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK, [2]James Cook University Hosptial, Middlesbrough, UK

Introduction:

Current UK guidelines state that moderately obese patients (BMI 30-35 kg/m^2) need careful pre-operative evaluation to exclude co-morbid disease and also appropriate counselling regarding the increased risk of peri-operative complications. Although our region has a BMI restriction of 30 for donation, some patients do donate with a BMI >30. Recent anecdotal evidence of increased patients complaining of significant post-operative pain led to a study investigating the impact of BMI on post-operative outcome.

Methods:

A retrospective cohort study from a single nephrology centre was performed on 30 patients who underwent living donor nephrectomy at the regional transplant centre between 2014 and 2016. BMI at presentation to clinic, surgical anaesthetic assessment and day of surgery was recorded. Mean BMI over a 7 year period was also reviewed. Post-operative data was abstracted from records.

Results:

Mean BMI over the 7 year period from 2008-2015 remained stable with no significant increase and remained in the overweight category (BMI 26.3-28). In the study group of 30 patients the mean BMI was 26.5 and 4 patients had a BMI over 30. From initial assessment to surgery, patients BMI was found to; Increase in 26%, remain static in 40% and reduce in 34%. In total 12/30 patients self- presented to the renal day unit in the post-operative period. 6 out of the 30 patients presented with abdominal pain. 4 out of the 6 had a BMI>30 with a mean BMI of 29. 24 patients had no significant pain with a mean BMI in that group of 26. Other reasons for self-presenting included; testicular pain (n=2), UTI (n=1), urinary retention (n=1), chyle leak (n=1), constipation (n=1). All 4 of the patients who had a BMI over 30 had some form of complication (Chyle leak, abdominal pain requiring hospital review and constipation).

Conclusion:

Despite advice to do so, few donors actually lose weight during the donation process. Our study confirms previous findings that patients with a BMI>30 are at a higher risk of abdominal pain and complications after surgery. This should advise pre-operative counselling and weight loss pre-surgery should be encouraged.

P0112

Does gender or ethnicity influence renal function decline or cardiovascular events post live donation? Single center cohort study

Jaspreet Johal[2], Bains Hari[2], Rose Elwell[1], Bagul Atul[1], Carr Sue[2,1], Topham Pete[1], Shafi Malik[1]
[1]University Hospitals of Leicester NHS Tust, Leicester, UK, [2]University of Leicester, Leicester, UK

Introduction:

Live donation offers superior graft and patient survival, recent studies have highlighted safety concerns of live donation. We aim to study the trajectory of renal function in genders and ethnic groups post donation along with other determinants of cardiovascular events (CV).

Methods:

Retrospective cohort study of donors at our center between 2009-2014. Data on baseline demographics, CV events – hypertension, ischemic heart disease(IHD, rates of pulmonary embolism and peripheral vascular disease, EDTA GFR pre donation normalized (mGFR) for Body Surface Area (BSA) and creatinine (Cr) at 3 and 6 months post donation were collected. Follow up data on CV events was collected until October 2016.

Results:

There were 202 patients in total. Results are in table 1.

mGFR was statistically different to the pre donation MDRD GFR ($p<0.01$). mGFR varied by ethnic groups with Caucasians mean 96.9ml/min and non-Caucasians mean 92.0ml/min (p0.08 95% CI -10.6,0.65). Male gender was associated with greater decline in eGFR 6 months post donation (Cr 118+/-2.01 vs. 92.6+/- 1.2) in linear regression models ($p<0.01$ 95%CI -16,-6) adjusting for age, BSA and creatinine predonation. ANOVAS showed no interaction between different ethnic groups and renal function any stage post donation ($p>0.05$). 9 (4.5%) developed hypertension, 2 (1%) IHD, 4 (2%) PVD, 3 (1.5%) PE.

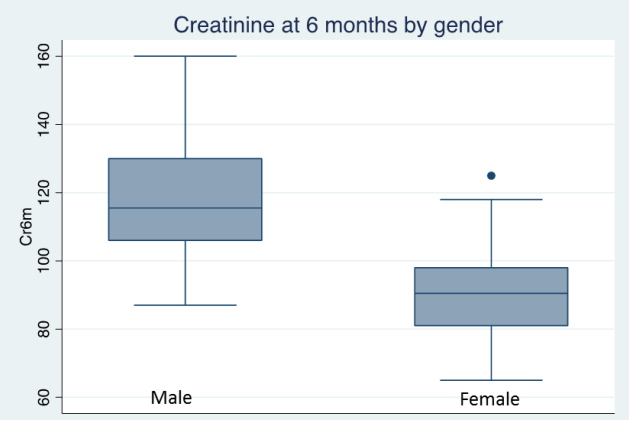
Discussion:

Renal function post donation declined but plateaued at 3 and 6 months. The incidence of CV events remains low. Renal function decline in males was greater at 3 & 6 months. Due to the small number of ethnic group patients no difference was found in post donation GFR and the greater decline in GFR seen among male patients needs to be confirmed in a larger study.

Table 1

Variable	Result mean (SD)
Age	47.3 (12.2) years
Female	119 (58%)
Pre donation creatinine	74.1 (13.0) mmol/L
Pre donation eGFR	103.8 (19.9) ml/min
Pre donation GFR normalized for B.S.A	96.1 (15.2) ml/min
Creatinine post donation	111.2 (22.2) mmol/L
Creatinine 3 months post donation	103.2 (18.7) mmol/L
Creatinine 6 months post donation	103.0 (20.5) mmol/L
Post donation eGFR	57.4 (11.5) ml/min
Caucasians	167 (82.6%)
Non-Caucasians	35 (17.4%) – 23 Asians, 1 Chinese, 5 Black African, 6 others.

Graph 2



P0113

Comparison of MDRD eGFR and CKD-EPI GFR pre and post donation in live donors

Johal Jaspreet[2], Bains Hari[2], Darren Churchward[2], Atul Bagul[1], Sue Carr[2], Pete Topham[1], Shafi Malik[1]
[1]University Hospitals of Leicester NHS Tust, Leicester, UK, [2]University of Leicester, Leicester, UK

Introduction:

30% of transplants in the UK are from live donors, Glomerular Filtration Rate (GFR) estimating equations have not been validated in this population, donors undergo EDTA or Iohexeol GFR pre donation but not post donation with creatinine used to estimate GFR post donation. It is not known how the different formulae's compare.

Methods:

Retrospective cohort study of donors at our center between 2009-2014. Data on baseline demographics, EDTA GFR pre donation normalized (mGFR) for Body Surface Area and creatinine (Cr) at 3 and 6 months post donation were collected.

Results:

There were 202 patients in total. Mean age was 37 years with 127 (58%) females. Mean mGFR pre donation was 96.1+/- 15.2 ml/min. Results (table 1) expressed as mean and (SD), creatinine in mmol/L and GFR in ml/min.

Table 1

Variable	Creatinine	MDRD GFR	CKD EPI GFR	P value (95% CI)
Pre donation	74.1 (13.0)	85.9 (14.3)	93.4 (22.6)	<0.01 (0.18,0.34)
Post donation immediate	111.2 (22.1)	54.2 (10.4)	64.3 (22.3)	<0.01 (0.22,0.32)
Post donation 3 months	103.2 (18.7)	58.6 (10.2)	69.4 (22.4)	<0.01 (0.14,0.27)
Post donation 6 months	103.0 (20.5)	59.6 (10.6)	69.5 (24.2)	<0.01 (0.17,0.31)

mGFR was statistically different to the pre donation MDRD eGFR (p<0.01 95% CI 0.31,0.59) and CKD EPI GFR (p<0.01 95% CI 0.16,0.35). The percentage difference of CKD EPI to mGFR was 2.8% MDRD to mGFR was 11.2%. By eGFR 55% of patients at 6 months would be classified as CKD stage3 compared to 41.3% by CKD EPI. In multivariable multinomial logistic regression models both eGFR and CKDEPI GFR were associated with development of hypertension (p0.03 95% CI -0.46,-0.12), p0.03
(95% CI -0.37, -0.13).

Discussion:

Significant variation exists between mGFR, eGFR and CKD EPI GFR. Neither measurement was discriminatory for development of hypertension, 15% more patients would have been classified as CKD3 by MDRD GFR. Whether higher GFR seen in CKD EPI is discriminatory enough as a surrogate marker for longer term outcomes needs to be studied.

P0114

Hospitalisation rates in live donors as a surrogate marker for long term outcomes – single center cohort study

Hari Bains[2], Jaspreet Johal[2], Atul Bagul[1], Sue Carr[2], Pete Topham[1], Shafi Malik[1]
[1]University Hospitals of Leicester NHS Tust, Leicester, UK, [2]University of Leicester, Leicester, UK

Introduction:

Live donation offers superior graft and patient survival, recent studies have highlighted safety concerns of renal live donation. Hospitalisation rates have previously not been reported in this population, we aim to study the hospitalization rates as a novel surrogate marker of long term outcomes in live donors.

Methods:

Retrospective cohort study of donors at our center between 2009-2014. Data on baseline demographics, CV events – hypertension, ischemic heart disease (IHD, rates of pulmonary embolism and peripheral vascular disease. Data was collected from Hospital Information Systems in addition to case records. Only the first hospitalisation event post donation as recorded in our hospital database was captured. If patients had more than one hospitalisation event they were not captured. Hospitalization events until Oct 2016 were included and donors had at least 1 year of follow up data.

Results:

A total of 202 subjects were included in this analysis, in total there were 63 events, the incidence rate for the entire cohort is 0.07 per 853 person years, there were 24 events in females compared to 39 in men and the incidence rate ratio (IRR) for gender was 1.06 (p 0.4). In Caucasians there were 12 events compared to 50 in non-Caucasians (1 event missing ethnicity data) and the IRR was 1.17 (p0.3).

Discussion:

Hospitalisation in live donors in comparison to those with co-morbidities remains low, but this could be an underestimate as hospitalisation events outside our catchment area has not been captured. This is the first study to our knowledge to explore this metric as a surrogate marker for longer term outcomes. Non-Caucasians had numerically more events and this needs to be confirmed in larger prospective studies.

P0115

Live kidney donors with lower pre-donation GFR have poorer renal function after two years

Yousra Ahmed-Salim, M Ibrahimi, Izabela Kujawiak, Patrick Trotter, Sarah Hosgood, Michael Nicholson
University of Cambridge, Cambridgeshire, UK

Introduction:

Live kidney donors offer a wide range of pre-donation renal function depending on their age and other factors. The aim of this study was to determine the relationship between pre-donation GFR and residual renal function during follow-up.

Patients and Method:

We performed a retrospective analysis of a series of 222 living kidney donors who underwent laparoscopic live donor nephrectomy between January 2011 and July 2016. Data was obtained from internal electronic records, paper records and requested from NHS Blood and Transplant. Mean (±SD) age at donation was 51±11 years and the male to female ratio was 1:1.13.

Results:

The mean (±SD) pre-donation isotope GFR was 92±14 ml/min. Follow-up eGFR calculated using the MDRD formula was 58±10 ml/min at 1 year and 60±14 ml/min at 2 years. Pre-donation GFR was positively correlated with GFR at 1 year ($p=<0.0001$, $r=0.4277$) and 2 years ($p=<0.0001$, $r=0.4667$). There was also a strong positive correlation between pre-donation GFR and the decrement in GFR at 1 year ($p= <0.0001$, $r=0.7334$). 51/222 (23%) of donors were classified as having stage 3-5 CKD at 2 years post-donation.

Conclusion:

Live kidney donors with higher pre-donation GFR have a greater decline in renal function at 1-year follow up. This may be a reflection of compensatory hyperfiltration in donors with lower initial renal functional capacity. Whether this increases the risks of developing established renal failure after live kidney donation is not known yet.

P0116

Influence of graft quality on donor and recipient outcomes in living kidney transplantation

Ioanna Panagiotopoulou, Yining Chen, Vasilis Kosmoliaptsis, Victoria Bardsley, Gavin Pettigrew, Kourosh Saeb-Parsy

[1]Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK, [2]Statistical Laboratory, University of Cambridge, Cambridge, UK

Introduction:

Living kidney donor (LKD) transplantation is associated with improved graft survival compared to deceased donor transplantation. We investigated factors that may account for the superior outcomes of LKD transplantation.

Methods:

Data from a prospectively maintained database pertaining to 318 LKD transplants between January 2000 and March 2012 was examined. Multivariate and survival analyses were performed to identify variables predictive of outcomes. Outcomes were also compared between 102 LKD recipients and 97 and 191 contemporary recipients from donation after brainstem (DBD) and circulatory death (DCD) respectively, all with time-zero kidney biopsy scores.

Results:

The measured median donor glomerular filtration rate (GFR) decreased significantly by 33 units at year 1 post donation (96 ml/min/1.73m^2 vs. 63 ml/min/1.73m^2, $p<0.0001$), with donor age and BMI as predictive variables. After the initial drop, the median value of the estimated donor GFR (eGFR) plateaued up to 5 years post donation, with donor age as the only significant predictive factor. The overall 10-year LKD graft survival was 83% with no statistically significant predictive variables. A multivariate analysis of LKD, DBD and DCD transplants with year 1 recipient eGFR as the response variable showed donor type, age, gender and recipient age, but not biopsy scores (range 0-3), to be statistically significant predictors. Similarly, time-zero biopsy score (range 0-3) was not predictive of graft survival for recipients of LKD, DBD and DCD recipients.

Discussion:

Donor age is the most significant factor affecting LKD donor and recipient eGFR at years 1 and 5 post donation or transplantation. Kidney biopsy score per se does not account for the superior outcomes of LKD transplantation.

P0117

The investigation and outcome of living kidney donors with non-visible haematuria: A 6-year single centre experience

Ammar Almidani, Colin Forman, Catherine O'Malley, Peter Dupont, Gareth Jones, Neal Banga
RoyalFree Hospital NHS foundation trust, London, UK

Introduction:

Investigation of non-visible haematuria (NVH) in potential living kidney donors can include diagnostic flexible cystoscopy and/or renal biopsy, so that serious underlying urological and renal disease can be excluded in those that are otherwise suitable to donate. Counselling of potential donors with thin basement membrane disease (TBMD) on their renal biopsy, and the use of such patients as donors remains controversial. We analysed the outcomes of potential donors found to have NVH over a 6-year period.

Methods:

We collected data for all potential donors in our centre from 2010-15. NVH was defined as having urine dipstick positive for blood (including trace) on at least 2 occasions in the absence of infection. Investigations were performed as per BTS guidelines. Patients were divided into 3 groups: Group 1- potential donors with NVH who did not proceed to donation; Group 2 - patients with NVH who proceeded to donation; Group 3 (control group)- age, gender and race-matched donors without NVH. Post-donation estimated glomerular filtration rate (eGFR), blood pressure (BP) and presence/absence of proteinuria were compared between groups 2 and 3.

Results:

Between 2010-15 we screened 886 potential living kidney donors, and 69/886 (7.8%) were found to have NVH. 54/69 (78.2%) patients with NVH did not proceed to donation (group 1), including new diagnoses of prostate cancer (1 patient) and bladder stones (1 patient). 21/69 (30.4%) patients with NVH had renal biopsies, showing TBMD in 16/21, no pathology in 4/21 and a new diagnosis of IgA nephropathy in 1/21 patients. No complications occurred following renal biopsy. Of the patients with TBMD, 7/15 proceeded to donation. 4 patients with TBMD underwent genetic testing, which was positive in one patient (COL4A3 G871C mutation). No significant difference in eGFR, BP and proteinuria was identified between groups 2 and 3 at a mean follow-up of 2.8 years.

Discussion:

Non-visible haematuria (NVH) is a common finding amongst potential living kidney donors in our institution, but only a minority of patients proceed to donation. Thin basement membrane disease is the commonest finding in potential donors who undergo a renal biopsy, but the role of genetic testing in these patients needs to be better defined, as does their suitability as living kidney donors.

P0118

Seasonal variance in organ donation and renal transplantation in the United Kingdom

Marcus Lowe[1], Kay Poulton[1], Judith Worthington[1], David van Dellen[1], Philip Foden[2], John Blaikley[3], Titus Augustine[1]

[1]Central Manchester Foundation Trust, Manchester, UK, [2]University Hospital of South Manchester, Manchester, UK, [3]University of Manchester, Manchester, UK

Background:

It is known that diverse pressures affect healthcare delivery at different times of the year, particularly in winter, but there is no evidence of how seasonal variance affects organ donation and transplantation in the NHS.

The aim of this study was to investigate seasonal variation in kidney transplants performed in Britain. This could alert transplant centres of any requirement to adapt services in order to maximise resources and efficiency.

Methods:

The paper analyses 24,270 kidney transplants 2005-2014. The data was stratified by donor status, allowing separate analyses for 9,166 living-donor transplants and 15,094 deceased-donors (sub-categorised by cause of death). Chi-squared tests and Pearson residuals were used to assess the deviation from the null hypothesis.

Results:

There are significantly more deceased-donor transplants in December (+12.7%) and November (+8.0%) than average for the year. This appears to be due to cerebrovascular events and hypoxic brain injuries as causes of death in these months, which increase by 9.6% and 16.0% respectively compared to the average. July has fewer deceased-donor transplants than average (-6.4%).

Living-donor transplants are increased in November (+14.5%) and October (+8.1%), and decreased in December (-13.4%), August (-12.9%), April (-9.8%), and May (-7.6%). Lower rates in these months may be due to centres or patients preferring to avoid transplants in periods with school holidays and bank holidays.

Conclusion:

The paper recommends that, other things being equal, transplant centres should aim to schedule living-donor transplants during periods with lower levels of deceased-donor activity.

P0119
A single centre's experience of the revised DCD kidney allocation scheme

Giovanna Sheiybani, Peter Rowe, Andrew Connor
South West Transplant Centre, Plymouth, UK

Introduction:
The allocation system for kidneys from donation after cardiac death (DCD) donors was recently changed. In September 2014 an age cut-off was introduced so that the second kidney from donors aged 5-49 years old was offered regionally rather than locally. In Sept 2015 the age range for regional sharing was increased from 5 to 54 years. Our centre is small and in recent years has had a high rate of DCD transplantation but this has reduced. We therefore wished to evaluate the impact of the alterations to the allocation scheme on the number of organs offered to the service.

Methods:
Offers were reviewed for the 18 months before the introduction of the revised allocation scheme (3/4/13–3/9/14) and after its implementation (4/9/14–3/2/16). Data were collected regarding DCD kidney offers to the service. Data were retrieved retrospectively.

Results:
DCD kidney offers fell, in both absolute and proportional terms, from 91 (representing 156 kidneys) in the 18 months before the introduction of the revised scheme to 66 (97 kidneys) after its introduction. The acceptance rate remained broadly similar (54/91, 59.3% compared to 38/66, 57.6%). Complete data was available for 64 of the 66 DCD offers received after the revision of the allocation scheme. 39 of these 64 were from local donors and 25 were from outside the region. 10 of the 39 local donors were under the age cut off at the time of the offer and kidneys from 9 of these 10 donors were shared with other centres (in accordance with the scheme) whilst both kidneys from the remaining donor were retained locally. Local donors under the age cut off therefore yielded 11 kidneys for our centre. This centre received a total of 9 regional kidneys under the age cut off.

Conclusion:
We received less DCD kidney offers and organs after the introduction of the revised DCD allocation system. Organ acceptance rates during the two periods were similar suggesting that there was no change in organ quality. Although the numbers of DCD offers and accepted kidneys were lower after the revised scheme was introduced, the balance of the transfer of DCD kidneys from younger donors into and out of this centre was approximately equal. These results suggest that this centre has not been disadvantaged by the scheme but in view of the small numbers involved, and as a further increase in the age range (5-59 years) has been introduced, smaller units are encouraged to evaluate their own experiences.

P0120

Does culture positive preservation fluid lead to sepsis in recipients of deceased donor renal transplantation? A single centre retrospective study

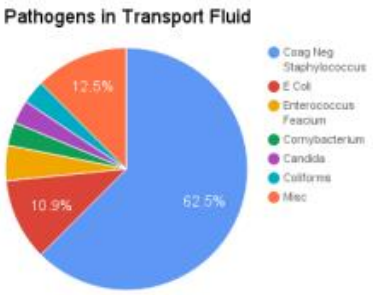
Shafiq Ahmad Chughtai, Sally Black, Amy Page, Shakeeb Khan, Black John, Ghazal-Aswad Mayer, Stalin Dharmayan, Ahmed Ali, Tahir Doughman, Rajagopal Poyyamozhi, Anna Rizzello, Atul Bagul
Leicester General Hospital, Leicester, UK

Introduction:

Pathogens can be transmitted via preservation fluid. The aim of this study was to determine the incidence of microbial contamination of preservation fluid and its effect on incidence of sepsis in recipients of deceased donor renal transplantation.

Methods:

Data was retrospectively collected from January 2014 to May 2016, using case-notes and hospital databases. Recipients were divided into two groups based on positive or negative culture results. Both groups were compared for the incidence, site and causative pathogen of sepsis.



Results:

In total, 192 deceased donor transplants were done, 134 had transport fluid (TPF) cultured and were included in the study. 64 samples (47.76%) were positive while 70 (52.23%) were negative. Commonest pathogen in transport fluid was Coagulase negative Staphylococcus Aureus (62.5%) followed by E Coli (10.9%).Highly pathogenic organisms including Candida (n=2) .and Vancomycin Resistant Enterococcus (n=1) were seen. Septic complications were 37.5% (n=24) in TPF positive recipients, compared with 50% (n=35) in TPF negative recipients (p 0.145). TPF positive group received extended prophylactic antibiotics in 42.18% (n=27) of recipients. TPF specific pathogen leads to sepsis in 6 (25%) recipients.

Discussion:

Transport fluid can be frequently contaminated by virulent pathogens.TPF culture specific pathogen causes sepsis in 25% of recipients. Although incidence of sepsis was high in negative TPF group, sepsis is multi factorial and 42.18% recipients received extended prophylactic antibiotics. We therefore recommend routine culture and prophylactic treatment in all culture positive recipients.

P0121

Post donation debrief……Is it useful for hospital staff?

Leanne Fare, Allison Salmon
NHS Blood & Transplant, South Central Team, UK

Introduction:
Specialist Nurses-Organ Donation (SNODs) are expected to offer and facilitate post donation debrief sessions to hospital staff. Currently there are no guidelines or training available via NHSBT to ensure that these sessions are delivered with consistency. The RCN 2005 & NICE 2013, state that interventions within 3 months post traumatic events may be effective in preventing long term disorders. For some hospital staff being involved in the donation process may be traumatic. Offering hospital staff the chance to debrief can ensure that the moral and legal obligations faced by employers are met (Mental Health Act 1983, RCN 2005).

Methods:
A national review of how all SNOD teams offer debriefs was undertaken; debriefs are being offered to hospital staff but it is inconsistent and sporadic. Secondly we evaluated current debrief practices of the local emergency services, concluding that the police forces framework was best suited to our requirements.

A pilot study commenced July 2016 within two hospital trusts. All staff directly involved in the donation process receive an email within 7 days which includes a questionnaire for completion if they would like further support. The pilot will run for 12 months or until 20 donors has occurred. Responses will formulate the terms of reference for follow up which may include any or all of the following: 1:1 meetings, education, group debrief meetings.

Emails have been sent to 72 hospital staff involved in 12 donors during the first 5 months. The questionnaire asks what went well, what didn't go so well and what would be their recommendations for the future. 5 responses have been received highlighting a variety of concerns and 1:1 meetings have been undertaken with staff.

