plant cardiovascular risk factors, including hypertension (P=0.028) and hyperlipidemia (P=0.001). After transplantation patients with overweight had a higher incidence of DGF (P=0.006), postransplant diabetes mellitus (P=0.000) and systolic blood pressure (P=0.019). Total cholesterol (P=0.027) and tryglicerides (P=0.038) were initially higher in patients with overweight with no differences after the six month. Serum creatinine (P=0.007) was higher at sixth month and proteinuria more prevalent along the follow up (P=0.023). Patient survival was worse in the patients with overweight at five years (90,4% vs 99,1%; P=0.002), with no differences in allograft survival (P=0.13).

Conclusions: Patients receiving a renal allograft are frequently with overweight, that is associated with a worse metabolic and cardiovascular profiles, and it is followed by a worse renal allograft function, and a lower patient survival. Early preventive measures must be taken after transplantation in presence of overweight in order to preserve renal function and reduce mortality.

Renal transplantation – Clinical 2

SaP449 HYPERTENSION AND MICROALBUMINURIA IN FORMER LIVING KIDNEY DONORS

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Introduction and Aims: Due to the organ shortage the usage of kidneys from living donors has gained increasing popularity. Long term consequences of uninephrectomy for kidney donation are still controversial. We investigated the prevalence of hypertension and microalbuminuria in former kidney donors and we also evaluated risk factors which contribute to development of hypertension and microalbuminuria.

Methods: We studied 101 renal transplant donors who were younger than 65 years of age and their post-nephrectomy duration exceed one year. We also studied 94 age and sex matched healthy controls. Demographic and clinical data, findings on physical examination and duration after nephrectomy were recorded. Microalbuminuria was defined by urinary albumin excretion $\geq$30mg/24 hour. Levels of creatinine, glucose, total cholesterol, high density lipoprotein cholesterol, triglycerides, and C-reactive protein were measured. GFR was estimated using the abbreviated MDRD equation. Data was expressed mean±SD. Chi-square test, unpaired sample t-test and Mann-Whitney U test were used for statistical analysis. Odds ratio (OR) and confidence limits (Cl) were calculated using logistic regression analysis. P<0.05 was accepted as significant.

Results: Demographic and biochemical data is shown in Table 1. Mean duration after nephrectomy was 64.7±52.6 months. Frequency of hypertension in donors was 17.8%. According to univariate analysis, presence of hypertension was associated with age (p=0.037), BMI (p=0.006), waist circumference (p=0.036), triglyceride levels (p=0.009) and GFR (p=0.001). According to multivariate analysis BMI (OR 1.154; 95% Cl 1.007-1.323; p=0.039) and GFR (OR 0.946; 95% Cl 0.903-0.992; p=0.021) were associated with hypertension. Frequency of microalbuminuria in kidney donors was higher than that of the controls. Univariate and multivariate analysis did not reveal any association between microalbuminuria and other study parameters.

Conclusions: Former kidney donors had higher prevalence of hypertension and microalbuminuria compared with healthy controls. Long term consequences of these findings should be investigated. The importance of weight control must be emphasized in living kidney donors and these patients must be followed regarding development of hypertension and microalbuminuria.

Table 1. Comparison of study groups

	Kidney donors (n=101)	Controls (n=94)	p
Age (years)	48.0±8.4	48.0±7.3	1
Gender (M/F)	37/64	36/58	0.88
Current smoker (%)	23.8	32.9	0.2
Waist circumference (cm)	93.8±11.6	91.6±10.1	0.18
BMI (kg/m^2)	28.9±4.67	27.1±4.2	0.005
Hypertension (%)	17.8	0	<0.001
Cholesterol (mg/dl)	179.9±44.6	199.2±41.2	0.002
HDL-cholesterol (mg/dl)	43.6±11.9	48.8±13.9	0.005
LDL-cholesterol (mg/dl)	108.5±34	127±36.5	<0.001
Trigyceride (mg/dl)	139.2±76.1	117.1±63.8	0.03
Glucose (mg/dl)	91.2±11.1	90.9±90.4	0.36
CRP (mg/l)	4.3±4.5	2.9±2.7	0.007
GFR (ml/min/1.73 m^2)	75±16	99.9±21	<0.001
UAC (mg/l)	15.3±20.7	14.4±39.1	0.84
Microalbuminuria (%)	10.9	2.1	0.019

