elderly population. These results confirm that immunizing transplant patients against influenza remains a challenge and requires new strategies to be explored (dose increase, additional injections, intradermal route).

O-154 MONITORING OF PERIPHERAL BLOOD NATURAL KILLER CELLS TO IDENTIFY HEART TRANSPLANT RECIPIENTS AT RISK OF INFECTION

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Background: Infection remains a source of mortality in heart recipients. We assessed whether monitoring of NK-cells could prove useful when identifying patients at risk of infection.
Methods: We prospectively studied 133 consecutive heart recipients over a 12-month period. Severe infections that required intravenous antimicrobial therapy was the primary outcome. Superficial incisional surgical site infection, catheter-related infections were not considered infectious episodes in this study. As for immunosuppressive treatment, patients received induction therapy with the interleukin (IL) 2 receptor antagonist daclizumab (n=108 [93.1%]) or basiliximab (n=5 [4.3%]). Maintenance immunosuppression included mycophenolate mofetil, prednisone, and either cyclosporine (n=35, 30.2%) or tacrolimus (n=79, 68.1%), depending on the side effects. Total counts and percentages of NK-lymphocyte subsets (CD3–CD56/CD16+) were analyzed by four-color flow cytometry whole blood.
Results: Forty-eight patients had at least one episode of severe infection. Patients with severe infection (n=48) disclosed lower NK absolute counts (day-7 after transplantation [28 vs 57, P=0.021]), 3 months [96 vs 168 cells/uL, P=0.002], 6 months [127 vs 183 cells/uL, P=0.011] and 1 year [154 vs 254 cells/uL, P=0.014]). Patients with bacterial infections (n=27) disclosed lower NK absolute counts (day-7 [22 vs 52 cells/uL, P=0.040]). Patients with CMV infection (n=22) disclosed lower NK percentages (1 year [7 vs 14, P=0.006]), lower NK-cell absolute counts (day-30 [80 vs 117 cells/uL, P=0.05], 3 months [96 vs 151 cells/uL, P=0.016] and 1 year [133 vs 234 cells/uL, P=0.043]). In Cox regression analysis we found an association between the risk of developing an infection and lower day-7 absolute NK-cell count (per decrease of 10 cells/uL, RH 1.24, P=0.011).
Conclusion: Data suggest that monitoring including NK-cell testing is useful when attempting to identify the risk of infection in heart recipients.

O-155 EARLY URETERIC STENT REMOVAL REDUCES URINARY TRACT INFECTION IN KIDNEY TRANSPLANT RECIPIENTS, A RANDOMIZED CONTROLLED TRIAL (EUREKA)

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Background: Duration of retaining ureteric stent after kidney transplantation was still controversy. Short duration of ureteric stent may reduce urinary tract infection (UTI) after kidney transplantation. This study aims to determine benefits and risks of early versus routine stent removal in kidney transplantation.
Methods: Single-center parallel randomized controlled, open label, trial. Randomization was computer-generated block of 4, allocation concealment by sealed opaque envelops. 80 patients who underwent kidney transplantation at a University-based hospital in Thailand from April2010- January2011 were enrolled. Patients were randomized to early ureteric stent removal (8 days) or routine ureteric stent removal (15 days) after kidney transplantation. The primary outcome was rate of UTI during postoperative to 1 week after discharge. Chi-square or Fisher's exact was used to compare the proportion of UTI between groups.
Results: 65 patients (57% living donor) fulfilled the randomized criteria (early remove n=32; routine remove n=33). By intention to treat analysis, incidence of UTI in early stent removal was less than routine stent removal group (12/32, 37.5% VS 24/33, 72.7%; Risk reduction 35.2%; 95%CI 12.5 to 57.8%, P=0.004). The benefit of early ureteric stent removal is demonstrated mostly in living donor subgroup. Incidence of UTI was significantly associated with the duration of stent retention. Incidence of urologic complications was not different in both groups.
Conclusions: Shortening the duration of ureteric stent in kidney transplant recipients from 15 to 8 days is safe. This approach helps to reduce incidence of UTI particularly in living kidney transplantation. (Funded by Thai Transplant Society; Trial registration ACTRN12610000310066)
Key Words: kidney transplantation, ureteric stent, urinary tract infection, urologic complication