Results:
These meetings have highlighted that good communication and understanding prior to a donation process improves the outcome for staff. Where concerns have been raised these can be attributed to incidences where the hospital staff has not fully understood the processes involved or their expectations were not fulfilled. Two of the five have been where junior staff members who have not been involved in end of life care prior let alone organ donation. Other responses have identified recommendations for improvements on the SNOD team's practice, such as ensuring everyone is fully prepped prior to transfer patients to theatres and educating staff about the complexities of organ offering.

Discussion:
The next steps are to include a level 1 hospital and then further extend it to the regional SNOD team. Interestingly 93% of hospital staff contacted have not requested further debrief post donation.

The questionnaires are giving valuable insight into how small changes in SNOD practice ensures good working relationships, collaborative teamwork and looks after the health and wellbeing of our hospital staff. These debrief questionnaires gives the hospital staff a forum for feedback and identify staff that may require further support.

P0122

Do extended criteria donors and donor vascular disease increase the risk of renal artery stenosis?

Rebecca Varley[1], Stavros Papachristos[1], Charles Reynard[1], Edward Lake[2], Nicholas Chalmers[2], David Van Dellen[1]

[1]Department of Renal and Pancreas Transplantation, Manchester Royal Infirmary, Manchester, UK, [2]Department of Radiology, Manchester Royal Infirmary, Manchester, UK

Introduction:

Renal artery stenosis (RAS) remains the most common vascular complication after transplantation. Early RAS (<6 months) is associated with graft-specific and operative factors. The increased use of extended criteria donor (ECD) kidneys may contribute. We aimed to correlate early RAS and associated graft quality.

Method:

Retrospective analysis of early RAS cases (angiography confirmed; 01/15-09/16) at a single centre was performed. All data was contemporaneously collected and assessed for donor, graft and recipient factors, including arterial quality.

Results:

15 (2.98%) cases of RAS were identified from a total of 504 transplants (333 deceased donors (DD); 171 live donors (LD)). There were 11 DD RAS (3.3%) with 4 in LD's (2.3%). Mean donor age was 53.1 years (range 13-69), with a mean total ischaemic time (TIT) of 920 minutes (1169 and 239 for DD and LD's). The mean number of days to RAS was 72.5 (range 23-107). 11 (73%) stenoses were ostial and 4 (27%) post-anastomotic. Each of the 4 LD cases had stenosis at the ostium. 7 DD (64%) recipients had ostial stenosis and 4 (36%) had mid-arterial stenosis. DD's also developed ostial RAS despite the use of a Carrel patch (9/11 cases). Reasons for patch sacrifice included retrieval injury (1) and severe atheromatous disease (1). Donor arterial quality was reported as healthy to mildly diseased (72.8%), and moderately to severely diseased (27.3%) All 15 underwent balloon angioplasty with subsequent improvement in graft function.

Discussion:

This series represents an increase in incidence of deceased donor RAS. The ostial stenosis in LD recipients has previously been reported and has been associated with anastomotic stricture. However, in DD, donor arterial disease, the increased rate of ECD's and prolonged TIT, may explain increased rates of early RAS. With more marginal organs being accepted, complication rates including early RAS are likely to continue to rise. The impact on late RAS and overall transplant outcome requires further investigation.

P0123

Pre-donation Serum NGAL to Assess the Quality of DBD and DCD Kidneys – A Pilot Study

Christopher Chalklin[1], Chantal Colmont[2], Soha Zouwail[3], Aeliya Zaidi[1], Elijah Ablorsu[1]
[1]University Hospital of Wales, Transplant Unit, Cardiff, UK, [2]University Hospital of Wales, 2.Institute of Nephrology, Cardiff, UK, [3]University Hospital of Wales, Medical Biochemistry, Cardiff, UK

Introduction:
There is ongoing interest in discovering biomarkers to assess kidney graft function prior to transplantation and predict outcomes.[i,ii]. ***Neutrophil Gelatinase-Associated Lipocalin*** **(NGAL)** is a biomarker which has been shown to be sensitive in detecting acute kidney injury (AKI)[iii] with a diagnostic level being 150ng/ml.

Methods:
A retrospective study was designed to assess correlation between NGAL levels in serum of DBD/DCD donors immediately prior to retrieval and post-transplant kidney function.
The source of serum samples was the QUOD tissue bank and donor samples were selected according to recipients' kidney function 12 months after transplant. In total 20 DBD and 20 DCD samples were analysed; half of the samples in each group had good function (GFR >50) and half had poor function (GFR <25).
Serum NGAL levels were measured using an ELISA assay.

Results:
Across the four sub-groups there was a 50:50 split of standard criteria (SCD) and extended criteria donors (ECD). 42.5% of all donors had an AKI diagnosed by serum NGAL levels (NGAL-AKI), but only 12.5% had an AKI based on serum creatinine.
In the group of kidneys with a poor 12-month function and NGAL-AKI, 66.7% (equal across DBD and DCD groups) were from ECD donors. In contrast, only 18.2% of kidneys that achieved good function at 12-months following NGAL-AKI were from ECD's (20% in DBD's and 17.7% in DCD's).

Discussion:
A high proportion of deceased donors have an NGAL confirmed AKI despite having a 'normal' pre-donation serum creatinine level. ECD donor kidneys with AKI diagnosed by serum levels are more likely to have a poor outcome at 12 months.
(To carry this pilot study forward, the authors will investigate the benefit of serum NGAL testing in ECD donors. Power calculations suggest a minimum sample size of 80 patients in each arm would be required to provide statistically significant results with a power value of 90%.)

P0124
Cardiothoracic retrieval of organs in Europe: the perspective of a single centre

Clair Ellis, Marius Berman, Katie Morley
Papworth Hospital, Cambridge, UK

Introduction:
Since the change in the UK National Organ Retrieval Service (NORS) in April 2016 an increase demand to attend the retrieval of organs in mainland Europe has been noted. Five donors in Europe were attended by the Papworth cardiothoracic retrieval team; which is in comparison to no requests to attend retrieval in Europe the year previous. This change in activity has prompted the creation of the European Organ Retrieval (ERO) form, which is designed to address issues which have occurred.

Methods:
The cardiothoracic retrieval teams who partake in the retrieval of organs in Europe all function in different ways. Requests from France, Switzerland, Croatia and Norway have been received to attend potential donors. With the use of clinical debriefing, vignettes and scrutinising the documentation which is requested by the UK Transplant Registry issues encountered have been highlighted.

Results:
Of the five incidences where the Papworth retrieval team attended donors in Europe different challenges were encountered. These included cultural barriers, procedural differences and language difficulties which all impacted upon the safe and smooth retrieval of cardiothoracic organs. Through designing the ERO form it is anticipated that these issues can be alleviated and the lessons learned can aid future successful retrieval of organs without encountering protocol deviations.

Discussion:
The utilisation of the ERO form will hopefully ensure that information deemed essential by UK implanting centres, for the successful retrieval of organs, will be gained in a timely fashion and without causing concern for the donating centre.

P0125
Paediatric organ donation: a UK challenge

Angie Scales[1], Kay Hawkins[2], Esther Wong[1]
[1]NHS Blood and Transplant, Bristol, UK, [2]Manchester Children's Hospital, Manchester, UK

Introduction:
The overall trend of an increase in organ donation has not been replicated in the paediatric population. Individual units have wide variations in practice and this raises the question of whether bespoke national strategies would contribute to the aim of increasing OD in this area.

Methods:
The UK has 27 paediatric intensive care units (PICU) on the potential donor audit (PDA). Individual unit data was extracted from Apr15-Mar16.

Results:
93% of <16yr olds that met a referral criteria died in PICU, 92% of eligible donors were also in PICU. Nationally neurological determination of death (NDD) was suspected in 90 cases, 59 NDD tests performed. 111(61%) eligible donors were approached. Non identification was the reason for non approach in 16(22%) of cases. SNODs were involved in 76(68%) of approaches. Consent was gained in 45(41%) of families approached. Reasons for non consent were varied; surgery to the body was highest at 18%. The data has shown that the neurological testing rate, approach rate, SNOD involvement and the consent rate varied from 0% to 100% across the centres.

Discussion:
The wide variation in unit processes may be due to multiple reasons, understanding this is important in achieving potential for OD. It is noted that only 16(6%) of the SNOD team has paediatric qualification with 5(31%) covering a PICU. Training SNODs in PICU processes plays a key role in unit relationships with OD teams. Demands on SNODs time with priority in adult areas with greater potential may reduce visibility in PICUs and potentially impacting on unit relationships. Overall data shows SNOD involvement in approach improves consent, this trend is replicated here. Units with high SNOD involvement achieved higher consent rates. More research in consent for paediatrics is required to incorporate the specific needs of families in the context of these discussions.
In high performing units there is a best practice culture with open team discussion regarding OD being a regular event.
The benefits of embracing differences in practice, along with bespoke strategies to ensure OD is considered as a usual part of end of life care in paediatrics will be far reaching.

P0126

Local workforce study into behaviour and attitudes surrounding organ donation and registration

Zahra Iqbal[1], Sarah Slater[2], David Reaich[1], Caroline Wroe[1]
[1]*South Tees NHS Foundation Trust, Teesside, UK,* [2]*Public Health, Middlesbrough Council, Teesside, UK*

Introduction:
As part of "Taking Organ Transplantation to 2020," NHSBT researched public attitude and behaviour to organ donation (OD). Although public support for the principle of OD is high, it often does not translate to the organ donor register (ODR). In addition, discussion with family about one's wishes to donate dramatically increases their consent at the time of donation. We surveyed local workforce's attitude and behaviours to OD to understand current opinion thereby aiming to raise awareness and registration to the ODR. Workplace education has been shown to be effective in engaging public support and registration.

Methods:
Survey monkey questionnaire e-mailed to staff in six local organisations (both NHS and non-NHS). Questions derived from the national NHSBT Optimisa survey. Banners on organisations' intranet sites and Twitter were used to invite/remind staff over 5 weeks.

Results:
537 responders with a response rate of 0.5-15% across organisations. Majority of responders were female(80%), white(95%) and aged 45-54(50%). 95% agreed with the principle of OD with 52% on the ODR. 35% who supported donation did not know if they were registered or were not on the ODR. More NHS as opposed to non-NHS staff agreed the importance of actively registering and telling family (71% versus 59% $p<0.05$).

Discussion:
Local support for OD was high, similar to the rest of the UK. Our responders were motivated: 53% on ODR compared to 34.7% of the local area population; more had discussed their wishes with family compared to 50% nationally. The 35% who agreed with donation in principle but were not registered, highlights a group that could provide insight into barriers against registering and increase the registration rate. 83 responders were interested in further participation and we aim to invite them to form a focus group to further explore the issues. In addition, to act as ambassadors for OD in their workplaces. This preliminary data will also aid local graphic design students to form a bespoke educational, web-based package. This will be rolled out to the local organisations for use at mandatory training to further promote OD amongst the 20,000 employees of these organisations.

P0127

Supporting reflection on practice, the use of clinical debriefing by nurse members of a cardiothoracic organ retrieval team

Helen Ballantyne, Katie Morley
Papworth Hospital NHS Foundation Trust, Cambridge, UK

Introduction:
It was observed that nurse members of a cardiothoracic retrieval team (Transplant Practitioners) had no formal outlet for sharing experiences or reflecting on their practice. It was proposed that clinical debriefing would provide that formal outlet.

Methods:
Five, hour long debrief sessions with six participants were held between January and October 2016 using a standardised format, facilitated by the use of a reflective cycle. Questionnaires were distributed before and after the sessions to assess the participant's knowledge and opinion of clinical debriefing.

Results:
After attending the series of debrief sessions, participants were positive. They had listed practical, useful changes in practice instigated as a result of the clinical debrief. Bespoke training sessions had been implemented to improve knowledge and understanding. There were comments that the sessions had improved team members confidence of paediatric organ retrievals and the retrieval of hearts from donors after circulatory death (DCD). Written reflections stimulated by the sessions had been used as evidence for revalidation. The benefit of peer support was recognised and stress management strategies had been shared. Equipment had been evaluated and improved.

Discussion:
Providing protected time for clinical debriefing is beneficial as it allows staff members to share experiences, discuss coping strategies and identify learning objectives. Clinical debriefing can also be used as a mechanism to support reflection on practice which can then be used as evidence for nursing revalidation.

P0128

Evaluation of performance and suitability of rapid *T. cruzi* antibody tests for deceased organ donor screening

Ines Ushiro-Lumb, Mhairi Webster, Alan Kitchen
NHS Blood and Transplant, London, UK

Introduction:
In the UK, the Advisory Committee on the Safety of Blood, Tissues and Organs recommends that organ donors with risk of T cruzi infection be tested for specific antibodies; identification of such risk is part of donor characterisation. Local, pre-donation screening is not currently feasible hence centralized testing delivers results within 24 hours of donation. Unlike automated serology platforms, rapid point of care tests are presented in individual format, offering a more acceptable alternative for laboratories performing T. cruzi testing solely for deceased organ donors.

Aim:
To evaluate performance of T cruzi antibody rapid tests and suitability for local pre-donation screening of deceased organ donors.

Method:
Six rapid tests selected on the basis of published evaluated performance, CE marking, and availability in the UK. The assays were obtained and evaluated against a panel of 59 well characterised T.cruzi Ab positive samples from our sample repository. Twenty samples from blood donors with no known exposure risk to T cruzi were used as negative controls.

Results:
Sensitivity of 94.6-100% was observed. No specificity issues were identified, with no non-specific reactivity seen. There were small practical differences, such as sample volume and test procedures, but all were fit for use in the laboratory environment.

Conclusion:
We have identified assays in a suitable format, which meet performance requirements for pre-donation screening, enabling initial results to be made available at the time of deceased donor organ offer, alongside the mandatory markers for blood–borne viruses.

P0129
Testing deceased organ donors for Trypanosoma cruzi: The UK experience

Ines Ushiro-Lumb, Mhairi Webster, Alan Kitchen
NHS Blood and Transplant, London, UK

Background:
In the UK, SaBTO recommends that donors with risk for T. cruzi infection be tested for specific antibodies (Ab). Since 2009, less than 0.1% of the approximately 2.2 million blood donors/year required T. cruzi Ab screening. Current incidence rate is 0%. Centralised screening of deceased organ donors was introduced by NHSBT in October 2014.

Methods:
Requests submitted for T. cruzi Ab from deceased organ donors in England, N Ireland and Wales between Oct 14 - Nov 16 were reviewed. Abbott Architect Chagas ® assay was used as per manufacturer's instructions.

Results:
Risk of exposure to Chagas was identified in 77 consented donors (1.69%). None were seropositive for T. cruzi. Indications for testing are summarised in table 1.

Discussion:
Initial identification of risk is based largely on demographic and travel information but true risk of infection is associated with well-defined factors and prolonged exposure in rural, endemic or hyper endemic areas; donor or family history of conditions compatible with Chagas disease may be present. The risk of T. cruzi in our donor population remains very low, reflecting the composition of migrant populations in the UK. In this setting, emphasis has been on detailed donor history, with post-donation screening; consideration for pre-donation testing requires suitable, appropriately validated tests, with specialist advice and laboratory familiarity with assay performance, so that results can correctly inform donor characterisation.

Table 1: Identified risk and indication for *T cruzi* antibody screening

Risk for T cruzi infection	n	%
Born in endemic area	15	19.4
Mother born in endemic area	3	3.9
Visited endemic area	52	67.5
Lived in endemic area	7	9.1

P0130 – poster withdrawn

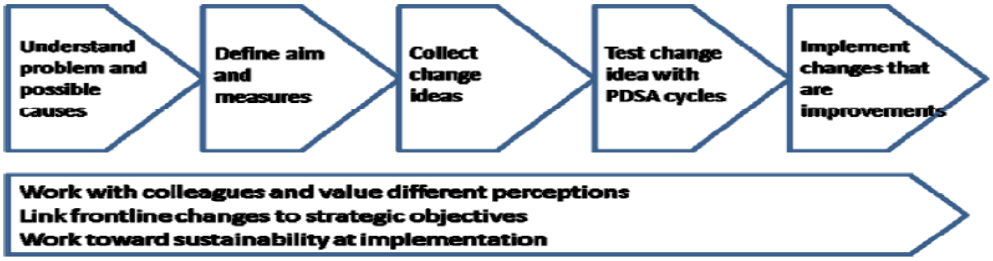
P0131
Increasing DCD referral rates: A cross-regional study utilising service improvement methodology

Jeremy Brown, Becky Clarke, Ben Cole, Anne-Marie Hill, Teressa Tymkewycz
NHSBT, Oxford, UK

Introduction:
Eastern, Midlands and South Central Organ Donation Services Teams (ODST) are three regions within the Organ Donation & Transplant (ODT) directorate of NHSBT. Following a leadership programme undertaken by the Team Managers of these regions, it was highlighted that cross-regional working should be utilised to share and improve practice. In particular, it was noted that both South Central and Midlands had consistently low DCD (Donation after Circulatory Death) referral rates whilst the Eastern ODST were consistently >85%. A working party was formed to discuss performance and to examine cross-regional practices utilising a service improvement methodology.

Methods:
A service improvement methodology was utilised involving Plan Do Study Act (PDSA) cycles of the two teams seeking improvement ie: South Central and Midlands ODST highlighted in Figure 1.

Figure 1: the steps of service improvement



Results:
Following a variety of interventions including: process mapping the referral pathway, statistical analysis of the three regions, PDSA cycles to gain a better understanding of the Specialist Nurse Organ Donation (SNOD) view of DCD referral, and examination of audit practices. Significant improvement in the DCD referral in both South Central and Midlands was evident. It was also noted the practice of the Potential Donor Audit (PDA) varied across the teams as to what was deemed a DCD referral or not.

Discussion:
Following this small service improvement methodology, significant improvement was noted in DCD referral rates across the Midlands & South Central ODST's. DCD Referral rates at start of the measure (March 2015) and after measure (September 2016) in () were:
South Central: 69.4% (79.2%)
Midlands: 68.5% (82.5%)
Eastern 81.9% (87.0%)
It was highlighted that nationally the PDA definitions need further investigation and following this small-scale project, a national working group has been formed to seek and understand process' for improved data collation and input.

P0132
Declined donor offers to the West London Renal Transplant Centre

Olga Manolitsi, Pierpaolo Di Cocco, Maria Irene Bellini, Sam Turner, Saied Froghi, Paul Herbert
West London Renal and Transplant Centre, Hammersmith Hospital, Imperial College Healthcare,, London, UK

Introduction:
The rate of declined donor offers varies between centres. There are no national guidelines yet the best use of the donor organs is mandatory.

Methods:
We retrospectively analysed the reason and the fate of all the declined offers from our centre for a period of time of five months (10/2015-2/2016).There are two groups: donor offers declined and donor offers accepted but not used.

Results:
39 donor offers declined by our centre were also declined by other centres in the UK. 42 donor offers declined by our centre were transplanted in other centres for a total of 67 kidney tx. The main reason for declining was donor related. 52 recipients were alive at follow up of 84 days (48-112) in 15 cases the survival was unknown. The graft survival was 95% in 57 cases, 3 kidneys failed and 10 kidneys are fate unknown . The mean creatinine was 159(69-523) and mean eGFR:46(11-98). Of 27 kidneys declined by us for any recipient for donor reasons and transplanted elsewhere 24 were functioning at 3 months with a creatinine of 250 or less.

Discussion:
In the time period our institution's decline rate was average for the UK. Despite this a large number of organs rejected on donor grounds went on to successful transplantation. This is an area that needs further national review and audit of long term outcomes to allow guidelines for acceptance to evolve.

P0133

Cold Ischemia Time (CIT) does not tell the whole story: Impact of components of CIT on outcomes and functions after kidney transplantation

Ismail Mohamed[1], Vittoria Mastantuono[1], Giulia Ottaviano[1], Bimbi Fernando[2], Susana Fernandez-Diaz[1], Rajesh Sivaprakasam[1], Carmelo Puliatti[1], Roberto Cacciola[1]
[1]Royal London Hospital, London, UK, [2]Royal Free Hospital, London, UK

Introduction:
Cold Ischemia Time (CIT) is considered an important variable in kidney transplantation. In this study we divided the CIT in three components: **Extraction Time (ET**) - Time from Initial Cold Perfusion in the donor to Time of Kidney In The Box; **Transport Time (TT**) - Kidney in the Box to Kidney Delivered to the Unit; **Unit Time (UT)** - Kidney delivered to the Transplant unit to kidney out of the box.

Methods:
Retrospective analysis on all Deceased Donor (DD) Transplants performed in our unit from September 2011 to March 2015. Data obtained from our database, linked with NHSBT and Organ Transport Company. Univariate analysis of component of CIT; Multivariate analysis of impact of ET <60, 60-90 and >90min and UT <4, 4-6 and >6 Hours on Immediate Function (IF), Delayed Graft Function (DGF), Primary Non Function (PNF) and 12 Months GFR of kidney transplanted from Standard Criteria (SC) and Extended Criteria (EC) DBD and DCD. Mann-Whitney, ANOVA, Kruskal-Wallis tests were used as indicated.

Results:
There were 218 DD Renal Tx (47% EC) with a median CIT of 840min. The median ET was 79min and UT 592min, p <0.0001. Overall ET alone did NOT have any impact on IF, DGF, PNF and GFR 12 Months. The UT > 6 hours did have an impact on overall number of DGF and PNF, p 0.06; also, UT had an impact on worse GFR at 12 months, p 0.01. Further analysis on type of donor, stratified to ET > 60 min, revealed a Higher Number of DGF and PNF in DCD Vs DBD, p 0.0002 and EC Vs SC, p 0.03.
Similarly, the UT > 6hours demonstrated a negative impact on EC Vs SC, p 0.004

Discussion:
CIT alone is not a reliable indicator for early outcome and GFR at 12 months. The UT is the major component of CIT. Organs from DCD and EC are more vulnerable to prolonged ET and UT. Prolonged ET should be taken into consideration when evaluating offers from EC and DCD. Local unit factors may delay transplantation prolonging the UT and overall CIT. The UT exacerbates the initial ischemic injury, matured during prolonged ET > 60 min, with a negative impact on outcomes and functions. We propose the routine use of ET and UT terminology in order to guide clinicians and advice patients.
These parameters can be also useful in the allocation and recipient selection process, as well as evaluating the quality of retrieval and transplantation services.

P0134

Health literacy practices of Spanish medical students regarding deceased organ donation

Maria Theodosopoulou[1], Daniel Casanova[2], Frank Dor[3], Thanos Athanasiou[1], George Baskozos[4], Charles Pusey[1], Vassilios Papalois[1]

[1]Imperial College, London, UK, [2]University of Cantabria, Santander, Spain, [3]Hammersmith Hospital, London, UK, [4]University of Oxford, Oxford, UK

Introduction:

The high organ donation rates accomplished and maintained over the course of many years in Spain sets the country as an example, which needs to be further studied. We explored the attitudes and views of Spanish medical students regarding learning and communicating with others about deceased organ donation.

Methods:

159 students of a major Spanish Medical School were surveyed. The questionnaire was developed based on thorough literature search and extensive discussions of focus groups. The final version consisted of 32 questions and went through formal validation process (Kappa statistic 0.714 between perfect and random agreement).

Results:

The vast majority of the Spanish medical students (93%) supported deceased organ donation but only 27% were registered donors. Ethnical background significantly influences students' attitudes towards organ donation (p-value 2.1995e−10); health issues they are familiar with (p-value 0.00358037); persons with whom the students have shared their wishes (p-value 3.18562e−20); groups of people who have expressed to the students their wish to donate (p-value 2.74211e−36); preferences over different sources of information about deceased organ donation (p-value 6.79389e−28). Most students use as learning sources medical TV shows (53%), awareness campaigns (52%), and family/friends (49%).

Discussion:

The results of the survey allow more in depth knowledge regarding the influence of ethnic background on attitudes and views on deceased organ donation and facilitate the design of relevant health literacy campaigns.

P0135

Attitudes and views of Dutch hospital administrative staff on deceased organ donation

Maria Theodosopoulou[1], Frank Dor[2], Daniel Casanova[3], Thanos Athanasiou[1], George Baskozos[4], Charles Pusey[1], Vassilios Papalois[1]

[1]Imperial College, London, UK, [2]Hammersmith Hospital, London, UK, [3]University of Cantabria, Santander, Spain, [4]University of Oxford, Oxford, UK

Introduction:

Health literacy refers to a person's capacity to obtain health information, process it and act upon it (WHO, 2009). This research project examines health literacy in the context of the resources people use to learn about deceased organ donation, as well as the patterns of family network communication.

Methods:

Views, knowledge and discussion practices of administrative staff of a major University Hospital in the Netherlands, were surveyed; 203 members of staff participated. The questionnaire was developed based on thorough literature search and extensive discussions of focus groups. The final version consisted of 32 questions and went through formal validation process (Kappa statistic 0.714 between perfect and random agreement).

Results:

The majority (72%) of the participants supported deceased organ donation, 67% were registered as organ donors, and 62% shared their views with their family. Family and friends are the most frequently cited learning resource about deceased organ donation, closely followed by stories of organ recipients, awareness campaigns, and medical documentaries. However, the preferences of the participants differed significantly according to their ethnicity (p-value 2.6293e−47). The participants also differed as to if, to whom and how they expressed their views and wishes on deceased organ donation based on their ethnic backgrounds (p-value 1.13805e-74).

Discussion:

The results of the survey allow more in depth knowledge regarding the influence of ethnic background on attitudes and views on deceased organ donation and facilitate the design of relevant health literacy campaigns.

P0136
Use of expanded criteria donor kidneys: A comparative study

Petrut Gogalniceanu, Naveed Hossain, Raphael Uwechue, Nizam Mamode, Nicos Kessaris
Department of Nephrology and Transplantation, Guy's Hospital, London, United Kingdom, London, UK

Introduction:
The study assesses 3-month recipient outcomes following extended criteria donor (ECD) kidney transplantation in a large UK centre in order to better inform patient choices.

Methods:
Retrospective outcomes were collected of all adult deceased donor transplant patients receiving either a standard criteria donor (SCD) or ECD kidney between 2012 and 2014.

Results:
Of 368 kidneys transplanted, 165 (44.8%) were ECD and 203 (55.2%) SCD. Of the ECD, 74 (44.8%) were DBD and 91 (55.2%) DCD. 16.4% of ECD and 1.5% of SCD recipients had a dual-transplant. Donor and recipient age were significantly higher in the ECD group compared to SCD (median 66, IQR 10 vs. 48, IQR 14; median 60, IQR 13 vs. 50, IQR 18 respectively). Graft biopsies at time of transplant showed raised Karpinski-scores in ECD (median 4, IQR 2 vs. 3, IQR 2 $p<0.001$). Cold ischemia times (CIT) were similar ($p=0.479$) in both groups (median 13.52 hours, IQR 6.48 vs.13.50, IQR 7.5). Primary non-function (PNF) and delayed graft function (DGF) were higher in ECD recipients (9.1% vs. 1.5%, $p=0.002$; 52.7% vs. 42.4%, $p=0.058$ respectively). Donor and recipient age were risk factors for PNF ($p=0.007$, $p=0.025$) whereas CIT, Karpinski-score and recipient gender were not. eGFR was elevated in the ECD compared to SDC group (median 32.5ml/min, IQR 21 vs. 46ml/min, IQR 28 $p<0.001$). ECD recipients had longer postoperative hospital stay (median 11 days, IQR 8 vs 8, IQR 4 $p<0.001$). Recipient survival was similar in both ECD and SCD donors (98.2% vs. 99.0% $p=0.66$). Graft survival at 3-months was 90.9% in the ECD and 98.5% in the SCD group ($p=0.012$).

Discussion:
ECD transplants have comparable short-term recipient survival but worse graft outcomes, more PNF, DGF and longer postoperative stay when compared to SCD transplants. These results are useful in counseling potential recipients before surgery.

P0137

Lowering perfusate temperature from 37°C to 32°C diminishes function in a porcine model of ex-vivo kidney perfusion

Thomas Adams[1], Meeta Patel[2], Sarah Hosgood[1,2], Michael Nicholson[1,2]
[1]*University of Cambridge, Cambridge, UK,* [2]*University of Leicester, Leicester, UK*

Introduction:
Reducing the temperature of the perfusate to sub-normothermia may be beneficial during ex-vivo perfusion (EVP) and for early graft function. The aim of this study was to investigate whether sub-normothermia would influence the conditioning effect of EVP when compared to normothermic perfusion, and standard cold static storage (CS).

Methods:
Porcine kidneys underwent static CS for 23hrs followed by 1h of EVP using leukocyte-depleted blood at a mean temperature of 32°C or 37°C (both n= 6). Following this, kidneys were reperfused with whole autologous blood at 37°C for 3h to assess renal function and injury. These were compared to a control group (n=6) that underwent 24h CS prior to reperfusion alone. We took continuous functional measurements and interval samples of blood, urine and tissue.

Results:
During EVP, kidneys perfused at 37°C had a higher level of renal blood flow (246 vs. 90 ml/min/100g, P=0.001) and oxygen consumption (53.7 vs. 27.5 ml/min/g, P=0.002) compared to EVP at 32°C. During reperfusion, 32°C EVP kidneys had lower creatinine clearance (P=0.023) and urine output than control (0.2 vs 0.8 ml/min/100g, P=0.011) and a higher fractional excretion of sodium (P=0.01), lower serum potassium (P=0.023) and lower serum aspartate transaminase than 37°C EVP kidneys (156 vs. 823 mmol/L, P=0.009). The EVP groups had a similar burden of tubular injury on histology.

Discussion:
Tubular and renal function were better preserved by a near-physiological temperature of 37°C during 1 hour of EVP, when compared to EVP at 32°C or cold storage.

P0138

Ex vivo normothermic perfusion of isolated segmental porcine bowel: A novel functional model of the small intestine

Mazin Hamed[1,2], Adam Barlow[1,2], S Khosla[1,2], A Sagar[1,2], Fiona Gribble[2,3], Michael Murphy[4], Gavin Pettigrew[1,2], Eleanor Bolton[1,2], Andrew Bradley[1,2], Michael Nicholson[1,2], Sarah Hosgood[1,2], Kourosh Saeb-Parsy[1,2]

[1]Department of Surgery, University of Cambridge, Cambridge, UK, [2]NIHR Biomedical Research Campus, Cambridge, UK, [3]Wellcome Trust – MRC Institute of Metabolic Science, University of Cambridge, Cambridge, UK, [4]MRC Mitochondrial Biology Unit, Cambridge, UK

Introduction:

There is a need for the development of suitable large animal models for research in gastroenterology and intestinal transplantation. *Ex vivo* normothermic perfusion (EVNP) is increasingly used for studying isolated organs under controlled perfusion conditions. Here we report, for the first time, a reliable and effective technique for EVNP of segmental porcine small intestine.

Methods:

Segments of small intestine (n=4) 1.5-3.0m were retrieved from terminally-anaesthetised pigs following exsanguination and *in situ* perfusion with cold preservation solution. EVNP was performed after a mean cold ischaemia time of 5h 20min using oxygenated autologous blood diluted with Ringer's solution. EVNP was performed at 37°C with a mean pressure of 80 mmHg for 2h. The duration of EVNP was extended to 4h for the second experiments in which two segments of proximal to mid-ileum (1.5-3.0m) were retrieved from each pig (n=5) and reperfused with whole blood (control) or with leukocyte-depleted blood to examine the impact of leukocyte depletion on reperfusion injury

Results:

All bowel segments were well-perfused and exhibited peristalsis during EVNP. Venous glucose levels significantly increased following luminal glucose stimulation (basal level 1.8±0.6 mmol/L *vs.* peak 15.5±5.8 mmol/L) and GLP-1 levels also increased in all experiments, demonstrating intact absorptive and secretory intestinal functions. There were no significant differences between the control group (n=5) and the leukocyte-depleted group (n=5) in blood flow, venous glucose, GLP-1 levels or histopathology at the end of 4h of EVNP.

Discussion:

We provide proof-of-concept evidence for the utility of this novel experimental model for the investigation of intestinal physiology, pathology and ischaemia reperfusion injury, as well as for evaluation of potential therapeutic interventions.

P0139

Rapid graft loss due recurrence of undiagnosed primary Hyperoxaluria

Saffa Elawad[1], Hassan Al Malki[1], Ahmed Hamdi[1], Ajay Sharma[2], Ahmed Halawa[2]
[1]Department of Nephrology and Transplantation, Hamad Medical Corporation, Doha, Qatar, [2]Department of Medical Education, University of Liverpool, lLverpool, UK

Introduction:
Primary hyperoxaluria (PH) is a rare autosomal recessive disorder leading to systemic deposition of calcium oxalate crystal causing nephrocalcinosis, nephrolithiasis, and chronic kidney disease. A case record of a young woman with end-stage renal disease is being presented who underwent paid organ transplantation and developed allograft loss at two weeks due to recurrence of undiagnosed PH.

Case Records:
The patient is a 28 year old female patient, was known to have hypertension and hyperlipidaemia for few years. She presented with end-stage renal disease and commenced on haemodialysis in December 2014. She was found to have bilaterally small kidneys; hence kidney biopsy was not performed. In February 2016, she received kidney transplantation from donor a 38 years old paid male donor (no further information was provided). Post-operative period was complicated with severe bacterial sepsis and development of a lymphocele. Two weeks later there was a consistent decline in graft function, and eventually, she required maintenance haemodialysis. Renal allograft biopsy showed extensive calcium oxalate crystals deposition, suggestive of recurrence of primary hyperoxaluria. Moreover, patient contracted hepatitis C and developed severe erythropoietin-resistant anaemia,

Discussion:
In 26% of patients with PH, the disease manifests early in life as infantile oxalosis. However, in 10 % of cases of PH, the diagnosis is made as recurrence, following kidney transplantation. Since the primary cause of the disease is the deficiency of a liver enzyme, combined liver and kidney transplantation is the treatment of choice for these patients.

Summary:
Recurrence of PH is recognised, leading to graft loss. Despite this in 10% of patient diagnosis is done retrospectively. This case demonstrated the need for careful screening of PH in young patients prior to transplantation.
There is a dire need for pre-transplant counselling to increase awareness of life-threatening situations in unregulated health care sector, where money is the sole aim. The exploitation of donors and recipient is rampant and unabated where cross-infections are common. Acquisition of hepatitis C is not surprising.

P0140

Significant regression of left ventricle hypertrophy and dilatation one year after kidney transplantation

Fady Magdy Elias[1,2], Maher Fouad Ramzy[2], Mohammed Alkhatib[2], Ajay Sharma[1], Ahmed Halawa[1]
[1]*Institute of Teaching and Live Science, University of Liverpool, Liverpool, UK,* [2]*Faculty of Medicine Cairo University, Cairo, Egypt*

Introduction:

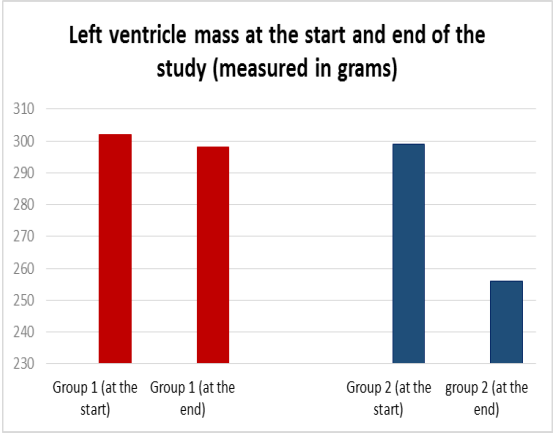
Cardiovascular disease (CVD) is a major cause of morbidity and mortality in dialysis patients and Kidney transplant recipients (KTRs). Such patients may have left ventricular dilatation and/or hypertrophy, which represent a significant risk factor for adverse cardiovascular outcomes.

Methods:

This study included 2 groups of patients (25 each) who had been on regular haemodialysis for a period of 12-18 months. Group 1 continued on haemodialysis, while kidney transplantation (KTx) was done for group 2. Evaluation of the cardiac status was done at the start of the study and after 1 year later; clinically and using echocardiography and Doppler study of carotid intima-media thickness (CIMT).

Results:

After 1 year, KTRs showed significant reduction of left ventricle end diastolic and systolic dimensions from 5.7+0.2 to 5.6±0.1cm ($p<0.05$) and from 3.8±0.4 to 3.7+0.1cm ($p<0.05$), respectively. Also, there was a highly significant regression of left ventricle mass (LVM) from 298±30 to 226.5±54gm ($p<0.001$). On the other hand, patients who continued haemodialysis, showed no significant regression. There was insignificant regression of CIMT in both dialysis patients and KTRs.



Discussion:

Successful KTx led to a significant regression of left ventricular hypertrophy and dilatation in patients who were on regular haemodialysis. This may be attributed to better blood pressure control, correction of anaemia, correction of the uremic milieu, and other factors.

P0141
Does duration of DGF affect graft outcome after DCD donor kidney transplantation?

Awad Shamali, Theodoros Kassimatis, Hannah Burton, Nicos Kessaris, Chris Callaghan
Department of Nephrology and Transplantation, Guy's Hospital, London, UK

Introduction:
The presence of delayed graft function (DGF) is common after DCD donor kidney transplantation, but does not appear to be a risk factor for long-term graft function on registry analyses. However, the impact of the duration of DGF on graft outcomes is poorly defined.

Methods:
Single kidney-only grafts from controlled DCD donors transplanted into adult recipients between 1.1.11-1.7.16 were analysed. DGF was defined as the need for dialysis within the first week of transplantation. Duration of DGF was defined as the number of days from transplantation to the last dialysis session. Patients with DGF received protocol biopsies every 7 days until graft function returned. Outcome measures included 6, 12, 24 and 36 month eGFR, biopsy-proven acute rejection (BPAR), initial inpatient stay, and death-censored graft survival (DCGS). Recipients with DGF were divided into three groups based on DGF duration (group I – <7 days, group II – 7-14 days, group III – >14 days).

Results:
236 DCD kidney-only transplants were analysed. DGF occurred in 143 (60.6%) recipients (group I 75 (31.8%); group II 45 (19.1%); group III 23 (9.7%)). Median donor age was 54 (6-79) years, recipient age was 53 (18-79) years, and cold ischaemic time (CIT) was 13h10m (5h40m-25h20m). BPAR was more common in groups II and III than group I (I - 11/75 (14.7%); II - 12/45 (26.7%); III - 10/23 (43.5)) (p=0.013). Median inpatient stay was 9, 12 and 18 days in groups I, II and III, respectively (p<0.001). Six-month, 12-month, and 36-month eGFR was progressively worse in groups II and III than group I (p=0.002; p=0.008; p=0.026, respectively). DCGS was no different between, (p=0.778).

Conclusions:
DGF was frequent in our DCD donor kidney transplant programme, and often lasted more than 7 days. Prolonged DGF was associated with longer hospital stays, and progressively worse short and medium-term graft function. This may be due to higher rates of BPAR, though it is difficult to distinguish cause from effect. Duration of DGF did not appear to adversely impact on DCGS, though this is likely due to lack of long-term follow-up.

P0142
The management and short-term patient outcomes on dialysis after allograft loss

Rhys Evans, Soliana Bekele, Sarah Clark, Alice Thomas, Raj Thuraisingham
Department of Renal Medicine and Transplantation, Bart's Health, London, UK

Introduction:
Recipients with a failing kidney transplant (RFKT) get worse care than those with native disease and outcomes on dialysis after graft loss are poor. We looked at the management of such patients in our cohort to assess our performance with regards to CKD parameters and patient outcomes after graft loss.

Methods:
Transplant patients who transitioned to an alternative form of renal replacement therapy (RRT) between 01/01/2012-30/06/2016 were included. Patients with graft failure within a year of transplantation or due to an unpredictable acute event were excluded. Demographic data, details of RRT restarted, clinical parameters at restart, and 1-year patient outcomes were recorded after review of the medical notes.

Results:
Graft failure occurred in 92 patients [median age 53 years, 54 (59%) male]. Median transplant duration was 2674 (1310-4710) days. Pre-dialysis counselling was documented in 49 (53.3%) patients, initially at median time 117 (41-215) days prior to restart. Table 1 outlines causes of graft loss and clinical parameters at restart. Modes of RRT restarted were haemodialysis (74; 80.4%), peritoneal dialysis (11; 12.0%), preemptive retransplantation (4; 4.3%), and conservative management (3; 3.3%). Haemodialysis was started via a line in 36 (48.7%) patients, and of 65 patients fit enough for retransplantation, 32 (49.2%) were relisted at the time of restart. Outcomes at 1 year were assessed in 76 patients. 11 (14.5%) patients had been retransplanted, and 11 (14.5%) patients had died.

Table 1: Causes of graft loss and clinical parameters at dialysis restart

Causes of Graft Loss	n (%)
Unclear or chronic decline (no biopsy)	43 (46.7%)
Interstitial Fibrosis/tubular atrophy (biopsy proven)	17 (18.5%)
Chronic rejection/transplant glomerulopathy (biopsy proven)	13 (14.1%)
Recurrent disease	7 (7.6%)
BK nephropathy	4 (4.3%)
CNI toxicity	3 (3.3%)
Chronic pyelonephritis/obstruction	2 (2.2%)
PTLD	2 (2.2%)
Urothelial Malignancy	1 (1.1%)
Clinical Parameters at restart	Mean (SD)
Haemoglobin (g/L)	89 (19)
Phosphate (mmol/L)	1.7 (0.5)
PTH (pmol/L)	50 (44)
Bicarbonate (mmol/L)	19.5 (3.5)
Creatinine (μmol/L)	624 (223)
Urea (mmol/L)	30.7 (9.6)
Systolic blood Pressure (mmHg)	146 (27)
Diastolic blood pressure (mmHg)	81 (15)

Discussion:
Management of RFKT remains suboptimal and 1-year mortality after restart was 14.5%, reflecting published estimates. Service improvements will be made to facilitate timely pre-dialysis counseling and preparation, and relisting for transplantation where appropriate.

P0143
Kidney re-transplantation during childhood: Feasibility and outcomes

Nadeesha L Mudalige[1], Anna Adamusiak[2], Pankaj Chandak[2], Grainne Walsh[1], Helen E Jones[1], Nicos Kessaris[2], Nizam Mamode[2], Jelena Stojanovic[1]
[1]Department of Nephrology, Evelina London Children's Hospital, London, UK, [2]Department of Transplantation, Guy's and St Thomas' NHS Foundation Trust, London, UK

Introduction:
Kidney transplantation (Tx) has been increasing in small children. This may lead to more children needing 2nd Tx during childhood. This study looked into the characteristics of renal transplant recipients who underwent more than one Tx during childhood.

Methods:
Single centre retrospective analysis of all paediatric kidney transplants during 2003-2015.

Results:
One hundred and seventy one Tx were performed, nine of which were re-transplants (5.3%). At last follow-up (median 8years; IQR 10years), there was no difference in graft survival for children with a single Tx compared with those re-transplanted (p=0.255).

Of the re-transplanted patients, eight had two and one had three transplants (80% deceased donors at 1st Tx; 50% at 2nd Tx). Recurrent acute rejections caused graft failure in four patients, 2 had chronic AMR, 2 thrombosis and one FSGS recurrence. All patients were CMV and EBV naive at 1st Tx. Two patients have previously undergone Tx onto aorta/IVC and had a re-transplant to the same vessels. Five were HLA sensitized, one highly (cRF>85%). The difference in graft survival at 3 year follow-up between first and second transplant was not significant (98% and 88% respectively; p=0.2). Three patients lost 2nd graft before adulthood due to chronic AMR and BKVAN, one of which received 3rd Tx at the age of 8 years.

Discussion:
The re-transplantation rate is low in this cohort. Despite surgical and immunological challenges kidney re-transplantation in childhood is feasible and with good outcomes; this should be accounted for when consenting and determining the management for young recipients.

P0144

Effects of DFG on long term graft survival in deceased donor kidney transplants: A retrospective analysis

Alice Arnett[1], Abbas Ghazanfar[1,2]
[1]*St Georges University of London, London, UK,* [2]*St Georges University Hospitals NHS Foundation Trust, London, UK*

Background:

Renal transplants have the capacity to vastly improve a patient's quality of life. However, despite the benefits offered by kidney transplantation, in the UK 30% of deceased donor kidney transplants will have failed by 5 years[1]. Current research indicates that delayed graft function (DGF) is a prognostic indicator for poor long-term graft survival. This is important as if true, strategies to reduce the incidence of DGF may be indicated. This study aimed to therefore strengthen current research. It aimed to support the hypothesis that those patients with DGF will have poorer long-term graft survival rates than those whose grafts function immediately.

Material and Methods:

This study included all patients who had received deceased donor RTx from June 2008 to June 2011 at our centre. In this analysis, immediate graft function (IGF) is defined as those transplant recipients whose graft immediately starts to function unsupported. Delayed graft function (DGF) is defined where the patient requires post-operative dialysis for a short period of time. The patients were divided into an IGF group and a DGF group. Those who suffered primary graft non-function were excluded. After recording the initial post-operative graft function, the grafts' long-term survival was documented. Survival was demonstrated using the patients' estimated glomerular filtration rate (eGFR) and survival was defined as an eGFR≥15ml/min. Data was collected from each of the patient's annual follow up appointments until 5 years post-transplant. Any patients who died of unrelated causes during the 5 year period were 'censored'. SPSS was used for statistical analysis.

Results:

The data for 116 Rtx's were available. Three transplants with primary graft failure were excluded. 113 renal transplants were all the data was available were included in this study. There were 33 female and 80 male. The recipient's ages varied from 23 to 75 years, the average being 49 years. There were 44 patients included in the DGF group and 69 in the IGF group. The data showed that at 5 years post-transplant, patients who suffered DGF had 82% 5 year graft survival compared to a 90% 5 year graft survival in those who had IGF [Figure 1]
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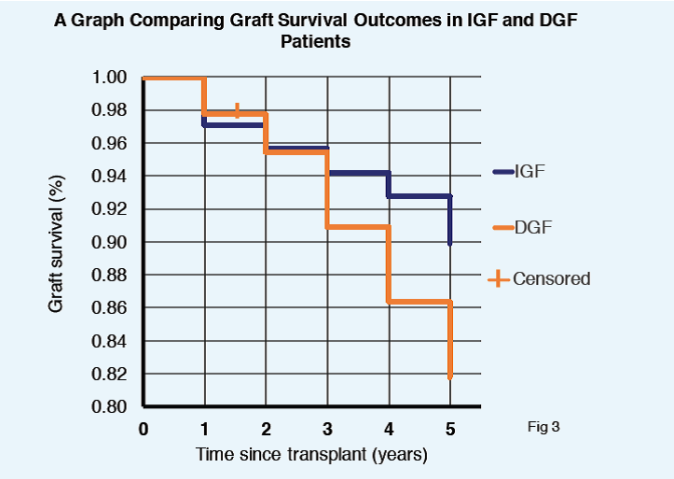


Discussion:

DGF is a reason for great anxiety and stress for the transplant team and more over the transplant recipient. It has its financial implications too, associated with prolonged hospital stay and cost of dialysis. However, our study suggests that long-term graft outcome is not significantly affected by DGF post transplant [p=0.67]. There are number of factors that are responsible for DGF, for example donor and recipient age and BMI, the duration and method of dialysis prior to the procedure and prolonged warm and cold ischemia time. These factors individually or in combinations may be affect graft outcome but not through DGF.