O-156 POSTTRANSPLANT LYMPHOPROLIFERATIVE DISORDER (PTLD): CHARACTERISTICS AND OUTCOME IN A BELGIAN UNIVERSITY HOSPITAL

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Background: PTLD is a life-threatening complication of all types of transplantation (Tx).
Methods/Materials: Retrospective analysis of medical records of all patients diagnosed with PTLD between January 1989 and December 2010 at the University Hospitals of Leuven, aiming to obtain information about incidence, pretreatment characteristics, treatment and outcome.
Results: 140 biopsy proven PTLD cases were included. Overall incidence was 2%. Highest incidence was reported in heart-lung Tx (7.5%), followed by heart (4.9%), lung (2.9%), liver (2.67%), stem cell (1.4%), kidney (1.3%) and intestinal Tx (0%). Most PTLD were monomorphic (83.6%), with diffuse large B cell lymphoma (DLBCL) being the most frequent subtype. 66.2% of the cases were EBV positive. The majority of cases (70.7%) occurred $>$ 1 year post-Tx. At diagnosis immunosuppressive therapy included calcineurin inhibitors (92%), antimetabolites (71%) and low dose steroids (71%). Reduction of immunosuppression (RIS) was performed in 88.5%. Other first line treatment modalities included rituximab (53%), chemotherapy (28%), surgery (12%) and radiotherapy (7%). Following first line therapy overall response rate was 68.5% (53.5 CR, 15% PR). At last follow up 43% of the patients were alive whereas 10.7% of the patients lost their graft during follow up. In multivariate analysis higher age at diagnosis, hypoalbuminemia and elevated LDH were associated with poor overall survival.
Conclusion: Overall PTLD incidence was 2%. As expected most cases were DLBCL, presented with advanced stage and had a poor outcome. 66.2% were EBV positive. Except for RIS, treatment was very heterogeneous. Contrary to data from the literature the majority of cases occurred late, whereas rituximab therapy was not associated with higher response rates. Although the prognostic role of the international prognostic index (IPI) score in PTLD has been questioned, we were able to confirm its value in our analysis.

Kidney (DCD / ECD)

O-157 BELGIAN EXPERIENCE OF DCD KIDNEY TRANSPLANTATION

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Background: Donation after cardiac death (DCD) was (re)introduced in Belgium in 2000 to expand the pool of kidney grafts. We reviewed the Belgian experience of DCD kidney transplantation (KTx) and compared short and long term graft and patient survival between machine perfusion (MP) and cold storage (CS) preservation.

Methods: We reviewed all DCD KTx performed in Belgium between 01/2000 and 12/2009. Donor and recipient data were collected from Eurotransplant and all 6 Belgian KTx centers.
Results: During the study period, 287 DCD KTx were performed (13% of all deceased KTx). Median follow up was 34 (8-130) months. Kidneys were stored by CS (n=135) or MP (n=152). The incidence of delayed graft function (DGF) was 10% lower in MP compared to CS kidneys (p=0.07), despite longer cold ischemia time (CIT) [17.9 (4.30-30.8) h *versus* 13.8 (3.5-26.7) h; p<0.001)) and anastomotic time [34 (20-70) min *versus* 31 (11-71) min; p<0,001) and more uncontrolled DCD donors (10.5% *versus* 3%) in MP kidneys. In multivariate analysis, MP reduced the risk of DGF (Odds ratio 0.30 (0.14-0,66); p=0,003). CIT was also an independent risk factor of DGF (Odds ratio 1.14 (1.05-1.23);p<0.001). The 1, 3 and 5-year patient/censored graft survival were comparable between MP and CS (97%, 96%, 92%/97%, 93%, 93% MP *versus* 96%, 92%, 81%/93%, 89%, 78% CS; log rank 0,06/0,20).
Conclusion: DCD KTx in Belgium is associated with excellent short and middle term results. In this Belgian patient cohort and in line with previous studies, MP decreases the risk of development of DGF whereas CIT increases this risk. In addition, our data strongly suggest that the impact of CIT on DGF is reduced by MP.

O-158 DCD KIDNEY TRANSPLANTATION: LONG-TERM RESULTS OF UNCONTROLLED VERSUS CONTROLLED DONORS

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Background: There is a general reluctance to use kidneys from uncontrolled donors after cardiac death (DCD) for transplantation because of the relatively high incidence of primary non-function (PNF) and delayed graft function (DGF). Therefore, we compared the initial and long-term graft function and the survival of kidneys between uncontrolled and controlled DCD donors.
Methods: From January 1981 to January 2008, 523 DCD kidneys were procured in the Maastricht region of which 173 were discarded. 334 DCD kidneys (128 uncontrolled and 206 controlled) were transplanted in the Eurotransplant region and completed follow-up. We studied the short and long-term graft function and the graft survival after transplantation.
Results: The incidence of PNF and DGF in both uncontrolled and controlled DCD kidneys is relatively high (PNF: 22% vs.21%, p = 0.81, and DGF: 79% vs. 71%, p = 0.20, respectively). Graft function assessed with estimated glomerular filtration rate (eGFR) at year 1 after transplantation is 40±16 vs. 42±19 mL/min/1.73m^2, p = 0.55, with a yearly decline thereafter of 0.67±3 vs. 0.70±7 mL/min/1.73m^2/year, p = 0.97. Furthermore, the long-term graft and recipient survival at ten years after transplantation do not differ between uncontrolled and controlled DCD kidneys: 52% vs. 46%, p = 0.68 and 61% vs. 60%, p = 0.76, respectively.
Conclusion: This study demonstrates that the initial function and long-term outcome of uncontrolled DCD kidneys is comparable to the outcome of controlled DCD kidneys. In both groups, careful selection of both donor kidneys and recipients is mandatory to reduce the risk of PNF. These results justify expansion of the donor pool with uncontrolled donors to reduce the still growing waiting list for renal transplantations and may stimulate implementation of uncontrolled DCD kidney donation programmes.

O-159 KIDNEY GRAFT QUALITY AFTER DONATION FROM UNCONTROLLED DECEASED DONORS AFTER CARDIAC ARREST

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Kidney grafts from uncontrolled deceased donors after cardiac arrest (uDDCA) have recently been used in France to counteract organ shortage. The quality of these kidneys remains debatable. The aim of our study was to compare the outcomes and the quality of uDDCA kidneys with that of kidneys from optimal donors such as simultaneous kidney and pancreas (SPK) donors and extended-criteria donors (ECD).
27 kidney grafts from uDDCA (mean donor age, 41) were compared with 24 kidney grafts from SPK donors (mean donor age, 26), and 30 kidney grafts from ECD (mean donor age, 66). All three patient groups were non-immunized and received the same induction and maintenance immuossupressive therapy.
The quality of the grafts was assessed by renal function and histology. GFR was estimated by MDRD formula (eGFR) at M1 (n=80), M3 (n=80), M6 (n=79), M12 (n=74), M24 (n=70) and M36 (n=51) and measured by inuline clearance (mGFR) at M12 (n=66) and M36 (n=46). Interstitial fibrosis (IF) and vascular lesions were analyzed in systematic kidney biopsies at M3 (n=54) and M12 (n=50) with the Banff 2007 classification. IF was quantitatively measured by colour image analysis.
Kidney graft quality from SPK group was always superior than the two others groups. In the short term, DGF in the uDDCA group was significantly higher than in the ECD group (Table 1).