Conclusion:

DGF is not associated with poor graft outcomes. Other factors for poor graft outcome should be identified and managed accordingly.

P0145

Minimizing cold ischaemic time: Assessing the effect of different factors at a single renal transplant centre

Diane M Evans, Deborah Munro, James Bushnell
North Bristol NHS TRust, Bristol, UK

Introduction:

Cold ischaemic time (CIT) is an important modifiable risk factor for renal transplant graft survival. We reviewed how certain factors effect affected the CIT.

Methods:

Factors initially assessed in 2008 have been re-audited. We have chosen to re-audit (1) mean time for transit of samples from clinical area to laboratory (2) Patient suitability for Virtual Cross-match (3) mean delays accessing operating theatres (readiness deemed to be when patient/organ on-site and cross-match negative and able to proceed.

Results:

	2008	2015
Transit of Specimen	23 minutes	17 minutes
% Virtual Cross-matches	N/A	45/75 = 60%
Time when deemed ready for Theatre to time Theatre accessed	3 hours 50 minutes	4 hours 57 minutes
CIT	16 hours 36 minutes	13 hours 41 minutes

Discussion:

There was minimal change for sample transit. The advent of virtual cross-matches has reduced CIT most. It's completed in advance before patient or organ are on site. It's dependent on sensitisation, recent samples and results. It's reduced cross-match reporting from 6+ hours to as little as 15 minutes! The move to our new hospital building has made accessing theatres problematic - with more specialities requiring emergency access and priority. Despite this delay overall CIT has reduced significantly. This delay has been negated (and more) by virtual cross-matching. We continue to "chip-away" at our CIT due to the diligence of the multi-disciplinary team. National statistics show up to an 8% difference in 1 and 5 year graft survival if between CIT<24 or >24 hours(NHSBT, 2016).

P0146
Single centre experience with a 3rd kidney transplant

Olga Manolitsi, Frank Dor, Jeremy Crane, Anand Muthusamy, Paul Herbert, Vassilios Papalois
West London Renal and Transplant Centre, Imperial College Healthcare, London, UK

Introduction:
Kidney transplantation has clear patient survival and quality of life advantages compared to dialysis. However, there are clear surgical and immunological challenges with multiple transplants; we reviewed the experience of our centre with 3rd kidney transplants.

Methods:
17 3rd kidney transplants that were performed from 2005 to 2016 were analysed retrospectively. There were 12 male and 5 female patients and the mean recipient age at the time of the 3rd transplant was 43 years (range 29-63).

Results:
In total 3 kidneys (18%) were lost, 2 (12%) due to thrombosis and 1 (6%) due to recurrent FSGS. 6 patients (35%) experienced rejection but no kidneys were lost due to rejection.

The 1 year patient and graft survival were 100% and 81.5% respectively. The mean creatinine at 1 year was 134. For the same cohort of patients the mean follow up was 59 months (range 19-120) at which point the patient and graft survival were 97% and 75% respectively. The mean creatinine at 59 months was 162.

Discussion:
Our results confirm that a 3rd kidney transplant is a valid therapeutic option with very satisfactory short and long term outcomes.

P0147

Body mass index does not affect short term outcomes in kidney transplant recipients: A single center study

Maria Irene Belini, Konstantinos Koutroutsos, Jack Galiford, Paul Elliot Herbert
Kidney and Transplant Center Imperial College Healthcare NHS Trust, London, UK

Introduction:

The prevalence of overweight and obese kidney transplant recipients (KTR) has risen in parallel to the obesity epidemic that has affected the general population. At present, there is an ongoing debate regarding the suitability for transplantation of obese patients.

Methods:

Data was prospectively collected on consecutive single organ KTR transplanted between January 2014 and March 2016. The patients were stratified according to their Body mass index (BMI) using the WHO classification. As a measure of allograft function MDRD eGFR was used at 3, 6 and 12 months post-Transplant.

Results:

We included 378 (130 female, aged 52.7, range 19-77 yearsKTR, followed up for 19.5± 8.6 months (0-33 months). In total 155 KTR (41%) were underweight or of normal BMI at transplant, while 148(39.2%) were overweight, and 67 (17.7%) were classified as obese [47 (12.4%) class 1, 11 (2.9%) class 2, 9(2.4%) class 3]. Overweight and obese KTR had a higher incidence of pre transplant Diabetes (p=0.21), but no difference was found in new onset Hyperglycemia post-transplant. (p=0.35) Obese and overweight KTR had a significantly lower eGFR than underweight and normal BMI KTR at 3 (43.8±16 and 40.64±18.3 vs 52.4±18.4 ml/min, p<0.001) and 6 months (43.4±16.3 and 41.7±18.9 vs 50.1±18.5 ml/min, p=0.01) post-transplant, a finding which did not persist at 1 year follow up (46±16 and 43 ±20. vs 49.4±17.6 ml/min, respectively p=0.08). Overall, 23 patients lost their grafts and 20 patients died during follow-up. Kaplan Meier analysis showed no difference in allograft loss between the different BMI groups. (log rank p=0.7).

Discussion:

In this single center study, which utilized short term data, overweight and obese patients were shown not to have inferior outcomes regarding renal function at 1 year post transplant.

P0148

Charlson Comorbidity Index (CCI) as prognostic indicator of outcomes in elderly patients undergoing renal transplantation

Ummul Contractor, Usman Khalid, Paola Donato, Laszlo Szabo, Argiris Asderakis
Cardiff Transplant Unit, University Hospitals of Wales, Cardiff, UK

Introduction:

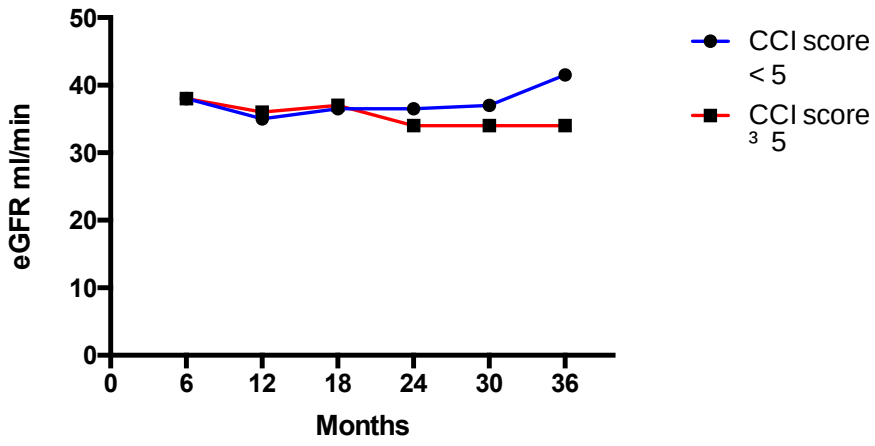
Renal transplantation has increased among older patients Our group has shown excellent results using old DCD donor kidneys to older recipients. The Charlson Comorbidity Index (CCI) has been shown to be a sensitive tool predicting mortality in those with comorbid conditions. We aimed to assess if we could use CCI as a prognostic tool to aid selection of older candidates, based on graft function and patient and graft survival.

Methods:

We investigated a cohort of elderly (age >60) renal transplant patients; all receiving kidneys from older DCD donors (age >60) who had follow up of 3 years. 62 patients were identified, and CCI was calculated for each patient based on comorbidities at the time of surgery. Pearson correlation was used initially to correlate graft function (eGFR) with CCI. Given the confounding factors we additionally compared the patient and graft survival and function at 1 and 3 years between patients having a CCI<5 compared to those with CCI ≥5.

Results:

The CCI score ranged between 2-10. Using Pearson-correlation there was no significant correlation of CCI with graft function (eGFR) at 1 year (r=-0.14, p=0.28) or 2 years (r=-0.19, p= 0.15). Patient survival at 1 and 3 years was 94% and 90% among those with CCI less than 5, compared to 90% and 76 % respectively in those with CCI ≥5. Graft survival at 3 years (censored for death) was 97% in patients with CCI less than 5 vs. 90% in those with higher CCI. A graph with the respective eGFRs of the two groups is presented below.



Conclusion:

In our cohort, patients with higher CCI had higher mortality at 3 years and slightly lower graft survival and graft function (not statistically significant). Given the small number of recipients future studies with larger cohort are needed to confirm these findings.

P0149

The cost and the price of urinary tract infection post renal transplantation: A 4-year single centre experience

Ammar Almidani, Ben Oliveira, Bimbi Fernando, Emma Dunning, Ingrid Bruno-selling, Ben Lindsey, Sophie Collier, Mark Harber
Royal Free NHS Foundation trust, London, UK

Introduction:
Urinary tract infections (UTIs) are the most common cause of infectious complications post renal transplantation (PRTx). Several previous studies assessed potential risk factors, the causative organisms of UTI and treatment. In our study we evaluated the burden of UTIs in PRTx on National Health Service (NHS), organisms and treatment options and the short term impact on graft function and severe sepsis.

Methods:
Between January 2012 and December 2015, we conducted a retrospective analysis on all admissions due to urosepsis in our centre. We analysed data including: the length of stay (LOS), re-admission rate, the culture and sensitivity of urine and blood, the clinical presentation and under-treatment period before admission and the treatment regimens. The impact of UTIs on acute kidney injury (AKI) defined by 50% increase in creatinine and bacteraemia was also evaluated.

Results:
We had 141 admissions in the study period with 710 days of LOS .this costed £ 308,850. The total number of patients admitted 95 patients , 57% had more than 2 admissions with urosepsis. The most common presenting complains were fever and malaise 104/141 (73.7%), dysuria and urinary symptoms were gathered in 28/141 (19.8 %) of patients .The most common bacteria isolated from urine samples included Escherichia coli (40%), Klebsiella pneumoniae (11%), and pseudomonas (5%). The growth was negative in 41/141 (29%) of urine samples and mixed in (5 %).

The percentage of bacteria resistant to Co-amoxiclav was 50%, extended-spectrum beta-lactamase (ESBLs) bacteria isolated in 8.5 % of positive samples. Treatments regimens were based on microbiology advice and culture and sensitivities. This included: (26/141) of patients received Carbapenems, (26/141) Quinolones, (10 /141) Temocillin,(9/142) Piperacillin and Tazobactam.. 53% of admissions were complicated by AKI and bacteraemia identified in 18% of blood cultures .Few patients needed surgical procedure to treat recurrent urospesis such as: stent removal.re-implenation of ureter, native nephrectomy.

Discussion:
UTIs in renal transplant recipients were associated with a risk of urosepsis, longer hospitalization, high re-admission rate, and the need for escalation of antibiotic treatment; This caused more cost on the NHS. In our study significant percentage of PRTX had AKI, some had bacteraemia and prolonged morbidity.

P0150

Dual kidney transplants: How well are we doing? A single centre review of DKT outcomes

Fungai Dengu, Neal Banga
Royal Free Hospital, London, UK

Introduction:
Increasing the supply of organs available for transplantation is a major challenge. One method of increasing the pool of organs available is to perform a dual kidney transplant (DKT) in which two ECD kidneys that would otherwise be discarded as single organs are implanted into one recipient. The organs used in DKT are considered suboptimal and concerns exist about the outcomes of this patient group. We aim to review the outcomes of DKT in a UK Transplant Unit.

Methods:
We conducted a retrospective single intuition review of all (33) DKTs performed over a 5-year period. We reported on 1yr, 2yr and 3yr death-censored graft survival, overall patient survival and median Creatinine. We also reported on the DGF rate, PNF rate and overall LOS.

Results:
We found that the overall short to medium term outcomes in terms of graft and patient survival in DKT were excellent, however there were increased rates of DGF and PNF and a high mortality in graft loss.

Years (since DKT)	Patient survival % (n)	DC-Graft Survival % (n)	Median Creatinine (uM/L)
1	**97 (30)**	**97 (29)**	**90 d – 157**
2	**91 (22)**	**95 (20)**	**1yr - 138**
3	**89 (18)**	**93 (15)**	**3yr - 152**

Discussion:
DKT represents a safe and effective way of increasing the donor pool by reducing the discard rate of ECD's and utilizing them as DKTs. It's premised on the concept of nephron dosing in which the nephron mass transplanted can be increased to the critical level needed for acceptable graft function if an additional (albeit suboptimal) kidney is transplanted. We did however find that there was an increased DGF, PNF and LoS associated with DKT; and in cases of graft loss, a high mortality. Further investigation is needed to define the criteria for DKT to avoid a paradoxical reduction in the donor pool by transplanting two acceptable ECD Single Kidney Transplants into recipients as DKTs.

P0151

Complications of the ureter after renal transplantation (CoURT): Initial results from the first Carrel Club transplant research collaborative (CCTRC) project

Nicholas Barnett, Anna Adamusiak, Catherine Boffa, James Hunter, Simon Knight, Shruti Mittal, Ismail Mohamed, Tahawar Rana, Emma Aitken, Hannah Copley, Jonathan Ellis, Melanie Field, Giuseppe Giuffrida, Ismail Vokshi, David van Dellen

The Carrel Club Transplant Research Collaborative, National Specialty Trainee Research Collaborative, UK

Introduction:

Urological complications, including urinary leak, ureteric obstruction/stenosis and urinary tract infection (UTI), can arise following renal transplantation. The CoURT Project has been designed to identify current variations in practice and outcomes within the United Kingdom, with a view to identify areas for future investigation.

Methods:

The first two phases of the project were a questionnaire submitted to Transplant Surgical Consultants and a pilot prospective audit of patients undergoing renal transplantation between 11/04/2016 and 10/05/2016. Standardised data collection forms were used, and results submitted using REDCap electronic data capture tools.

Results:

Questionnaire – 42 responses were received from Consultants in 8 Centres. All perform an extravesical vesico-ureteric anastomosis - 37 (88%) with continuous sutures, 5 (12%) with interrupted sutures. 37 (88%) insert a ureteric stent routinely. 13 (31%) give antibiotics for UTI prophylaxis either routinely or selectively at the time of transplant. The majority (32 (76%)) aim to remove the stent between 29-42 days post-transplant. All planned to remove the stent using flexible cystoscopy.

Prospective study: 83 renal transplant recipients were included from 7 Centres. 78 (94%) of patients had an extravesical vesico-ureteric anastomosis (58 with continuous and 20 with interrupted sutures). 76 (92%) had a ureteric stent inserted. At 1 month follow up, 3 patients had had a reported episode of bacteriuria (all these patients had ureteric stents and had prophylactic antibiotics at the time of transplant), 1 patient had a documented urinary leak and there were no recorded episodes of ureteric stenosis.

Discussion:

These are results from the first national trainee collaborative research project performed within transplantation. In addition to demonstrating that this is a viable, effective method of clinical investigation, we have identified some variation in practice nationally. Longer-term results are currently being collected to aid the design of future studies.

P0152

The Influence of Recipient Smoking Status on Simultaneous Pancreas Kidney Transplant Survival and Morbidity

Emily, R Thompson[1], Ibrahim, K Ibrahim[1], Avinash Sewpaul[1], Rodrigo Figuerido[1], C Hopkinson[2], James, A Shaw[1], Alison, L Brown[1], Derek, M Manas[1], Steve, A White[1], Colin, H Wilson[1]

[1]NIHR Blood and Transplant Research Unit, Institute of Transplantation, Freeman Hospital, Newcastle upon Tyne, UK, [2]Statistics and Clinical Studies, NHS Blood and Transplant, Newcastle upon Tyne, UK

Introduction:

Transplant recipients have a marked increased risk of premature cardiovascular mortality and malignancy in comparison with the general population especially diabetic patients being considered for pancreas transplants. In kidney transplantation, recipient smoking is associated with an increased risk of death and graft loss. Surprisingly little is known about the impact of smoking following pancreas transplant. In an era of organ shortage, identifying patients at risk of early graft loss is vital to aid appropriate allocation.

Methods:

Retrospective data on all UK pancreas transplants from 1984-2015 was obtained from NHSBT UK transplant registry, n=2161. We included only patients undergoing their first SPK transplant. Smoking status was classified as non, current or ex-smoker. Unadjusted graft and patient survival was calculated using Kaplan-Meier plots and compared using the log-rank test. Multivariate analysis was performed using Cox proportional hazards regression.

Results:

The long term unadjusted all-cause mortality was not significantly different between current, non or ex-smoking status groups (p=0.65). Kaplan Meier plots revealed no significant difference in long term graft survival between smoking status groups. Upon adjustment for confounding variables smoking status remained non significant. Graft survival HR 0.9 (95% CI 0.6-1.3, p=0.7). Patient survival HR 1.5 (95% CI 0.8-3.1, p=0.3). Prolonged cold ischaemic time, recipient BMI, recipient age, donor age, haemodialysis pre transplant, non favourable HLA mismatch and sensitisation at transplant were the most predictive significant variables associated with graft and patient survival. The effect of recipient age was analysed in more detail and revealed significantly higher mortality in those recipients over 55 years of age (p =0.001, Kaplan-Meier).

Discussion:

Recipient smoking status does not influence overall graft or patient survival following simultaneous kidney pancreas transplant. However, there are a cohort of patients for which smoking at the time of transplant is considered to be associated with a higher mortality. Smoking cessation prior to transplant should be encouraged in patients over 55 years of age, a high BMI or on haemodialysis to ameliorate this risk.

P0153

Early versus late ureteric stent removal after kidney transplantation

Emily, R Thompson[1], Sarah, A Hosgood[2], Mike, L Nicholson[2], Colin, H Wilson[1]
[1]NIHR Blood and Transplant Research Unit, Institue of Transplantation, Freeman Hospital, Newcastle upon Tyne, UK, [2]NIHR Blood and Transplant Research Unit, Department of Surgery, Addenbrooke's Hospital, Cambridge, UK

Introduction:
Kidney transplantation is the treatment of choice for patients with end-stage kidney disease. In a previous meta-analysis we concluded routine ureteric stenting in kidney transplantation reduces the incidence of major urological complications (MUCs). Unfortunately, this reduction appears to lead to a concomitant rise in urinary tract infections (UTI). For kidney recipients UTI is now the commonest post-transplant complication. There are a number of different approaches taken to ureteric stenting which are associated with varying degrees of morbidity and hospital cost. This review aimed to look at the benefits and harms of early versus late removal of the ureteric stent in kidney transplant recipients.

Methods:
We searched the world literature using an optimised search strategy developed by the Cochrane Kidney and Transplant Group. All RCTs and quasi-RCTs were included in our meta-analysis. Two authors reviewed the identified studies. Early removal was considered as stent removal before day 15 post-op or during the index transplant admission. The primary outcome of interest was the incidence of MUCs. Secondary outcomes were UTI, idiosyncratic stent-related complications, hospital related costs and adverse events. A subgroup analysis was performed examining complications reported in different ureteric stenting techniques; bladder indwelling (BI) vs per-urethral (PU). Statistical analyses were performed using the random effects model and results expressed as relative risk (RR) with 95% confidence intervals (CI).

Results:
Five RCTs (1097 patients) were included in our analysis. There was no significant difference in the incidence of MUCs in early vs late removal; RR 1.65 95% CI [0.57, 4.83], p=0.36. The incidence of UTI was significantly reduced in the early removal group; RR 0.60 95% CI [0.41, 0.87], p=0.007. UTIs were significantly less likely to occur if a BI stent was used, RR 0.45 95% CI [0.29, 0.70], p=0.0004, compared with PU stents; RR 0.81 95% CI [0.51, 1.27] p=0.36.

Discussion:
Early removal of ureteric stents following kidney transplantation significantly reduces the incidence of UTI and is not associated with a higher risk of MUC. Bladder indwelling stents are the optimum method for achieving this benefit.

P0154

Re-Audit of Hypophosphataemia and its management post kidney transplant (Three Cycle Audit)

Laura Carone[1,2], Nabil Hussein[1,2], Alex Prettyman[1,2], Nick Moore[1], Raj Singh[1], Atul Bagul[1]
[1]University Hospitals of Leicester, Leicester, UK, [2]LNR Deanery, East Midlands South, UK

Introduction:

The renal transplant unit doctors noticed a high level of readmissions to hospital for IV phosphate supplementation following renal transplantation. Hypophosphataemia (defined as phosphate levels below <0.8mmol/l) is a common medical problem after renal transplantation. Readmissions for IV phosphate can be costly, and leads to increased bed pressure and inconvenience to patients.

Methods:

This was a three-cycle audit. Retrospective data were collected in each cycle. All transplanted patients during each cycles time interval were identified, and phosphate levels at point of discharge were documented in addition to whether they were adequately supplemented if levels were low. Additionally, patients' levels of phosphate in the three days preceding discharge were recorded and analysed to ascertain if they were dropping significantly and whether they could potentially benefit from prophylactic supplementation. The first cycle involved 56 patients, the second one 61 and the third one 38. Data was collected in the first cycle from May 2014 to October 2014, second cycle from November 2014 to May 2015 and the third cycle from August 2016 to November 2016, all patients who had a renal transplant in Leicester during these periods were included in this audit.

Results:

		Target % / Expected Range	1st Audit Results	2nd Audit Results	3rd audit results
1	All patients with a phosphate level of <0.8mmol/l at point of discharge should receive oral supplementation of phosphate	>95%	71%	87%	87%
2	All patients with falling phosphate levels (>0.3mmol/l) in the three days preceding discharge were prescribed oral supplementation of phosphate	>95%	58.5%	57.5%	76.2%
3	No patient should be readmitted for phosphate polyfuser	>95%	21.4%	12.7%	0.05%

Discussion:

Overall, the three cycles demonstrate that the intervention effectively increased the number of patients with low levels of phosphate who received supplementation and this increase was sustained in the third audit cycle. There has been a large reduction in the number of patients readmitted for phosphate polyfuser with a dropping phosphate identified before discharge, with only one patient in the third cycle being readmitted. However, the results still demonstrate that a more robust intervention is required to ensure that all patients are adequately supplemented on discharge.

P0155

Renal transplantation and Scleroderma; challenging but not impossible

Ahmed Mostafa Badawy[1,2], Ajay Sharma[1,3], Ahmed Halawa[1,4]
[1]University of Liverpool, Liverpool, UK, [2]Agouza Police Authority Hospital, Cairo, Egypt, [3]Royal Liverpool University Hospital, Liverpool, UK, [4]Sheffield Teaching Hospitals, Sheffield, UK

Introduction:
Scleroderma is an autoimmune disease of uncertain etiology, and its symptoms are due to fibrosis of the skin and internal organs. Scleroderma renal crisis is the most important complication of scleroderma that presets with sudden onset of accelerated hypertension that may cause acute kidney injury. Diagnosis is often done by skin changes, anti-scl-70, anti- autoimmune antibodies. Rising of blood pressure is usually the first sign of scleroderma crisis. Treatment options when they reach ESRD are either dialysis or transplantation with a probability of post renal transplantation renal crisis as high as 50%.