Table 1. Early outcome

	uDDCA	ECD	p uDDCA vs ECD
PNF (%)	0	0	NA
DGF (%)	81.5	27.6	<0.0001
Mean (sd) HD session	4.7 (3.9)	0.7 (1.4)	<0.0001
Mean (sd) time of HD (days)	15.6 (13.0)	2.8 (5.9)	<0.0001
Mean (sd) time of renal function recovery (days)	17.8 (9.2)	5.0 (5.2)	<0.0001
Clinical rejetion n (%)	5 (18.5)	7 (23.3)	0.62
Subclinical rejection n (%)	2 (7.4)	3 (7.5)	0.71
Borderline changes n (%)	12 (44.4)	8 (26.6)	0.15

PNF = Primary non function, DGF = Delayed graft function, HD = Hemodialysis.

In the uDDCA group renal function was initially poorer but improved during the first year.
However on the long term, renal function and interstitial fibrosis was not different in uDDCA vs ECD group (Table 2).

Table 2. Kidney graft function and histology

Mean (sd)	uDDCA	ECD	p uDDCA vs ECD
e GFR M1	23.4 (8.7)	40.2 (16.0)	<0.001
e GFR M3	38.9 (11.7)	39.5 (17.0)	0.96
e GFR M6	41.7 (12.6)	41.5 (16.5)	0.88
e GFR M12	45.2 (13.0)	45.2 (15.4)	0.97
e GFR M24	45.2 (13.8)	45.0 (20.9)	0.97
e GFR M36	44.1 (14.1)	37.4 (10.4)	0.13
m GFR M12	44.3 (13.0)	40.2 (14.6)	0.31
m GFR M36	41.2 (12.3)	33.7 (11.2)	0.09
IF score M3	30% (9)	28% (12)	0.52
IF score M12	36% (13)	33% (14)	0.47

e GFR: estimated GFR accoring to simplified MDRD formula; m GFR: GFR measured by inulin clearance; IF score: Intersitial fibrosis score obtained by colour image analysis.

Conclusion: Our study suggests that the quality of kidneys from uDDCA donors is similar to that of ECD and that these kidneys should be attributed to the same recipient population.

O-160 DONOR KIDNEY DISEASE AND TRANSPLANT OUTCOMES FOR KIDNEYS DONATED AFTER CARDIAC DEATH

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Donation after Cardiac death (DCD) is becoming increasingly common and provides kidneys with comparable outcome to heart-beating (DBD) kidneys. Increasingly marginal DCD kidneys from elderly donors (60+) have been used and long term outcomes are not yet known. Histopathological scoring systems for marginal DBD kidneys based on the presence of chronic damage have not been validated for DCD kidneys. Here we report how baseline damage impacts on outcomes of DCD kidneys.
Outcomes of all first time and single-kidney DCD (213) and DBD (100) transplants performed at our centre between 2006 and 2010 were analysed. Time zero biopsies were performed routinely and were scored histopathologically according to the presence of glomerular, tubular, parenchymal and vascular disease (0-3 for each component) as described previously by Remuzzi et al. Multivariate analysis was performed to assess the effect of a number of donor variables (age, sex, type [DCD vs DBD], hypertension, smoking, cold ischaemic time and HLA mismatch level) on outcome.
DCD kidneys scoring 4-6 had poorer graft survival than DCD kidneys scoring 0-3 though acceptable graft survival rates were achieved. DCD Kidneys with donor age >55 and score 4-6 appear to have poorer graft survival with only 40% of grafts surviving past 3 years. Multiple regression analysis showed that the effect of baseline score on outcome remained after controlling for donor age (Table 1).

Table 1. Multiple regression analysis of donor age and global score vs 90 day eGFR

Variables (n=114)	Range	Estimate	Standard Error	P-value
Donor Age (years)	14– 82	–0.35	0.11	0.001
Global Score (0-12)	0–6	–2.00	1.00	0.047