Method:
Two cases of scleroderma have undergone renal transplantation both from living donors with 111 mismatches. Case 1 received basiliximab as induction and steroids 500 mg preoperatively followed by another 500 mg intraoperatively. Maintenance triple therapy in the form of steroid, MMF 1gm/12 hr and cyclosporine 8 mg/kg in two divided doses. ACEI stopped and changed to amlodipine and methyldopa.
Case 2 received ATG 5mg/kg for 5 days. Postoperatively steroid was tapered to 30 mg by day 7, MMF 1gm/12 hr and rapamycin 3mg/day as maintenance. Patient continued on ACEI before, during, and after operation.

Results:
In case 1, creatinine reached 0.7mg/dl by end of day one, but, unfortunately she died in the morning of day 4 secondary hypertensive crisis. She was complaining of sudden headache, shortness of breath as blood pressure reached 230/140.
Case2 discharged with creatinine 0.8 mg/dl and continued follow up for 2 years without any complication, then traveled back to her home country.

Discussion:
ESRD and death from scleroderma renal crisis can be reduced by 60% by the use of ACEI. Scleroderma renal crisis can be precipitated by the use of high doses of steroids by cyclosporine withdrawal and tacrolimus treatment.
Unfortunately, case 1 had a fatal scleroderma renal crisis despite well-functioning graft and normal kidney function may be due to use of cyclosporine, steroids and discontinuation of ACEIs that were avoided in case 2.

P0156
Seasonal variation and kidney transplant rejection: First clinical study

Ahmed Hassan[1,2], Ahmed Halawa[1], Tim Key[1]
[1]Sheffield Kidney Institute, Sheffield, South Yorkshire, UK, [2]Central Manchester University Hospitals NHS Foundation Trust, Manchester, UK

Introduction:
Studies demonstrate seasonal variation in immune responses. During winter, stronger pro-inflammatory state and higher autoimmune diseases incidence are observed. We postulate these variations could influence transplant immunology. This study reports the effect of seasonal variation on Kidney transplant outcome

Methods:
A retrospective review included all kidney transplants at Sheffield Kidney unit from 2008 to 2012. Patients were followed up for 46±25 months (Mean ± SD). Age of the donors and recipients, donor type, month of transplant, first or repeat transplant, HLA match, period of graft follow up in months and date of any graft failure, immunosuppression (Induction & maintenance) were collected. Biopsy proven rejection was analysed (rejection type, treatment, number of rejection episodes and month of rejection). December, January and February were considered Winter. Rejection after 90 days of initial rejection is considered as recurrence. SPSS 20 was used for statistical analysis

Results:
435 transplants were included and 43 grafts (10%) suffered from rejection. 79 biopsy proven rejection episodes were classified according to season of rejection (winter v non-winter). Rejection during winter required more intensive immunosuppressive treatment than standard steroid pulse alone in comparison to rejection in non-winter months (60% vs 31%, p 0.03, Chi2) despite all winter group received triple immunosuppression (Table). There was no difference in transplant graft survival between both groups.

Rejection group characteristics	Winter Rejection(n 15)	Non winter Rejection(n 64)	P value
Recipient age (Mean ± SD) years	47 ± 16	46 ± 16	0.93
Type (Antibody/Cell mediated)	7/8	24/40	0.53
Recurrent rejection	2 (13%)	7 (11%)	0.79
First/Previous Transplant	10/5	48/16	0.51
Donor Type (Deceased/living)	8/7	42/22	0.37
Immunosuppression(2/3 agents)	0/15	20/44	0.01*
Induction (Basilix-standard/High risk)	11/4	49/15	0.79
HLA match (No mismatch/ 1 or more)	2/13	10/54	0.82

Conclusion:
Our report indicates episodes of kidney transplant rejection occurring in the winter months are more difficult to treat, even with enhanced immunosuppression.

P0157

Incidental lesions following bilateral nephrectomy of adult polycystic kidneys

Maria Irene Bellini[1], Frank Dor[1], Paul Brookes[2], Jeremy Campbell[3], Peter Hill[4], Vassilios Papalois[1]
[1]Department of Renal and Transplant Surgery, Imperial College Healthcare NHS Trust, London, UK, [2]Department of Histocompatibility and Immunogenetics, Imperial College Healthcare NHS Trust, London, UK, [3]Department of Anaesthetics, Imperial College Healthcare NHS Trust, London, UK, [4]Department of Renal and Transplant Medicine, Imperial College Healthcare NHS Trust, London, UK

Introduction:
Autosomal dominant polycystic kidney disease (ADPKD) represents the 4th cause of end stage renal failure. The incidence of renal cancer is higher than in nonADPKD population and healthcare professionals should be aware of this risk.

Methods:
Retrospective analysis of consecutive ADPKD patients who underwent native nephrectomy at our institution from 2012 to 2016. Surgery was performed via midline laparotomy.

Results:
Twenty-one patients underwent bilateral nephrectomy; 10/21 were male (48%) and 9/21 had previously received a kidney transplant (43%). Median age was 54.5 years (36-68). Median hospital stay was 9 days (6-20). Imaging before the operation was not suspicious for malignancy. Indication for surgery: space (62%), recurrent cyst infection (38%), pain/discomfort (24%), haematuria (19%), weight loss (5%). Panel Reactive Antibody levels changed in 1 patient who previously had pregnancies, as per reactivation of her own antibodies profile ($p<0.01$), with no correlation to blood transfusion. Complication rate: intraoperative bleeding (5%), collection (5%), prolonged ileus (10%). There was no mortality. Median follow-up was 13 months (1.2-55.7) and quality of life improved for all. Histology showed 3 incidental lesions (14.2%): 2 papillary adenomas (9.5%) and 1 pT1a papillary renal cell carcinoma (4.7%). The last patient was 13 years post-transplant with haematuria. A total body CT did not show any secondary disease.

Discussion:
In our experience, bilateral nephrectomy for ADPKD patients is safe and effective. It is also associated with an overall rate of 14.2 of incidental lesions, which assumes high importance in the context of immunosuppressed and transplanted patient

P0158

The management of lipid abnormalities in renal transplant recipients at a regional transplant centre

Laura Talbot, Peter Rowe, Andrew Connor
South West Transplant Centre, Plymouth, UK

Introduction:

Cardiovascular disease is common amongst renal transplant recipients and dyslipidaemia is a contributing factor. Although statins significantly reduce serum total cholesterol and low-density lipoprotein cholesterol (LDL-c) in transplant recipients their impact on cardiovascular events and mortality in transplant recipients is less well understood. However, the 2013 Kidney Disease: Improving Global Outcomes (KDIGO) Clinical Practice Guideline for Lipid Management in Chronic Kidney Disease recommends that all adult kidney transplant recipients over 30 years of age receive statin therapy unless contra-indicated. The KDIGO Dyslipidaemia Guidelines recommend evaluation of renal transplant recipients with a complete lipid profile at least annually. LDL-c levels are the main therapeutic target and statins are recommended as the first line agent. We wished to evaluate our centre's practice against these guidelines.

Methods:

One hundred patients receiving follow up for functioning renal transplants were identified at random from a population of 279 transplant recipients under active follow up. Data were collected by accessing the electronic medical records system (VitalData), including: patient age; whether or not a full lipid profile had been checked within the previous 12 months; cholesterol and LDL-c results; and, whether the patient was receiving statin therapy.

Results:

Only 3/100 patients were under the age of 30. Most patients over the age of 30 had lipid profile testing within the preceding year (81/97) of which just over half (56/81) were on a statin. The majority of patients taking statins achieved target lipid profiles (46/56) and the 10/56 patients who did not do so were all receiving sub-maximal statin doses (certain immunosuppressants require lower maximal doses but even so there was scope to increase the dose in all 10 patients).

Conclusion:

These data suggest that target lipid profiles are likely to be widely achievable amongst transplant recipients through the implementation of simple measures to ensure that annual lipid profiles are checked and statin doses are reviewed and up-titrated.

P0159

Duplex ultrasonography following transplant ureteric stent removal should only be performed for clinical concern

Mahmoud Soliman, Richard Sennett, Claire Taylor, Sarah Heap, Abbas Ghazanfar, Mohammed Morsy, Ashar Wadoodi
St Georges Teaching Hospital, London, UK

Introduction:
St Georges Hospital provides renal transplant services for St Georges, Brighton and St Helier's patients. St Georges and Brighton patients (approx 50%) undergo routine US scanning 48hrs following stent removal, patients from St Helier's hospital (approx 50%) are only scanned if there is clinical concern.

Methods:
A retrospective audit of all renal transplant recipients was carried out using the Clinical Vision™ database from January 2015 for 12 months. The aim of this audit was to assess the value of routine duplex scanning following cystoscopic stent removal.

Results:
141 patients with renal transplant ureteric stents were identified through the St Georges transplant data base. 62 patients were in the St Georges and Brighton pool and underwent routine US scanning. 18 scans demonstrated a collection and or some degree of ureteric/pelvicalyceal dilation, however only 5% (4/18) patients required intervention. In the St Helier's group there were 59 patients of which only 20 patients underwent duplex scanning for clinical cause. 10% (2/20) of these scans resulted in intervention. Routine scanning costs the St Georges and Brighton group more than £28,000 v £9,000 for roughly equivalent numbers of patients in the St Helier's population.

Discussion:
Duplex scanning costs the NHS approximately £460 per scan. In our practice it resulted in a significant number of negative scans for St Georges and Brighton patients. Our data suggests that duplex scanning should be performed only if clinically indicated in order to significantly reduce the overall costs of transplantation.

P0160

The role of radioisotope renography (MAG3) in renal transplant patients with delayed graft function

Richard Sennett, Claire Taylor, Sarah Heap, Abbas Ghazanfar, Mohammed Morsy, Ashar Wadoodi
St Georges Teaching Hospital, London, UK

Introduction:
Renal transplant imaging is routinely performed using duplex ultrasonography (duplex US). In our department patients exhibiting signs of delayed or slow graft function (DGF) will routinely undergo radioisotope renography Tc99m (MAG3) despite normal duplex US imaging. We wanted to elucidate whether MAG3 scanning affects the management of renal transplant patients when duplex US has demonstrated normal perfusion.

Methods:
We retrospectively audited 83 patients who underwent MAG3 imaging and duplex US following renal transplant with either slow or DGF. 8 of these patients had abnormal flow described on duplex US and were excluded from analysis. All abnormal MAG3 results from the remaining 75 patients were investigated using the Power Chart™ database to assess if the result affected patient management.

Results:
75 patients who had normal duplex US scans subsequently underwent MAG3 imaging following their renal transplant. 12% (9/75) demonstrated poor or reduced perfusion on MAG3 imaging; however this had no impact on overall patient management. The cost of MAG3 imaging in our unit is £183, an expenditure of over £13,000 in 18 months.

Discussion:
From our audit it is clear that MAG3 imaging following a normal renal transplant duplex US rarely shows a contradictory result to the duplex US scan. Abnormal MAG3 results following a normal duplex US in our study did not alter patient management. Based on our results the cost of MAG3 imaging is not justified when duplex imaging is normal.

P0161

Cystitis versus Pyelonephritis in Renal Transplant patients: Pilot study

Rhana Hassan Zakri, Fiona McCaig, Andrew Vicens, Rohit Srinivasan, E Asgari, Jonathon Olsburgh
Guy's & St Thomas' NHS Foundation Trust, London, UK

Introduction:
Urinary tract infection (UTI) affects 25-40% of renal transplant (RTx) recipients in the first year. UTI, in particular pyelonephritis, may cause rejection, sepsis, impaired RTx function, allograft loss and death. We investigate the incidence, timing of UTI (lower versus upper tract) and effect on allograft 5 years post RTx.

Methods:
Of 175 adult RTx performed in 2010, 60 (36 LD, 19 DD, 5 SPK) had long-term follow up at our institution. Data on UTI frequency/timing, lower/upper tract symptoms/signs, creatinine/eGFR and DMSA was collected.

Definitions: Lower UTI - absence of systemic upset, localised cystitis symptoms, normal CRP. Upper UTI (renal transplant/native pyelonephritis) - raised CRP, pyrexia, RTx dysfunction, systemic symptoms, RTx/native kidney pain/tenderness.

Results:
n=123 UTI episodes in 24/60 (40%) patients (15/24 (62%) female; (15 LD, 7 DD, 2 SPK). Mean follow-up: 5 years post RTx. 8/24 (33%) had upper UTI (6 transplant, 2 native pyelonephritis). No log change from baseline creatinine and no influence of number of UTIs seen. 19/24 patients had a DMSA at least 3/12 post UTI; 4/8 upper UTI had a photopenic area in the RTx suggesting scarring.

Discussion:
A high incidence of both UTI (40%) and pyelonephritis (a third of all UTI) in the first 5 years post RTx noted, predominately in women. No difference in type of RTx related to UTI. No apparent statistical difference in creatinine levels after 5 years. 50% of pyelonephritis patients had developed scarring on DMSA. Longer follow-up needed to draw firm conclusions but are keen to emphasise the important difference between cystitis and pyelonephritis in RTx patients.

P0162
A 21st Approach for- Addenbrookes young adult transplant service –YATS

Lynda Scowcroft, Claire Joyce, Gill Chumley
Cambridge University Hospital Trust Addenbrookes, Cambridge, UK

Introduction:
The 2004 National Service Framework for Renal Services recognised that young adults with kidney disease should have access to a multi skilled renal team to address their holistic needs. In recognition of this the kidney transplant service at Cambridge introduced a nurse led Young Adult Transplant Service (YATS) for kidney transplant recipients under the age of 30. The aim of the service is to encourage, motivate and give confidence to young adult patients in order for them to become more independent and to take ownership of their kidney healthcare; as well as helping to prevent graft loss by early recognition of non-adherence and by offering interventions which can potentially optimise their post- transplant health and social care. The YATS is made up of members from various specialities including: transplant coordinators, renal counsellors, renal social care practitioner, pharmacists and dieticians. Young adults are invited to attend the YATS drop in session every 3 months, either by text, social media or promotional posters

Methods:
This is a retrospective review of the YATS service and its outcome between September 2013 and September 2016.

Results:
2013: YATS service re-introduced. An initial number of 70 suitable patients identified and invited to a YATS clinic via letter, out of these only 2 attended.
2014: 75 suitable patients identified and invited to a YATS clinic via letter, out of these 4 attended.
2015: 75 suitable patients identified and invited to a YATS clinic via text, out of these 10 attended.
2016: 104 suitable patients identified, and invited to a YATS clinic via text, social media and promotional posters to attend 'drop in session', 26 attended. Since the re-launch in 2013 the YATS has assisted with a holistic range of issues.

Discussion:
YATS is an excellent example of a collaborative service provision; using novel approaches to patient engagement it has increased attendance over the last 3 years. Although the YATS is still in its infancy the service has so far proven a worthwhile holistic approach addressing the specific needs of young adults with kidney disease.

P0163

Is low / intermediate grade prostate cancer still a contra-indication for renal transplant?

Andrew Vicens-Morton[1], Hide Yamamoto[2], Oussama Elhage[2], Rhana Zakri[1], Rick Popert[2], Ben Challacombe[2], Paul Cathcart[2], Prokar Dasgupta[2], Jonathon Olsburgh[1]

[1]Guys and St Thomas Trust, Organ transplant Department, London, UK, [2]Guys and St Thomas Trust, Urology Department, London, UK

Introduction:

Men with end stage renal disease (ESRD) do not escape the possibility of being diagnosed with prostate cancer (PCa). Historically such a diagnosis has ruled out the possibility of being considered for a renal transplant.

Objective:

Demonstrate our experience of managing patients with ESRD and low / intermediate grade PCa.

Methods:

A retrospective database of ESRD patients and PCa was assessed for demographic details, PCa diagnosis and management, ESRD management including RTx .

Results:

During the last 12 years, 11 ESRD patients have been diagnosed with PCa before being activated on the transplant waiting list (RTxWL). 6 were included in an AS protocol, 4 underwent robotic radical prostatectomy (RRP) and the remaining patient is currently being assessed for RRP.

Average age was 64.7 years; mean PSA at diagnosis was 9.2 ng/ml; Gleason score was 3+3 in 5 patients, 3+4 in 3 patients and 4+3 in the remaining 3 patients. Mean follow up was 55 months. The rate of progression of the tumour was 18.2%.

Of the 4 patients post-RRP, all have undetectable PSA after mean 46 months f/u; one received RTx 6 years post RRP and has stable renal function; 2 patients are active on the RTxWL and the remaining patient 2 months post-RRP is awaiting activation on the RTxWL.

Of the 6 patients on the AS protocol, 2 remain on RTxWL and 4 were transplanted. One AS patient was transplanted 26 months after PCa diagnosis: after 93 months PCa progression free follow-up (PSA 0.6ng/ml) he died of oesophageal cancer with a functioning transplant. The second AS patient (PSA 5.8 at diagnosis) was transplanted 12 months after PCa diagnosis: after 29 month follow-up (PSA 4.2) he has a functioning transplant. The third AS patient (PSA 6.3 at diagnosis) was transplanted 27 months after PCa diagnosis and remains on AS with 50 month follow-up (PSA 5.4); unfortunately the transplant failed and he is back on HD. The fourth AS patient had PCa progression after 2 years of AS and was treated with Hormone / Radiotherapy: 5 years later he received a kidney transplant and at 42 month follow up (PSA 0.6ng/ml) has a functioning transplant.

Conclusion:

Even though our cohort is small, our experience suggests that ESRD patients should be offered standard treatment options including AS for low / intermediate risk PCa. The decision to progress to transplant needs consideration of individual PCa disease characteristics and RTx options including whether a living or deceased kidney donor is available. AS in appropriate ESRD patients may no longer be a contra-indication to RTx.

P0164

An evaluation of video content in pre-transplant education by kidney transplant candidates

Joanne Henry[1], Gareth Jones[1], Bethan Hood[1], Charlotte Mallindine[1], Aisling O'Riordan[1], Shashi Hirani[2], Alison Coutts[2]

[1]Royal Free Hospitals, London, UK, [2]City University of London, London, UK, [3]Montague Stanton Research Scholarship., London, UK

Introduction:

The average waiting time for a kidney transplant in the United Kingdom is 3-4 years (NHS blood and transplant 2016). The information received fades as time passes. We are developing short digital videos for kidney transplant candidates to top up their knowledge on kidney transplant. As videos are costly to make, it is prudent to involve patients in the project.

Methods:

Service evaluation by questionnaire using descriptive statistics. 60 haemodialysis patients that are 'active' or being 'worked up' on the kidney transplant list will judge five short videos while on dialysis. Rapid estimate of adult literacy in medicine (REALM-R) test will establish whether patient's health literacy levels influence the results.

Results:

The questionnaire will capture patient knowledge before and after watching the videos; attitudes towards video education; comparing patient stories and health care professional video. How patient's access health information and how they would like information and in what format in future. Likert scales will determine if each video was

Too short or too long;
Unhelpful or helpful;
Slow or fast;
Boring or exciting;
Worthless or exciting;
Hard to follow or easy to follow.

Discussion:

Results will determine how kidney transplant candidates receive information about kidney transplant by digital video and how they would like to receive information in a digital age. On line publication of printed material with more videos and a screen reader to help them top up their knowledge at a time and place that is convenient for them, their family and friends while they wait for transplant.

P0165
Development of the specialist pharmacist role in the renal and transplant outpatient clinic

Dawn Goodall, Rachna Bedi
Imperial College NHS Trust, London, UK

Introduction:
Specialist renal pharmacists are well-established members of the MDT for inpatient wards in the UK. The need for specialist pharmacist services to be provided in the outpatient clinic has grown in recent years to manage increasingly complex drug therapies and more recently, the repatriation of immunosuppression prescribing. This paper describes how the role of the specialist pharmacist has developed in the outpatient clinic at Hammersmith Hospital following its establishment ten years ago.

Core services:
It is recognised that the best clinical outcomes are often dependent on good medication adherence. Supporting medication adherence is integral to the clinic pharmacist's role and they manage a cohort of patients with medication adherence issues. The clinic pharmacist undertakes medication counselling with all new transplant patients and those newly started on immunosuppressants, erythropoietin and other drugs. Relatives, carers and interpreter services will be utilised where language or low health literacy is a barrier to effective communication and the medication support services provided. As an independent prescriber they prescribe new and maintenance supplies of red-listed and other medicines via the home delivery service, outpatient pharmacy and FP10. Medicines reconciliation is regularly undertaken and the pharmacist will often provide GP surgeries with information on medication changes following clinic attendance. Medicines information enquiries are common from staff and patients, can be complex and require a formal literature review. Advice and assistance on managing drug doses following TDM of immunosuppression levels is routinely provided. Major projects such as the switch from branded to generic medicines and repatriation of immunosuppressant prescribing are managed within the clinic by the pharmacist.

Conclusion:
The specialist pharmacist is a well-established member of the outpatient clinic MDT caring for renal and transplant patients at Imperial. The role is highly valued by staff and patients and continues to evolve and grow. Clinical practice research is integrated into the pharmacist's role with a focus on improving clinical outcomes in kidney transplant patients through pharmacist led medication nonadherence identification and support. The research has been presented nationally and internationally and led to collaborative work with other institutions to develop pharmacist led medication adherence research.

P0166

Renal blood flow measurements by magnetic resonance imaging using arterial spin labelling as a novel non-invasive biomarker in paediatric renal transplant recipients

Stephen Marks[1,2], Fabio Nery[2], Marica Cutajar[2], Chris Clark[2], David Thomas[2], Isky Gordon[2]
[1]Great Ormond Street Hospital for Children NHS Foundation Trust, London, UK, [2]University College London GOS Institute of Child Health, London, UK

Introduction:
To investigate our hypothesis that non-invasive cortical renal blood flow (cRBF) measurements using functional magnetic resonance imaging (MRI) arterial spin labelling (ASL) are sensitive biomarkers of early damage of the transplanted kidney in paediatric renal transplant recipients (pRTR).

Methods:
Prospective study of pRTR undergoing MRI imaging using 1.5T Siemens Avanto system with multi-TI pulsed ASL acquisition performed at 10-20 days, 2 and 12 months with a FAIR labelling scheme and multi-shot 3D grase imaging module with background suppression.

Results:
14 pRTR (50% (7) male) aged 9.2-17.1 (median 13.2) years of whom 64% (9) had ESKD due to congenital anomalies of the kidneys and urinary tract underwent MRI ASL after transplantation (86% (12) living-related) with eGFR of 41.0-92.0 (median 60.9) mls/min/1.73m^2 at follow-up of 3.5-5.4 (median 4.5) years. 46% (6) were pre-emptive transplants with 7% (1) re-transplanted. Patients had 0-5 (median 1) post-transplant UTI with 50% (7) EBV viraemia and underwent 1-7 (median 2) percutaneous renal transplant biopsies with evidence of steroid-resistant acute rejection episode due to non-adherence and borderline rejection in 7% (1) and 14% (2) pRTR respectively. Baseline MRI ASL at median 10 days showed cRBF of 86-268 (median 198) mls/100g/min with changes at subsequent and latest MRI performed at median 70 and 344 days respectively of -70 to +121 (median 52) and -56 to +147 (median 36) mls/100g/min respectively.

Discussion:
Renal blood flow maximises in the first month after renal transplantation with subsequent reduction in first year in pRTR. There are multiple causes of renal allograft dysfunction in pRTR and associated risks in performing surveillance percutaneous renal transplant biopsies. MRI ASL is a useful and novel non-invasive biomarker of renal allograft function in pRTR.

P0167

Hypomagnesemia and increased risk of new onset diabetes after transplantation in paediatric renal transplant recipients

Wesley Hayes[1], Sheila Boyle[1], Adrian Caroll[1], Detlef Bockenhauer[1,2], Stephen Marks[1,2]
[1]Great Ormond Street Hospital for Children NHS Foundation Trust, London, UK, [2]University College London GOS Institute of Child Health, London, UK

Introduction:
New onset diabetes after transplantation (NODAT) is a significant co-morbidity following kidney transplantation. Lower post-transplant serum magnesium levels have been found to be an independent risk factor for NODAT in adult renal transplant recipients.

Methods:
We undertook a retrospective analysis of risk factors for NODAT in paediatric renal transplant recipients (pRTR) at our institution with the aim of determining if hypomagnesaemia is associated with a significant risk of developing NODAT in children.

Results:
One hundred and seventy three children aged 1.3 to 17.5 (median 7.0) years were included with BMI at the time of transplantation of 13.8 to 33.6 (median 17.9)kg/m^2 with cumulative prednisolone dose of 0 to 3430 (median 793)mg/m^2 body surface area. Hypomagnesemia was a significant independent risk factor for NODAT ($p = 0.01$). High trough tacrolimus levels were also independently associated with NODAT ($p < 0.001$). There was no significant association between NODAT and children's BMI at the time of transplantation, monthly cumulative corticosteroid dose or post-transplant CMV viraemia ($p = 0.9$, 0.6 and 0.6 respectively). Twenty (11%) of 173 pRTR experienced one or more episodes of sustained glucose intolerance post-transplantation, with 8 (5%) requiring insulin therapy for NODAT at 2 to 551 (median 2) days. Five (3%) of 173 children had sustained hypomagnesaemia on 30 day moving average assessments. Forty-one (24%) pRTR had high monthly moving average trough tacrolimus levels. Forty-nine (31%) pRTR had CMV viraemia post-transplantation during the study period. Nine (5%) children underwent genetic testing for RCAD, with no causative mutations in HNF1-beta found.

Discussion:
This study identifies hypomagnesaemia as a significant independent risk factor for developing NODAT in pRTR. Given the evidence of the risk of NODAT conferred by hypomagnesaemia in both adults and children following renal transplantation, we aim to study the effect of magnesium supplementation on NODAT risk in pRTR.

P0168

The role of the clinical research nurse within nephrology & transplant: Reflections of a research nurse team

Nicola Johnson, Rebecca Gare, Naomi Hare, May Rabuya
Guy's and St Thomas NHS Foundation Trust, London, UK

Introduction:
Research activity has grown over the preceding ten years, becoming embedded as core NHS business. Research nurses are clinical staff with a specialism in caring for the research participant, acting as their advocate and ensuring safety during participation (Miklos 2016). This diverse role includes study coordination, clinical implementation & data management (Hastings et al 2012). Knowledge of UK regulatory requirements, ethical approval and clinical policy are imperative**.**

Methods:
A critical reflection of experience using the Johns reflective model (1995) as a facilitator.

Results:
Integrating research into standard clinical pathways enables renal patients to make informed decisions about participation without feeling coerced. Research nurses' co-ordinate, communicate and liaise with satellite centres and a wide team of professionals including doctors & specialist nurses to manage care and gather data. This long term patient group often have complex care pathways across a number of specialties requiring multi-disciplinary involvement. Renal research nurses provide a common link across these areas to improve patient outcomes. Offering flexibility in appointment schedules may improve the research experience and retain study participation. Some challenges include time pressures, ethical issues with pre-transplant consent and ensuring research follow-ups are conducted as per protocol.

Discussion:
Research nurses are pivotal to the recruitment of participants, providing safe and high quality patient care & gathering reliable research data. This is a unique role requiring continuous collaboration and support from Research Associates and Data coordinators to ensure efficiency. Service evaluation is being undertaken to understand the research participant's perspective.

Miklos, L., (2016), The Nephrology Clinical Research Nurse Role: Potential Role Conflicts, *Nephrology Nursing Journal,* Vol 43: 257-261
Hastings C et al, (2012), *Clinical Research Nursing: A Critical Resource in the National Research Enterprise.* Nursing Outlook, 60: 149-156.
Johns C (1995) Framing learning through reflection within Carper's fundamental ways of knowing in nursing. *Journal of Advanced Nursing*. 22: 226-234

P0169
A youth worker in hospital? What do they do?

Shaun Thomas[1,3], Sian Griffin[1], Catherine Blakemore[2], Sharon Warlow[1], Clare Weeks[2]
[1]Cardiff and Vale University Hospital of Wales, Cardiff, UK, [2]Abertawe Bro Morgannwg Univsersity Hospital, Swansea, UK, [3]Cardiff Metropolitan University, Cardiff, UK

Introduction:
Young people between 11-30 years of age living with CKD or a Transplant have particularly poor outcomes in terms of graft loss or their general health compared to other age ranges. Research suggests that a particularly challenging time can be the transition from Paediatric to Adult services, during which point evidence shows young renal patients may be most at risk of losing their transplants or becoming incompliant with treatments.

Methods:
A Youth Worker was employed to support renal patients between the ages of 11-30 years of age. Interventions included one-to-one support and group support depending on the needs of the individual. A transition pathway was developed in both hospitals; the chosen transition programme was the Ready Steady Go Programme.

Baseline measures of the health of participants were recorded at the start of the project to audit and evaluate any health benefits to patients. Evaluations of the role were also made by stake holders which included young renal patients, their families/friends and the staff in both hospitals.

Results:
Early audits and evaluations suggest that the project had a positive impact on the lives of young people and their families who accessed the youth work services. Some of the benefits recorded to young people have been; increased autonomy, better concordance with treatments and clinic attendance, improved quality of life, built new positive relationships, feeling happier and more confident. However, these positive impacts were only recorded and achieved by a relatively small section of the patient cohort it was aimed at. It became clear that the original patient cohort was too large for the youth worker to support everyone effectively and referrals had to be prioritised.

Discussion:
Initial evaluations suggest the extra support has been of great benefit to the young patients involved. Though, it is clear it needs to be an ongoing and personalised service to work effectively. It is believed that if this support continues it may lead to better health outcomes for the young renal patients, potentially even limiting loss of grafts due to non-adherence. Given the positive results the service hopes to take on another youth worker and be able to support more young renal patients within this age range.

P0170

An audit of obese patients on the renal transplant waiting list at University Hospital Birmingham

Tom Nieto, Clare Pattenden
University Hospital Birmingham, Birmingham, UK

Introduction:
Renal transplantation is well documented to improve outcomes for end stage renal failure (ESRF). Patients with BMI >30 present technical difficulties and are at increased risk of peri-operative complications. Patients with BMI > 40 are less likely to benefit from renal transplantation.

Aim:
To audit active and suspended renal transplant waiting list patients against the Renal Association guidelines for listing of morbidly obese patients (BMI >40).
Primary Outcome: Patients active on the waiting list with BMI >40 should have a documented reason for listing.
Secondary Outcome: All patients with BMI >35 should be referred to specialist weight management services (SWMS).

Method:
A snapshot audit was taken on 08/06/2016. All patients active or suspended on the renal transplant waiting list or receiving renal replacement therapy (RRT) and were audited.

Results:
387 active and 303 suspended patients were identified on the transplant waiting list. There were no patients listed with BMI >40. 27.3% of patients are classified as obese on the active waiting list with a mean BMI = 27.16 (SD = 4.52). For suspended patients mean BMI is 27.59 (SD = 5.06). 37 patients were excluded from analysis due to incomplete data. 46 patients were identified with a BMI > 35 whose only barrier to transplantation was raised BMI. Of these patients 26% had been referred to specialist weight management services.

Conclusion:
UHB meets the guideline for waitlisting patients with BMI >40. Limited numbers of patients on RRT had been referred to SWMS which could lead to delayed transplant listing.

P0171

The use of positive urine dipstick as a screening tool for further testing of suspected urinary tract infection in patients with renal transplant: A care quality improvement study

Sidhdharthkumar Shah[1], Georgina Follows[1], Shiv Bhutani[2], Janet Hegarty[1], Rachel Middleton[1]
[1]*Salford Royal Foundation Trust, Manchester, UK,* [2]*Toronto General Hospital, Toronto, Canada*

Introduction:
Urinary Tract Infection (UTI) remains one of the most common forms of bacterial infection in the transplant population. There are studies, which look into the effectiveness of urine dipstick in the normal population but none, which look specifically at the kidney transplant recipient population, which has a higher risk.

Methods:
This is an observational, non-interventional and retrospective study. Mid Stream Urine (MSU) samples were collected from 107 KTRs in 5 renal transplant clinics in the month of October 2016. All urine samples were sent to laboratory for microscopy, culture and sensitivity test and for urine protein creatinine ratio regardless of their urine dipstick findings.

Results:
Only 8 out of 107 patients tested had positive MSU. 16 samples were positive for leucocytes and 5 were positive for nitrite. The leading causative microorganism responsible for UTI was E coli followed by enterococcus, which combined together contributed 62 % of the total cases. However, only 2 patients were symptomatic and required oral antibiotic treatment. The sensitivity and specificity of leucocytes and nitrites being both positive on the dipstick for identifying a positive MCS were 75% and 98% respectively. For nitrites alone they were 37% and 97% respectively and for leucocytes alone they were 75% and 89%.

Discussion:
This study shows that if a positive urine dipstick for either leucocyte or nitrite is used as a screening test, then no symptomatic UTI would be missed. This care quality improvement project suggests that only 15% of the samples (16 out of 107) need to be sent to the laboratory for culture. The estimated cost of one MSU sample is £3.76; thereby the cost savings would be around £10,000 per annum if only positive dipstick samples are sent. It clearly suggests that urine test for microscopy, culture & sensitivity investigation should be used wisely as it has cost implications on the system.

P0172

Routine ultrasound imaging after transplant ureteric stent removal in paediatric renal transplant recipients: Does it change clinical practice?

Janine Woellner[1], Helena Wilcox[1], Bibek Das[2], Joanna Clothier[1], Jelena Stojanovic[1], Grainne Walsh[1], Chris Callaghan[1,2], Helen Jones[1]
[1]Evelina London Children's Hospital, London, UK, [2]Guy's Hospital, London, UK

Introduction:
Paediatric renal transplant recipients (RTR) at our centre undergo an elective post-stent removal graft ultrasonography (PSRGU). Here we evaluated whether this is useful in the detection of major urological complications (MUC).

Methods:
Retrospective data collection retrieved from electronic case notes. Data presented as median(range).

Results:
77 RTR between January 2012 and November 2016. 57 followed up at our centre (43/57 living donor transplants). 4/57 excluded from analysis (2 had cutaneous ureterostomies, 2 cases with spontaneous stent removal during clean intermittent catheterisation).

53 underwent transplant ureteric stent removal. 47/53 had ureteric stents removed electively at 38(16-73)days post transplant. 30 patients underwent a routine PSRGU 7.5(1-55)days later. 14 had urgent scans (most commonly for serum creatinine rise) at 6(1-20)days and 3 patients had no follow-up scan.

28/30 (93%) of the patients undergoing routine PSRGU had no change in their management. 2 required ultrasound angiology for incidental (non-ureteric) findings. 1/14 patients, whose PSRGU was performed urgently detected a MUC. This patient had an uncomplicated routine stent removal day 29 post-transplant. 4 days later the creatinine rose from 30 to 56µmol/l and an urgent ultrasound reveled hydronephrosis. A nephrostogram showed a narrowed distal 1/3 of the ureter and the patient underwent successful surgical resection of ureteric stricture with ureteric re-implantation.

6 patients underwent urgent stent removal at 24(13-48)days post transplant with the most common reason being urinary tract infection. None of this group had a MUC.

Discussion:
Routine PSRGU following elective stent removal did not lead to the detection of any MUC in this cohort. It will now no longer be undertaken in our centre unless there is a clinical indication to do so. The case with a MUC was diagnosed due to graft dysfunction. This highlights the importance of regular clinical review including measuring serum creatinine following stent removal, which is protocol in our centre.

P0173

Factors influencing length of stay of renal transplant recipients following the implementation of an enhanced recovery after surgery (ERAS) pathway

Shakeeb Khan, Lee Creedon, Magnus Hannah, Alun Willims, Shantanu Bhattacharjya, Amanda Knight, Keith Rigg

Department of Renal Transplant Surgery, City Hospital Campus, Nottingham University Hospitals NHS Trust, Nottingham, UK

Introduction:

The purpose of this study was to audit the length of stay of renal transplant recipients following the implementation of an enhanced recovery after surgery (ERAS) pathway and also determine the factors which influence length of stay.

Methods:

Prospectively maintained databases were reviewed retrospectively to extract data. Case notes were additionally reviewed where data were missing. In hospital complications were recorded using the Clavien-Dindo classification.

Results:

Sixty-five adult renal transplants were performed between January and December 2014. The number of DBD, DCD and living donor transplants was 32 (49.2%), 22 (33.8%) and 11 (16.9%) respectively. Median and interquarantile (IQR) length of stay was 7(5-10) days. Twenty-three patients developed complications of which 9 (13.8%) were grade III or IV. Median (IQR) length of stay was 10.5 (8-13) and 6 (5-7) days, in those with or without complications, $p<0.001$. Similarly length of stay was 6 (5-9) versus 8 (7-12) days in those with immediate versus delayed graft function, $p=0.002$. Length of stay of patients transplanted early in the week was 6 (5-7) days, those during mid-week was 9 (7-12) days and those operated over the weekend was 7(5-12) days, $p=0.023$.

Discussion:

Implementation of ERAS pathway has the potential to reduce the length of stay for those patients with immediate graft function and without postoperative complications. Length of stay also varies with the day of the week when the transplant is done and this requires further work to understand the reasons why.

P0174

Partial allograft nephrectomy for a de-novo renal cell cancer developing in a renal transplant recipient

Shakeeb Khan[1], John Black[1], Mayar Ghazal-Aswad[1], Stalin Dharmiyan[1], Shafiq Chugtai[1], Tahir Doughman[1], Anna Rizzello[1], Roger Kockelbergh[2], Atul Bagul[1]

[1]Department of renal transplant, Leicester General Hospital, University Hospitals of Leicester NHS Trust, Leicester, UK, [2]Department of Urology, Leicester General Hospital, University Hospitals of Leicester NHS Trust, Leicester, UK

Introduction:

The purpose of this study was to audit the length of stay of renal transplant recipients following the implementation of an enhanced recovery after surgery (ERAS) pathway and also determine the factors which influence length of stay.

Methods:

Although renal transplant recipients are at an increased risk of malignancies, these usually arise from native tissue. Renal cell carcinoma arising de-novo in the renal allograft is rare, occurring in 0.14 to 0.2 per cent of renal transplant recipients. We present one such case managed surgically at our centre and share our experience.

Results:

We present the case of a 70-year-old gentleman who received a cadaveric transplant six years ago. His immunosuppression involved prednisolone, mycophenolate and tacrolimus for a year following which he was switched to sirolimus. He had undergone an ultrasound of his transplant kidney which raised the suspicion of a solid lesion and this was confirmed on an MRI to be a 4.4 cm tumour involving the upper pole of the allograft. A biopsy revealed a grade 1 renal cell carcinoma and a full staging CT scan was performed.

Following detailed multidisciplinary and patient discussions it was decided to proceed to a partial nephrectomy with a curative intent.

As a part of the procedure planning his immunosuppression was changed to tacrolimus and he underwent a successful partial transplant nephrectomy. Postoperatively he had a slow recovery and requiring prolonged hospitalisation due to recurrent chest and cardiac complications. His graft function initially deteriorated and then stabilised without the need of any other form of renal replacement therapy and he remains dialysis free 6 months postoperatively.

Discussion:

Partial allograft nephrectomy remains a viable option for de-novo malignancies although extreme caution and careful planning is required.

P0175
An unusual case of Focal Segmental Glomerulsclerosis following transplantation

Andrew Bow
North Cumbria University Hospitals, Carlisle, Cumbria, UK

Introduction:
Focal segmental glomerulosclerosis (FSGS) is a glomerular disease which often causes end-stage renal failure. Secondary forms, for example due to hyper-filtration, are recognised. The primary form is thought to be immunologically mediated, and commonly recurs following transplantation, leading to graft failure.

Methods:
A sixty-six year old man developed end-stage renal failure following stent repair of an abdominal aortic aneurysm. After a period on haemodialysis, he received a deceased donor transplant. In the first year after the transplant, his course was complicated by wound infection, infection of his aortic graft, and rupture of his aortic graft requiring emergency surgery, though his graft continued to function well.

Results:
A further two years later, he developed heavy proteinuria and graft dysfunction, and transplant biopsy demonstrated FSGS. Following alteration of his immunosuppression to minimise tacrolimus exposure, his proteinuria was greatly reduced and his graft function improved.

Discussion:
FSGS can occur *de novo* after transplantation, and in this case is likely due to hyper-filtration injury and glomerular loss following his aortic rupture. The treatment options for *de novo* FSGS after transplantation are similar to those for recurrent FSGS, including plasma exchange, calcineurin inhibition, and cytotoxic and biologic therapies.

FSGS in the transplant kidney does not always represent recurrent disease, and judicious management of immunosuppression can alter the course of graft dysfunction in *de novo* FSGS.

P0176
Mixed acute rejection: In search for the optimal treatment

Dimitrios Kirmizis[1], Ajay Sharma[2], Ahmed Halawa[2], Robert Hangartner[3], Iain Macdougall[1]
[1]*Department of Nephrology, King's College Hospital, London, UK,* [2]*University of Liverpool, Liverpool, UK,* [3]*Cellular Pathology, St Thomas Hospital, London, UK*

Introduction:
In renal transplantation, the optimal treatment of mixed acute rejection is not yet defined. The exact role of each component (cellular vs humoral) in graft damage is not clear, and treatment is given more often on empirical grounds.

Methods:
We report the case of a 69-year old African male recipient of dual transplant from a brain-dead donor, who presented with severe mixed acute rejection (MAR) related to non-compliance to immunosuppression, sixteen months after transplantation. Since graft biopsy was dominated by the findings of C4d negative antibody-mediated rejection (AMR) without the presence of donor-specific antibodies, he was treated with standard treatment against AMR and steroid pulse treatment.

Results:
Although the short-term outcome of the treatment was satisfactory, with considerable improvement in serum creatinine, repeat graft biopsy revealed extensive graft fibrosis, rendering his long-term prognosis rather poor.

Discussion:
The importance of T-cell mediated rejection (TCMR) component in the setting of MAR might be underestimated, as its contribution to graft injury might be more important than perceived, especially in light of recent evidence for the key-role of local graft cellular stimulation. Low donor-specific antibody levels and minimal C4d immunostaining suggest that antibody-mediated injury is probably not the major cause of endothelial cell damage, especially when clear-cut evidence of cellular rejection is present. In this setting, apart from tacrolimus combined with MMF, the use of a lymphocyte depleting agent for the treatment of MAR would seem reasonable, as it would target both the cellular and the humoral components of the rejection. In conclusion, it is frequently not easy though to weight the contribution of each arm of the immune system (cellular vs humoral) in graft damage. A more elaborate immunohistochemical characterization of the primary infiltrating cell line in the graft biopsy can be decisive in choosing the optimal treatment.

P0177

A case report of recurrent resistant primary focal segmental glomerulosclerosis after renal transplant successfully treated with adrenocorticotropic hormone

Anand Yuvaraj, Abheesh Prasad, Patricia Harrison, Mary Healey, Emily Horwell, Nithya Krishnan
University Hospitals Coventry and Warwickshire NHS trust, Coventry, UK

Recurrence of primary focal and segmental glomerulosclerosis (FSGS) after renal transplantation is estimated to occur in 30%-50% of cases. Treatment of recurrent FSGS is challenging because specific pathogenic targets are unknown and available therapeutic options have limited efficacy. Adrenocorticotropic hormone(ACTH), either alone or via its breakdown product α-melanocyte-stimulating hormone, may induce a potent anti-inflammatory effect by reducing B- and T-cell activity or may also have a direct, podocyte-sparing effect within the glomerulus. There are two approved formulations of ACTH used for treatment of nephrotic syndrome in adults, ACTH gel formulation in USA and a synthetic formulation used in Europe. ACTH has been shown to be successful in inducing complete or partial remission in treatment of resistant primary FSGS in native kidneys and in a few cases of recurrent FSGS post renal transplant. We report a 50 year old male patient with recurrent FSGS, presenting nine months after pre-emptive LURD renal transplant(paired exchange), with nephrotic-range proteinuria of 584mg/mmol and debilitating pedal oedema which was resistant to eight months treatment with IV Immunoglobulin and rituximab. He was also on losartan 50mg, prednisolone 5mg, mycophenolate 1g BD, tacrolimus with a trough level of 6-8ug/L. The patient had a remarkable response to synthetic depot formulation of intramuscular ACTH at a dose of 1 microgram twice weekly, where the urine PCR had dropped down from 720mg/mmol to 69.1mg/mmol treated over seven months. We conclude that synthetic ACTH can be considered as a potential therapeutic option for resistant post-transplantation recurrence of FSGS and warrants further evaluation.

P0178

Glomerular CD45 Immunostaining in post perfusion renal transplant biopsies predicting rejection

Anand Yuvaraj, Abheesh Prasad, Kishore Gopalakrishnan, Nithya Krishnan
University Hospitals Coventry and Warwickshire NHS trust, Coventry, UK

Introduction:

Recipients of incompatible renal allografts remain at risk of harbouring persistent donor-specific antibodies (DSA) and developing antibody-mediated rejection (AMR) after transplantation, with increased risk of graft loss when compared with compatible transplants[1]. The gold standard for the diagnosis of rejection and for guiding patient management is the histological evaluation of a renal allograft biopsy[2]. Current microarray analysis of renal allograft biopsies showed similar disturbances in the selected microarray sets in AMR and T cell-mediated rejection (TCMR), suggestive of significant T cell involvement in AMR. A 1968 study found that the earliest feature predictive of hyperacute rejection was neutrophil margination into glomeruli, four or more neutrophils per sectioned glomerulus in a biopsy taken after reperfusion[3]. And, it is also known that glomerular margination of leucocytes occur early after transplantation and was associated with DSA level and early graft dysfunction[4]. So, the aim of our study was to determine the significance of increased number of glomerular leucocytes (which are CD45 positive cells) in HLA and ABO incompatible transplants, in predicting rejection, type of rejection and deciding subsequent graft function.

Materials and Methods:

Forty five sensitized patients, with 43 to HLA antigens and 2 to both HLA and ABO antigens, from 2008 to 2013, were enrolled in the study. Graft biopsies were performed approximately 30 minutes after perfusion in the operation theatre. CD45 Immunostaining on de-waxed sections was performed using the antibody, DAKO CD45, Cat. No. M0701 or Vision Biosystems CD45 X16/99, Cat. No. PA0042. CD45 positive (+ve) cells were counted manually under high resolution microscope, looking at the total number in one glomeruli and the average CD45 count (total number of CD45 +ve cells in the biopsy divided by the total number of Glomeruli). Reporting of the slides was done according to the Banff 2007 criteria for glomerulitis, tubulitis, interstitial inflammation, peritubular capillaritis and intimal arteritis. Similarly, subsequent biopsies were scored and were looked in for rejection, AMR or TCMR.

Statistical analysis of comparison between groups was performed using Student's t-test on SPSS for Windows, version 22.0

Results:

45 Patients: 18 Males, 27 Females. Out of 45 patients, 23 patients had rejection, both AMR and TCMR. 11 patients developed AMR with 8 developing TCMR within three months after renal transplantation. Between 3 months to 1 year, 4 patients had AMR with 5 developing TCMR. 68.75% of patients who developed rejection, both AMR and TCMR, had an initial CD45 cell count >5, with only 37.93% developing rejection with CD45 cell count <5($p=0.04$). With the type of rejection less than 3 months after renal transplantation, 32.25% had TCMR with 37.5% developing AMR when the CD45 cell count was >5, with only 10.34% developing TCMR and 17.24% developing AMR with CD45 cell count <5($p=0.02$). Patients with t2 tubulitis on graft biopsy had a higher mean average CD45 of 12.15 ± 7.34 than t1 with mean CD45 of 2.55 ± 1($p=0.003$) and t0 mean CD45 cell count 4.30 ± 1.8($p=0.01$). Similarly, patients with v2 intimal arteritis on graft biopsy had a higher mean average CD45 of 15.6 ± 1 than v1 with mean CD45 of 2.82 ± 1.13($p=0.0017$) and v0 mean CD45 cell count 4.82 ± 1.9($p=0.029$).

Conclusions:

An average of five or more CD45 positive cells in the post perfusion renal transplant biopsy was significantly associated with rejection, both AMR and TCMR. Moreover, higher the average CD45 cell count and the total count in one glomeruli, greater is the chance of developing rejection, AMR and TCMR, in the immediate post transplant period. Initial highest CD45 count in a single glomeruli and a greater average CD45 count is associated with a greater risk of developing tubulitis and intimal arteritis later. This outcome is in contrast to the previous studies, depicting the importance of CD45 immunostaining in predicting both AMR and TCMR. Further studies with a greater sample size are required to assess the usefulness of the initial biopsy CD45 cell count in predicting subsequent graft function.

P0179

Chylous ascites post laparoscopic donor nephrectomy: Is not rare as we think?

Mohamed Khogali[1], Ajay Sharma[2], Ahmed Halawa[2], Anusha Edwards[1]
[1]Southmead Hospital, Bristol, UK, [2]University of Liverpool, Liverpool, UK

Introduction:

Chylous ascites is an accumulation of milky, chylomicrones and triglyceride-rich fluid within the peritoneal cavity as a result of disruption within the lymphatic system. The causes are: congenital defect of the lymphatic system, malignant neoplasm, post-surgical, trauma, infections related to bacterial, tuberculosis and parasite.
We, hereby, present a case of chyle leak that developed following a laparoscopic donor nephrectomy and managed conservatively.

Case Records:

40 year old lady underwent laparoscopic donor nephrectomy. On post-operative day 2, she noticed swelling of her left thigh and genitalia. Two weeks later she developed painless abdominal distension. Ascites, which confirmed by CT scan. Drain was inserted under ultrasound guidance. The diagnosis of chylous leak was confirmed with a triglyceride of 62.3 mmol/l (the normal level is up to 2 mmol/l) in ascetic fluid. The fluid analysis confirmed chyle leak. The patient was treated conservatively with octreotide subcutaneous injection three times per day in addition to diet modification such as high protein and low fat and medium chain triglyceride. Patient fully recovered after 6 weeks and went back to work and normal diet. No recurrence been reported at 12 month of follow up

Discussion:

Chylous ascites after donor nephrectomy is reported to occur in 0.6% to 5.9% cases. 302 laparoscopic donor nephrectomy been done in our centre since 2007. This is the 2nd case to be reported in our centre, which make the incident around 0.6%. Chyle leak has been increasingly reported in the recent years.

It responds to conservative treatment with high protein, low fat diet and somatostatin.

P0180

Does "the eye of the donor surgeon" predict kidney transplant outcome?

Elise Tierie[1], Joke Roodnat[2], Frank Dor[1,3]

[1]Department of Surgery, division of HPB&Transplant Surgery, Erasmus MC University Medical Center, Rotterdam, The Netherlands, [2]Department of Internal Medicine, Division of Nephrology, Erasmus MC University Medical Center, Rotterdam, The Netherlands, [3]Imperial College Renal and Transplant Centre, London, UK

Background:

Previously, we demonstrated that the retrieval surgeon's subjective assessment of overall donor organ quality and perfusion best predicted the outcome of deceased donor kidney transplantation. In this study, we prospectively quantified the subjective impression of the donor surgeon to transplant outcomes.

Methods:

Between 2014-2016, we performed a prospective regional pilot study for which a detailed organ assessment form was developed to be filled in by retrieval surgeons. Data scored were: temperature, kidney size, kidney perfusion, anatomical characteristics and abnormalities, atherosclerosis, degree of renal artery stenosis and overall quality of kidneys. Variables were scored categorically or on a 1-10 scale. Data on donor and recipient characteristics and graft function after transplantation were gathered. Correlations were made between organ assessment and graft function (immediate graft function (IGF) versus delayed graft function (DGF) or primary non-function (PNF)), and serum creatinine at 3 months post-transplantation.

Results:

In this study, 90 donors donated 178 kidneys of which 166 were transplanted (46.4% DBD, 53.6% DCD). The 12 discarded kidneys significantly more often were from DCD donors that were older, smoked, had lower BMI, lower quality parenchyma and acceptable perfusion from whom liver or pancreas were not retrieved. IGF was achieved in 55%, DGF in 35%, PNF in 4%, and unknown in 6% of the recipients. DGF/PNF occurred significantly more frequently in DCD kidneys (66% versus 49%, p=0.049), in donors with higher BMI (26.4±5.3 vs. 24.7±4.5, p=0.033), with less hypotensive episodes (10% vs. 29%, p=0.005), with lower perfusion quality (8.3±1.3 vs. 8.8±1.1, p=0.017), and larger kidneys (length: 11.8±1.6 vs. 11.1±1.3 cm, p=0.006, and width 6.1±0.9 vs. 5.8±0.9 cm, p=0.037), and in the presence of cysts (p=0.032) compared to IGF. The other variables were not significantly different between the groups. The data on serum creatinine at 3 months and 1 year after transplantation are incomplete and will be analysed in a later phase.

Conclusion:

DGF/PNF after deceased donor kidney transplantation occurs more often in large kidneys that were poorly perfused as assessed by the donor surgeon. These kidneys would probably benefit most from reconditioning strategies, such as machine perfusion. A more precise scoring system might aid in decision-making towards acceptance, allocation, and potential reconditioning strategies.

P0181
Stent removal after transplantation: Ouch!

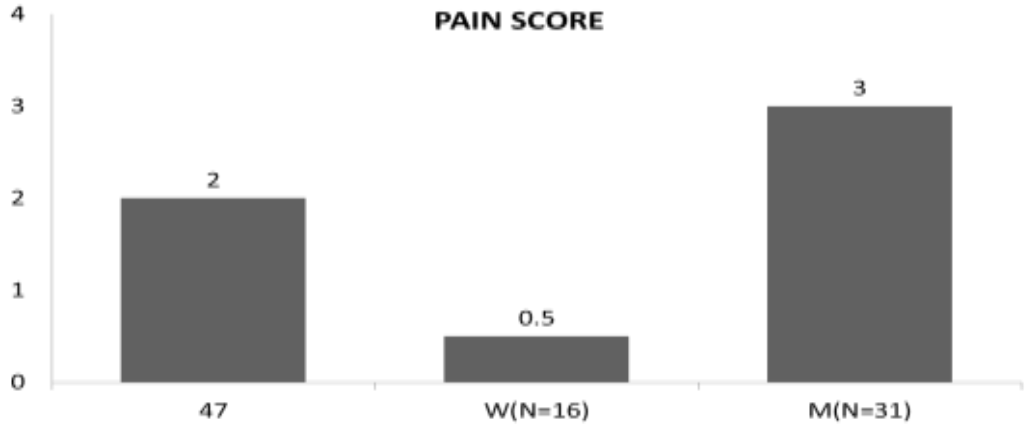
Avneesh Kumar[1], Elizabeth Dale[1], Sarah Hinchcliffe[1], Yazin Marie[1], Simon Curran[1], Kevin Firth[2], Simon Boyes[1]
[1]*Sheffield Kidney Institute, Sheffield, UK,* [2]*Service Improvement, Sheffield teaching hospital, Sheffield, UK*

Introduction:
Ureteric stents are routinely placed during renal transplantation and require removal after 6-8 weeks. Removal procedure is often a source of considerable anxiety and pain. The severity of pain during stent removal is not well documented among transplant recipients.

Methods:
A simple postal questionnaire was designed and sent to 103 patients. All patients who had renal transplantation within the last 18 months from Jan 2015 to June 2016 were included. They were asked to give a 0-10 numeric pain intensity score where 10 was the worst possible pain and 0 being no pain.

Results:
52 responses were received. 5 patients were excluded due to the following (2 removal under spinal anaesthesia, 1 under general anaesthesia, 2 spontaneous passage) Total included in analysis=47, 31 men, 16 women. Median age 61 years (26-73). Median time for removal of stent 53 days (12-214). Median pain score 2(0-9) n=47. Median pain score in men 3 (0-9) and 1 (0-5) in women. 18 men had pain score of 3 or >3 (58%) while 4 women had a pain score of 3 or>3(25%).

Discussion:
Pain during stent removal is more common in men and is also more severe. Entonox, a self-administered mix of nitrous oxide and oxygen is used routinely for pain relief during short procedures. It is perhaps an underutilised analgesic and anxiolytic with minimal side effects. Rapid induction and recovery make it an ideal agent to use for stent removal. Based on this survey we intend to offer the use of Entonox during stent removal.



P0182
What approach for Hand Assisted Laparoscopic Donor Nephrectomy; Trans- or Retro-Peritoneal?

Nivia Catarsini, Giuseppe Giuffrida, Rajesh Sivaprakasam, Carmelo Puliatti, Roberto Cacciola
Royal London Hospital, London, UK

Introduction:
Hand Assisted Laparoscopic Donor Nephrectomy (HALDN) was introduced in our centre in June 2008. Since then we perform Trans Peritoneal (TP) and Retroperitoneal Approach (RP) routinely on all our Living Donors. In this study we have reviewed the outcomes of HALDN and compared the two different approaches also analysing the recipients' outcome.

Methods/Results:
We reviewed our database and identified 339 HALDN performed between June 2008 and March 2016. The TP approach was used in 255 (75.2%) donors.

The operation time, Warm Ischemia Time and days of hospitalisation showed no difference between TP and RP approach. In the LD analysis the readmission rate of TP was 9.4% Vs 12.4% in the RP group (p NS). There was also no difference in the complications observed except for the wound infections; TP 2.5% and RP 9.75% (p 0.0003).

In the recipient analysts we removed the transplants from an altruistic donor or part of the organ exchange scheme where the type of approach could not be established; we identified 235 recipients. Graft failures rate was 2.1% in TP group and 2.5% in the RP group; Similar rates of Ureteric complications were observed in the two groups.

Discussion:
The use of both approaches TP and RP in the same unit is safe and there were no differences in outcomes of both donors and recipients. The overall results of our program revealed that there was only one conversion to open procedure in more than eight years. The operation time in both groups was 90 minutes in average.

Both TP and RP are safe approaches and in our experience the only difference was observed in wound infections rates. Hospitalisation and readmission rates were statistically non significant. Implementing in the same unit different approaches and techniques can only enhance the quality of the service and better respond to different challenges presented by potential donors. There were no graft failures or organ damages differences the TP and RP groups.

In our experience the flexibility of both approaches allows tailoring the surgical technique to different anatomical configurations. Many centres and individual surgeons report perceived or alleged superiority of one approach against the other. Although this remains a single centre retrospective study, this series shows that no substantial disadvantages are shown in any of the two approaches.

P0183

Renal transplantation in abnormal bladder; management options and their effects on graft outcome

Baher Salman[1,2], Ahmed Hassan[1], Ahmed Halawa[1]

[1]Sheffiled Kidney Institute, Sheffield Teaching Hospital, Sheffield, UK, [2]Faculty of Medicine, Menofia University, Shebin ELkoom, Menofia, Egypt

Introduction:

Optimization of emptying and storage function of the bladder should be achieved before renal transplantation in patients with abnormal urinary bladder. The aim of this study is to determine the outcome of renal transplantation among the differently managed abnormal bladder patients.

Methods:

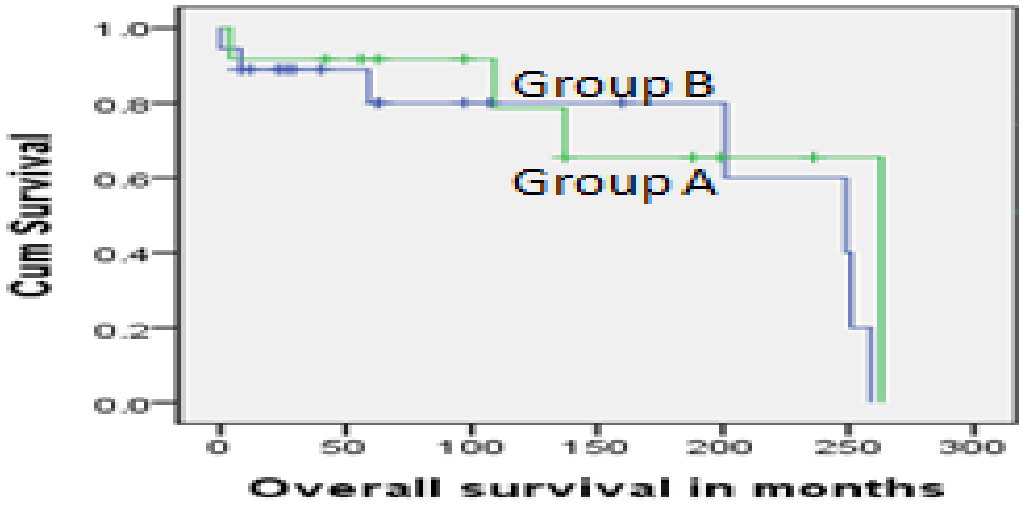
This retrospective study of 30 renal transplant recipients with abnormal bladder who were divided in to 2 groups based on abnormal bladder management. Group (A) included 12 patients who required surgical procedures for their bladder such as (augmentation cystoplasty, Mitrofanoff procedure, ileal conduit, vesicostomy and artificial urinary sphincter in 6, 1, 2, 1 and 2 patients respectively). Group (B) included 18 patients who were managed with oral antichlonergic or beta-3 sympathomimetics drugs, clean intermittent catheterization, suprapubic catheterization or combination of these options. Graft function, survival (Estimated glomerular filtration rate (eGFR) less than 15 ml/min was considered as graft failure) and complications were compared among both groups. Analysis was done by IBM SPSS version 20. Significant P value if it was ≤ 0.05.

Results:

Mean eGFR at 1, 3 and 5 years were higher in group (A) than in group (B) but not significant. There was no significant difference in the graft survival between the 2 groups as shown in the Kaplan–Meier survival curve, (Log Rank test, P=0.42). Among all postoperative complications; the incidence of wound infection was only significantly higher in group (A) than in group (B), (33% Vs 5%, P = 0.04).

Discussion:

The options of abnormal bladder management (either by surgical procedures or any other methods of management) did not have an impact on the graft outcome after renal transplantation as long as a safe, low pressure and suitable bladder is achieved.



P0184

Impact of major urological complications on graft outcomes after renal transplantation

Stalin Dharmayan, Shafiq Chugtai, Shakeeb Khan, Ghazal Aswad Mayar, Rajagopal Poyyamozhi, Bagul Atul
University Hospitals of Leicester, Leicester, UK

Introduction:

Urological complications after renal transplantation cause significant patient morbidity. The incidence of these complications varies from 2.5% to 30% in various studies. The aim of this study is to analyse the incidence of major urological complications, their treatment modalities and the 5 year outcomes in our institution.

Methods:

Between January 2005 and December 2009, a total of 336 patients had renal transplantation. There were 191 living donor and 142 deceased donor recipients. The collected data was analysed retrospectively.

Results:

Out of the 336 patients, 19 had major urological complications (5.65%). Eleven patients had ureteric anastomotic leak, 13 had ureteric obstruction and 5 patients had both. These patients were treated either by nephrostomy and ante grade stenting or by surgical re implantation. After a period of 5 years, ten of these patients were alive with functioning grafts. The mean GFR for the patients treated with nephrostomy and stenting and those who had surgical intervention at 6 months, 1 year and 5 years in mls /min are 60 vs 56, 48 vs 55 and 37 vs 59. Two deceased donor recipients treated with nephrostomy and ante grade stenting lost their grafts just after 5 years because of slow decline in renal function and not because of rejection.

Discussion:

Major urological complications after renal transplantation are common and can be managed by either radiological or by surgical means. Most of these kidneys can be salvaged with intervention, but some patients can also lose their grafts over time causing tremendous morbidity.

P0185

Intravenous lignocaine infusions improve post-operative pain scores in patients undergoing laparoscopic donor nephrectomy

Ian Baxter, Stephen Hillier
Freeman Hospital, Newcastle upon Tyne, UK

Introduction:

Patients undergoing laparoscopic donor nephrectomy (LDN) present a challenge to the anaesthetist aiming to provide excellent post-operative analgesia and facilitate recovery from surgery. In 2015 a review of our local practice, led to the adoption of intravenous (IV) lignocaine infusions as part of a multi-modal analgesic approach to pain management for these patients.

Methods:

A retrospective review of pain scores in recovery was undertaken for patients undergoing LDN, between 1st January to 31st December 2014 (prior to the adoption of lignocaine infusions), and following the introduction of lignocaine infusions from the 1st January 2016 to 31st October 2016. In our institution all patients undergoing surgery have the presence of severe pain in recovery recorded contemporaneously on an electronic record system. Presence of severe pain was recorded if the patient had a pain score of ≥ 7 on a numeric rating scale at any time in recovery.

Results:

	2014	**2016**
Number of LDNs	62	45
Number of patients in severe pain in recovery	23	8

In 2014 the incidence of severe pain in recovery was 37.1% (23/62) falling to 17.8% (8/45) in 2016 following the introduction of intravenous lignocaine infusions. P-value <0.05 when analysed using a Chi-squared test.

Discussion:

Our results demonstrating lignocaine infusions significantly reduce the incidence of severe pain in LDNs are consistent with recently published meta-analyses finding IV lignocaine reduces post-operative pain following abdominal surgery. There is however little in the literature as to the effects of donor lignocaine infusions on the function of a donated kidney. It has previously been suggested that the treatment of cadaveric kidney donors with lignocaine may increase immediate function and decrease renal dysfunction in donated kidneys and that lignocaine may reduce ischaemia-reperfusion injury. Thus raising the possibility that this treatment may benefit both donor and recipient.

P0186

The use of self-expanding covered metal stents in the management of ureteric complications following renal transplantation

Alistair Rogers, Thiru Suntharasivam, David Talbot, Rob Williams, Matthew Shaw, David Rix
Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK

Introduction:
Ureteric complications following renal transplantation occur in up to 2-12% of cases and can be challenging to manage. Self-expanding covered metal stents for ureteric use are a recent innovation and to date there is little data regarding use in transplant and non-transplant patients. Our aim is to report a case of a urine leak managed endoscopically with a covered stent, describe stent use in non-transplant patients and review the literature to date.

Methods:
Currently 2 covered stents are available (Allium™ and Uventa™) and consist of a self-expanding nitonol metal frame (to 24-30F) with a PTFE covering. They can be inserted antegradely or retrogradely and are housed within an 8-10f delivery system. Both stents were introduced to our department in September 2015 and outcomes scrutinised by prospective audit. To date 24 have been inserted, including in one renal transplant patient. A systematic review of the literature revealed use in 134 patients (4 papers), with 3 transplant patients.

Results:
A 69 year old lady underwent a cadaveric renal transplant in 2015. Following open haematoma evacuation on day 3 a large mid ureteric leak developed and was initially treated with a peri-ureteric drain and urinary catheter. A covered stent was inserted retrogradely allowing removal of other drainage tubes and avoided nephrostomy insertion. The stent was removed 5 months after insertion with the ureter surprisingly remaining patent, with no stenosis. In our department 23 covered stents have been inserted in non-transplant patients with ureteric strictures and leaks, with minimal complications and good outcomes. All 3 transplant patients described in the literature had ureteric stenosis with good outcomes to date.

Conclusions:
Although there is minimal data available, it would appear that self-expanding covered metal stents are a useful addition to the endourological armamentarium in managing ureteric complications after renal transplantation. We postulate that the higher radial force in these stents facilitates ureteric healing with less stricturing. Longer term follow-up and cost-benefit analysis are required.

P0187
Outcomes of living donor renal transplantation with multiple arteries

Rajan Veeratterapillay, Jacob Chmelo, John Fitzpatrick, Oliver Fuge, Toby Page, Arajan Nambir, Gourab Sen, Naeem Soomro, David Rix, Alistair Rogers, David Talbot
Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK

Introduction:
The aim of this study was to determine whether transplantation of grafts with multiple renal arteries (MRA) procured by live laparoscopic donor nephrectomy (LLDN) adversely affects recipient outcomes.

Methods:
From July 2002 to December 2015, 509 patients underwent LLDN renal transplantation at our centre (44 patients excluded from analysis due to incomplete records). Recipient perioperative parameters, postoperative complications and long-term graft survival were analysed. 9 patients (1.7%) had right sided kidneys, with single arteries but 2 needed vein grafts.

Results:
In our series, 23% (106) of patients had MRA; 91 patients with two arteries, 12 patients with three arteries, and three patients with four renal arteries. The remaining 359 patients had single renal arteries (SRA). Cold ischaemic time (CIT) was significantly higher in the MRA group ($p<0.05$). There was no significant difference in postoperative complications (vascular, urological) or acute rejection between the two groups. There were six vascular complications (1.7%) in the SRA group; two artery stenoses, one arterial intimal dissection, and three laparotomies for postoperative anastomotic bleeding (with one graft loss). There were two vascular complications (1.8%) in the MRA group - laparotomies for postoperative anastomotic bleeding. There were eight ureteric complications (4%) requiring subsequent intervention (re-implantation or long-term ureteric stenting) in the SRA group compared to three (3%) in the MRA group. Acute rejection was seen in 14% of the SRA group compared to 11% in the MRA group. Overall Clavien III/IV complications were noted in 6% of the SRA group and 7% of MRA group. Graft survival at one year, five years and ten years was 98.2%, 91.3% and 89.8% in the MRA group versus 98.0%, 90.4% and 77.5% in the SRA group (log rank $p=0.13$).

Conclusion:
We conclude that MRA grafts have comparable complication rates and long-term outcomes to SRA grafts. The presence of MRA should not be a contraindication to transplantation and data supports the departmental preference to implant left sided kidneys, which have a longer renal vein, with MRA.

P0188

Vascular anastomosis time as a risk factor for delayed graft function in single renal transplantation from deceased donors

Samiullah Dost[2], Basir Kunduzi[2], Awad Shamali[1], Irene Mosca[1], Jonathon Olsburgh[1], Nikolaos Karydis[1]
[1]Guy's Hospital, Department of Nephrology and Transplantation, London, UK, [2]King's College London, School of Medicine, London, UK

Introduction:
Recent evidence suggests that vascular anastomosis time (AT) in deceased donor renal transplantation may adversely affect graft survival. The impact of AT on the incidence of delayed graft function (DGF), however, remains unclear.

Methods:
Prospective data from 138 consecutive single renal transplants from deceased donors over a period of 18 months were analysed. Donor age, donor type (DBD, DCD), cold storage time (CST), quality of graft perfusion (good, fair), recipient age and AT were included in univariate and multivariate analysis, in relation to DGF incidence.

Results:
86 DBD and 52 DCD renal transplants with a respective 30.2% and 59.6% DGF rate (p=0.001) were analysed. AT longer than 33.5 minutes, DCD donation, donor age and recipient age were significant risk factors for DGF (p=0.008, OR 4.08; p=0.001, OR 3.4; p=0.024, OR 1.03, and p=0.025, OR 1.03, respectively). In the multivariate model, AT and DCD donation remained significant predictors of DGF (p=0.032, OR 3.5, and p=0.003, OR 3.5, respectively).

Discussion:
AT longer than 33.5 minutes is a significant risk factor for DGF in single deceased donor renal transplants after cold storage. The development of surgical strategies to maintain a short AT would probably result in lower DGF rates with obvious benefits with regard to length of hospital stay and cost.

P0189

Human performance assessment of multi-organ retrieval with the joint scrub practitioner

Amanda Martindale[1], Hugh Richards[1], Galina Morozova[1], John Stirling[2], Ian Currie[2]
[1]*University of Edinburgh, Edinburgh, UK,* [2]*NHS Lothian, Edinburgh, UK*

Introduction:

The National Organ Retrieval Service (NORS) review recommended a Joint Scrub Practitioner for abdominal and cardiac teams during combined organ retrieval. To understand the functional implications, and evaluate feasibility of the joint scrub role we evaluated team performance in simulated multi-organ retrievals.

Methods:

Two high fidelity simulations were conducted in an operating theatre with porcine organs, en bloc, placed in a mannequin. For DBD simulation an anaesthetic machine provided simulated physiological output. DCD retrieval began with rapid arrival in theatre of the mannequin. Cardiothoracic (lead surgeon) and Abdominal (lead and assistant surgeons; joint scrub practitioner) teams combined for the retrievals. Data collected before, during and after simulations used self-report and expert observers, to assess; attitudinal expectations, anxiety, self-confidence, mental workload, non-technical skills, teamwork, and social validation perceptions.

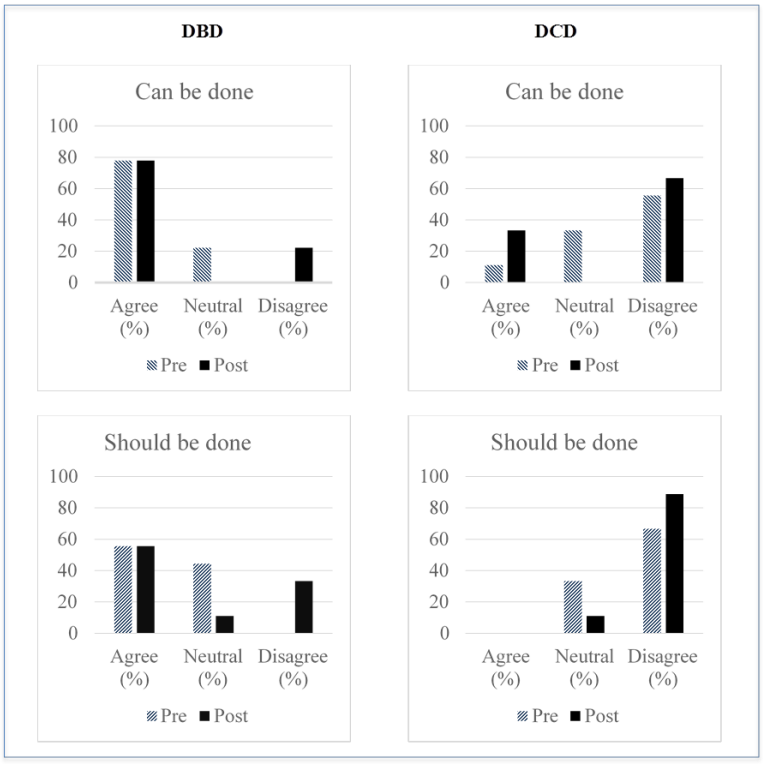
Results:

Attitudinal changes regarding feasibility of Joint Scrub Practitioner for DBD and DCD are displayed in Figure 1. There were no significant differences in anxiety or confidence prior to either simulation nor in mental workload afterwards. However variance between simulations for individual members of the team was noted. Non-technical skills were slightly lower in DCD than in DBD (self and expert rating). Global ratings of team performance were significantly ($p<.05$) lower in DCD than in DBD.

Discussion:

Measures of attitude indicate less support for the proposed Joint Scrub role for DCD than for DBD multi organ retrieval. Further work to determine feasibility of the NORS recommendations is required. Measures of team performance and individual psychological response can inform feasibility considerations.

Figure 1: Attitudinal changes regarding feasibility of joint scrub practitioner for multi-organ retrieval before and after DBD and DCD simulations



P0190
Training in renal transplantation – the French way

Fiona McCaig[1,2], Jonathon Olsburgh[1], Nicos Kessaris[1], Marc-Olivier Timsit[2], Thomas Guilchet[2], Sophie Hurel[2], Arnaud Mejean[2]
[1]Guy's and St Thomas' NHS Trust, London, UK, [2]Hôpital Européen Georges-Pompidou / Necker, Paris, France

Introduction:
Over the last 30 years there has been a gradual shift in the training of UK renal transplant surgeons. In France, 95% of renal transplant surgeons are urologists whereas in the UK, 95% are now general surgeons. Alternative pathways and experiences of renal transplant training are explored based on training at the Necker Hospital, Paris and UK transplant centres.

Training experience: France (7-9 years) versus UK (10-15 years)
France - French trainees spend the first 5 years of their training as urological 'internes'. Thereafter they become ‘chef du clinique’ for 2-4 years. They are then awarded the French equivalent to CCT (certificate of completion of training). Their training may be shorter but they produce exceptional surgeons who are competent and able to operate independently.
At the Necker Hospital, the majority of kidneys are implanted via a para-median incision and anastomosed to the common iliac artery and vein or SVC. A pyeloureterostomy is performed, protected by a ureteric stent, which is removed at the bedside from day 7.
UK - UK trainees undertake 2 years of foundation training. Thereafter they spend 2-3 years as core surgical trainees; and then 6 years in higher general surgical training, the latter 2-3 years within transplantation surgery, and then CCT. Trainees often undertake a higher surgical degree e.g. PhD or MD and post-CCT fellowship. Less commonly trainees undertake a CCT in urology with post CCT transplantation experience.
In the UK, most kidneys are implanted using a Gibson incision and anastomosed to the external iliac artery and vein. An extra-vesical anti-reflux neoureterocystostomy is fashioned, protected by a stent, which is removed after 6 weeks.

Conclusion:
Alternative pathways of training in renal transplantation are explored, based on experiences at the Necker Hospital, Paris and UK centres, suggesting equivalent outcomes from shorter training. In addition, an alternative surgical technique is described which may offer advantages when implanting grafts robotically.

P0191
Intraoperative spontaneous renal allograft rupture

Adrienne Wilson, John Preston, Andrej Grajn
Princess Alexander hospital, Brisbane, Australia

Introduction:
Spontaneous renal allograft rupture is a rare but serious complication of transplantation. Rupture usually occurs within the first few weeks of surgery and can be caused by acute rejection, acute tubular necrosis (ATN) or renal vein thrombosis. This case report demonstrates spontaneous renal allograft rupture immediately after reperfusion.

Case:
A 53 year old male received a DBD renal transplant. He had CKD secondary to dysplastic kidney / reflux nephropathy and a previous right nephrectomy for complicated pyelonephritis.
The donor was a 27 year old male who died from hypoxic brain injury after a drug overdose. He became anuric and developed rhabdomyolysis.
Pre-transplant biopsy of the sister kidney showed moderate ATN, but no cortical necrosis. The donor kidney was placed on the LifePort machine overnight for 12 hours. The resistance was high (0.52mmHg/ml/min) and the flow rate was lower than normal (47ml/min).
After reperfusion the allograft became tense and pulsatile. The patient became hypertensive and tachycardic. A 65mm longitudinal laceration developed and a transplant nephrectomy was performed. He was discharged home on day four with a two week course of immunosuppression and has been re-listed for transplant.
Histopathology of the transplant nephrectomy showed severe ATN and widespread rhabdomyolysis. There was no evidence of renal vein thrombosis.

Discussion:
Intraoperative spontaneous rupture of the renal allograft may be due to increased intrarenal pressure caused by microvascular injury from ATN and rhabdomyolysis.

P0192

A report of the first 3 cases of robotic-assisted laparoscopic kidney transplantation in the UK

Raphael Uwechue[1], Petrut Gogalniceanu[1], Pankaj Chandak[1], Ben Challacombe[1], Jonathon Olsburgh[1], Ioannis Loukopoulous[1], Nicos Kessaris[1], Prokar Dasgupta[1], Pranjal Modi[2], Nizam Mamode[1]
[1]Guy's Hospital, London, UK, [2]Institute of kidney diseases and research centre, Ahmedabad, India

Introduction:

Robotic assisted surgery has demonstrated clear benefits in other fields of abdominal surgery. We report the UK first experience of robot assisted kidney transplantation (RAKT).

Methods:

Clinical details of patients selected for living donor robotic transplantation were recorded. Primary outcome was renal function (eGFR) at one month, secondary outcomes included pain, opiate usage, length of stay and complications.

Results:

Case 1: 58 year old male with adult polycystic kidney disease and pre-dialysis. He had a BMI of 28. He had immediate graft function with a creatinine of 104μmol/L one week after transplantation. He suffered a superficial wound infection within a month of surgery.

Case 2: 42 year old female with anti-GBM disease and a failing first kidney transplant due to infections. She had a BMI of 29. She underwent RAKT to the left side. She had immediate graft function. Her creatinine on the seventh post-operative day was 125μmol/L.

Case 3: 49 year old female with chronic kidney disease from renal calculi who was a pre-emptive transplant. BMI of 26. She had immediate graft function. Her creatinine 1 month after surgery was 95μmol/L.

Case	Rewarm time (mins)	eGFR pre-op	eGFR 1 Month	Mean pain score (0-10)	Total morphine (mg)	Discharge day
1	87	13	65	1	15	4
2	73	7	42	1.5	90	4
3	78	11	52	2.9	26	4

Discussion:

We have demonstrated the applicability and safety of this novel operative technique in the UK with early cases having significant potential in facilitating earlier discharge from hospital with less pain and a potentially superior post-operative recovery phase. The effect of the longer rewarming time needs to be evaluated.

P0193

The development of a robot-assisted laparoscopic kidney transplantation peri-operative safety checklist using structured team debriefing

Petrut Gogalniceanu[1], Raphael Uwechue[1], Zubir Ahmed[1], Pankaj Chandak[1], Ioannis Loukopoulos[1], Nicos Kessaris[1], Francis Calder[1], Pranjal Modi[2], Nizam Mamode[1]

[1]Department of Nephrology and Transplantation, Guy's Hospital, London, United Kingdom, London, UK, [2]Institute of Kidney Diseases and Research Centre, Ahmedabad, India

Introduction:

The introduction of a new robot-assisted laparoscopic kidney transplantation (RAKT) programme introduces patient safety and organizational challenges. Consequently, units starting these programmes need to be guided by key safety checks, as the WHO perioperative checklist does not cover human error and technical safety items specific to robotic surgery or transplantation. The study aims to identify key patient safety items to be included in a RAKT-specific intraoperative surgical safety checklist.

Methods:

Operating room professionals attending two RAKT cases participated in multidisciplinary structured team debriefs immediately after completion of surgery. The teams were asked to comment on challenges encountered, areas of potential future improvement, as well as to propose additional items for inclusion on the patient safety checklist. These were thematically structured according to system / organisational factors, operating environment, equipment, staff and communication issues. The data was collected in real-time by immersed clinician-observers and thematically analysed.

Results:

17 clinicians participated in the two cases. The team debrief identified four key challenges, which resulted in 10 learning points. In addition, 5 new checklist items were identified. These addressed a variety of technical and team-based checks, including 1. patient positioning and operating table function testing; 2. CO2 cylinder gas level checks; 3. role allocation for robotic assistants at the beginning of the case; 4. pre-operative choice of laparoscopic suture lengths; and 5. rehearsal of emergency undocking procedure prior to case commencement.

Discussion:

Structured intra-operative multidisciplinary team debriefs may allow transplant professionals to develop unit-specific RAKT surgical safety checklists. These may mitigate the risks associated with the introduction of new and complex operative technology during a team's early experience, as well as address latent environmental patient safety threats. Future face and content validity exercises are needed to allow the routine use of RAKT-specific patient safety checklists.

P0194

Severe Acute Cytomegalovirus disease associated with life threatening arrhythmias in living unrelated kidney transplant female

Sawsan Mohd Babiker[1], Ajay Sharma[2], Ahmed Halawa[3]

[1]Renal Dialysis Centre,Baucher, Muscat, Oman, [2]Consultant Surgeon at the Royal Liverpool University Hospital Director of Core Surgical Training Merseyside, North West of England Deanery Associate Director of Post Graduate Courses in Transplantatio,Lliverpool, UK, [3]Consultant Transplant Surgeon, Sheffield Teaching Hospitals Senior Lecturer (Hon), University of Sheffield – University of Liverpool, UK, Director of Post Graduate Courses in Transplantation, Universi, Liverpool, UK

Introduction:

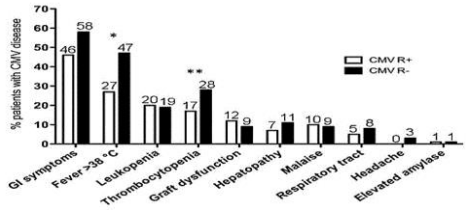
Cytomegalovirus (CMV) infection is an important cause of morbidity and mortality in the first six months following transplantation, best avoided by prophylaxis and judicious fine –tuning of immunosuppression .This kidney transplant recipient with the severe gastro- intestinal involvement secondary to CMV, with leucocytosis secondary to chest infection, vein thrombosis, marked electrolyte disturbance mainly hyponatremia and hypokalemia precipitated cardiogenic shock as a result of rapid wide complex tachycardia .

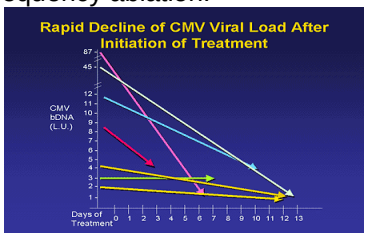
Case Record:

A 57 year old lady with commercial unrelated living donor kidney transplant (URLDKT), presented with picture of acute severe CMV disease. Pre-operative CMV serology was not known and CMV PCR results took longer time. During this period patient had life threatening cardiac arrhythmias with cardiogenic shock.

Results:

Investigations revealed hyponatremia, hypokalemia, high CMV-DNA in blood. She required extended course of intravenous gancyclovir and mycophenolate was discontinued. Renal graft function remained normal. She was diagnosed as *WBW Syndrome* and underwent radiofrequency ablation.





Gastrointestinal effect in CMV
(American Transplant Congress Abstract no:A579)
(American Transplant Congress Abstract no:A579)

Discussion:

Gastrointestinal involvement electrolyte disturbances and systematic inflammatory syndrome caused by CMV disease led to arrhythmia resulting in cardiogenic shock. **Conclusion**:

Diagnosis was delayed due to inherent lack of information such as CMV status in commercial URLDKT. Early diagnosis of CMV is of immense importance.

P0195

Multi-drug resistant CMV viraemia secondary to a rare viral mutation in transplant patient successfully treated with anti-proliferative cessation and immunoglobulins

Eleni Papakanaki, Grainne Walsh, Helen E Jones, Eithne MacMahon, Jelena Stojanovic
Evelina London Children's Hospital, London, UK

Introduction:
International Transplant Society for CMV Consensus Group advises ganciclovir, valganciclovir and foscarnet as treatment for CMV. Viral DNA polymerase resistance mutations are rare but may be associated with cross resistance. We report a rare CMV mutation associated with resistance to all available medications in a CMV seronegative recipient treated with immunosuppression dose reduction and IVIG.

Methods:
Retrospective data analysis from medical records.

Results:
Sixteen year old girl with ESRD due to Alport Syndrome received DD kidney transplant MM 120, CMV D+/R- , EBV D-/R+. Two months post-transplant, whilst on valganciclovir prophylaxis, she developed CMV viraemia. Viral loads continued to rise (highest log 5.41) despite treatment dose intravenous ganciclovir. She was found to have a rare CMV UL 54 mutation (POL gene deletion 981/982), associated with multidrug resistance. She had no evidence of CMV disease and stable graft function, and was managed with cessation of azathioprine and intravenous immunoglobulins (IVIG). She remained well and had cleared viraemia after six months. CMV IgM was positive at 4m, with IgG seroconversion demonstrated at 9m post transplant. Borderline T cell mediated rejection was successfully treated with HDOP. One year post transplant, patient is well with stable graft function (eGFR 69ml/min/1.73m2) on CNI inhibitor and daily prednisolone. To date, cytotoxic T cell response to CMV is negative but CMV remains undetectable.

Discussion:
We report a case of multidrug resistant CMV viraemia in a patient with primary infection, managed with IVIG and cessation of anti-proliferative agent with excellent outcome including preservation of good graft function.

P0196
BK Polyoma Virus in an Islet Cell Transplant cohort

Paul J Phelan, Ingolfur Johannessen, John Casey
Royal Infirmary of Edinburgh, Edinburgh, UK

Introduction:
BK virus nephropathy (BKVN) occurs in approximately 5% of renal transplant recipients (RTRs) and is preceded by BK viremia which occurs in approximately 10-20% of RTRs. It appears to be much less common post non-renal solid organ transplantation, although few robust studies have been performed in this population. There are no published data on BK viremia following islet-cell transplantation (ITx).

Methods:
We performed cross-sectional testing in our ITx cohort for BK viremia using a PCR assay (Vela Diagnostics-Singapore). Immunosuppression was broadly similar to contemporary RTRs consisting of maintenance therapy using tacrolimus and mycophenolic acid preparations. Induction with alemtuzumab was used allowing for a corticosteroid-free regime.

Results:
Overall, 19 patients [12 females; mean age 51 years (range 38-73)] had a single test performed. Renal function was stable with an eGFR >60mls/min/1.73m^2 in all patients from time of transplantation until BK testing. The mean time of testing was 10.6 months post transplant (range 2-42 months) and all were negative for BK viremia.

Discussion:
The testing was performed during the 'at risk' time for developing BK viremia in RTRs. Recent evidence suggests that BK disease in renal transplantation is primarily due to BK virus transmission by the transplanted organ and may explain the higher incidence in renal transplantation compared with other solid organ or cellular transplants. Our findings suggest that BK virus infection is not common post ITx. However, as we only tested for BK viremia once and at varying time points in each patient. We plan to perform prospective testing at multiple time points which will provide a more robust reflection of the risk of BK virus infection post ITx.

P0197

Post renal transplant BK virus nephropathy: A single centre experience

Aditya Kanwar, Lucas Arlott, John Moir, Colin Wilson, Derek Manas, Alison Brown, Steven White
Freeman Hospital, Newcastle Upon Tyne, UK

Introduction:

BK virus is a polyoma virus that can lead to early graft loss in kidney transplant recipients. We aimed to review our own series of patients who had a diagnosis of BK virus nephropathy(BKVN).

Methods:

Electronic data was reviewed for all our patients since 2009 testing positive for BK virus in blood or urine.

Results:

There were 17 patients with at least one positive BK virus result in either serum or urine. These patients all had at least >25% rise in serum creatinine. Of these only 8(47%) were biopsied but 7/8 showed the characteristic features of BKV nephropathy with SV40 staining. Various strategies were used for treatment exclusive of the level of viraemia or deterioration in creatinine. These included conservative(no change) in 5 cases (29%), reduction in MMF n=8(47%), reduction in Tacrolimus n=2(12%), Ciprofloxacin n=1(6%) and combined MMF reduction with Cidofovir n=1(6%). There was no statistical difference in outcome for graft loss(p=0.824), higher creatinine(p=0.252), viraemia clearance (p=0.824) or rejection (p=0.949) between those conservatively managed or treated. There was an increasing trend towards acute rejection in the treated group(p= 0.09) most likely due to the reduction in immunosuppression. Four(23.5%) patients recommenced dialysis a mean of 30 months from diagnosis of BK virus nephropathy.

Discussion:

BK virus leads to a deterioration in graft function and should be considered in any patient with early graft dysfunction in the absence of acute rejection. There is an urgent need to develop more specific anti-viral therapies for BKV nephropathy.

P0198

New onset malaria infection in a recent commercial renal transplanted patient

Sameh Morgan[1,2], Ajay Sharma[2,3], Sunil Daga[2,4], Ahmed Halawa[2,5]

[1]Ibri Regional Hospital, Ibri, Oman, [2]Faculty of Health and Science, Institute of Learning and Teaching, University of Liverpool, Liverpool, UK, [3]Royal Liverpool University Hospital, Liverpool, UK, [4]Leeds Teaching Hospitals, Leeds, UK, [5]Sheffield Teaching Hospitals, Sheffield, UK

Introduction:

When a patient receives a commercial kidney transplant, we should be ready for all surprises and challenges.

Methods:

54 years old male patient with ESRD due uncontrolled hypertension. He had commercial kidney transplant abroad with basiliximab induction and triple maintenance immuonosuppression. He received standard prophylaxis against CMV and PCP. He presented 4 weeks after transplantation with fever, shivering and looked toxic. Examination otherwise was unremarkable. Urinalysis revealed signs of urinary tract infection. Blood picture showed mild hypochromic anaemia and neutrophilia. Chest X-ray was unremarkable. Doppler ultrasound revealed normal resistive index (0.6) with no evidence of obstruction or collection. Broad spectrum antibiotic started while testing for plasmodium vivax in the blood film which came back positive. Patient was treated with pyrimethamine and sulfadoxine then changed to oral chloroquine. On a second day of admission haemoglobin dropped, platelets also became 50×10^3/UL from 180×10^3/UL. Patient became mildly jaundiced while GFR dropped from >90ml/min to 65 ml/min. Two days later urine C/S revealed significant bacterial growth streptococcus group D.

Results:

Rehydration and antibiotic therapy in addition to the antimalarial therapy achieved normalization of his renal function and the blood picture with full recovery.

Discussion:

High index of suspicion is always required when we deal with commercial transplantation. Commercial transplantation is commonly associated with unusual post-transplant complications with unpredictable presentation. Malaria is one of the rare infections in non-tropical areas which should be suspected if transplantation was performed abroad particularly in tropical countries. This should raise the awareness of the transplant clinicians.

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[i] Parikh, C. R., Jani, A., Mishra, J., Ma, Q., Kelly, C., Barasch, J., Edelstein, C. L. and Devarajan, P. '*Urine NGAL and IL-18 are Predictive Biomarkers for Delayed Graft Function Following Kidney Transplantation'*. Am J Transplant, 2006; 6: 1639–1645. doi: 10.1111/j.1600-6143.2006.01352.x

[ii] Lee, E. Y., Kim, M. S., Park, Y. and Kim, H.-S. '*Serum Neutrophil Gelatinase-Associated Lipocalin and Interleukin-18 as Predictive Biomarkers for Delayed Graft Function After Kidney Transplantation*'. J. Clin. Lab. Analysis, 2012; 26: 295–301. doi: 10.1002/jcla.21520

[iii] Mishra, A; Ma, J; Kelly, Q; et al. '*Kidney NGAL is a novel early marker of acute injury following transplantation'.* Pediatr. Nephrol. 2006; 21: 856–63