UAC, urinary albumin concentration

SaP450 PROOXIDANT ACTION OF ANTICALCINEURINICS (AC) IN RENAL TRANSPLANT (RT): ARE THERE DIFFERENCES BETWEEN CYCLOSPORIN A (CsA) AND TACROLIMUS (TC)?

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Introduction and Aims: Oxidation (Ox) of LDL is considered to be a decisive factor in the biological process of atherosclerosis. Anticalcineurinics increase lipid Ox, but it is unknown whether or not there are differences between the two drugs from this group (CsA and TC).

To establish the different oxidative capacities of each AC to define the better cardiovascular profile of the two drugs.

Methods: Prospective study of 81 RT divided into two groups according to AC: CsA group, 35 RT (58±18 years; 26 men and 9 women; 25% preRT diabetes preTR;30±3 months in dialysis) vs TC group, 46 RT (50±1.4 years; 32 men and 14 women; 6% preRT diabetes;33±7 months in dialysis). Lipid profile was determined PreRT, and 3 and 12 months postRT: Cholesterol-Ct-; Triglycerides-TG-; HDL-C; LDL-C; Apo A; Apo B;lipoprotein a-Lp a, and parameters of lipid Ox: LDLox and LDLox antibodies (ab). Samples were collected in stable patients with no rejection, infection or inflammatory process present. Use of statins and ACE inhibitors/Angiotensin II receptor blockers was evaluated in the long-term follow-up after RT.

Results: *At 3 m. postRT*, Ct, TG, LDL, Apo B, Lp a and LDLox were more elevated in the Cya group, although results were not statistically significant. However, LDLox antibody titre and LDLox ab titre corrected for LDL, had significantly higher values in the CsA group compared to the TC group. AbLDLox (U/ml), 3973±3565 vs 2166±1498 (p=0.01); AbLDLox/LDL, 1329±1378 vs 668±538 (p=0.02).

At 12 m. postRT, The same situation was found in the groups as earlier (CsA vs TC): AbLDLox, 4671±3306 vs 2946±2140 (p=0.03); AbLDLox/LDL, 1328±1105 vs 812±684 (p=0.05). In the non parametric analysis using multiple comparisons (preRT, 3 and 12 months), AbLDLox were more elevated in the CsA group at 3 (p=0.038) and 12 months (p=0.05). The odds ratio (OR) that a patient treated with CsA would develop more AbLDLox was 8.2 (IC:2.2 to 30.1) p=0.02 and was independent of patient age, preRT diabetes, statin use and ACE inhibitors/Angiotensin II receptor blockers.

Conclusions: In regards to the cardiovascular profile of AC, our results indicate that in stable RT, Cyclosporin A has a greater capacity for lipid oxidation than tacrolimus.

SaP451 HEEL BONE MASS DENSITY MEASUREMENTS AS SCREENING FOR OSTEOPOROSIS IN RENAL TRANSPLANT RECIPIENTS

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Introduction and Aims: Bone mass density (BMD) loss after renal transplantation leads to high prevalence of fracture. Osteoporosis is defined by dual-energy X-ray absorptiometry (DXA): BMD 2,5 SD below the mean of young women (T-score $\leq$ 2,5) measured in lumbar spine or femoral neck. The gold standard method is not always available.

Methods: Heel DXA is an easy inexpensive diagnostic alternative with minimum exposition to ionizing radiation, previously validated in general population.

We analize diagnostic accuracy and clinical use of heel DXA compare to standard DXA in 77 renal transplant recipients.
Results: 77 patients (40 women) with a mean age of 53,4 years, SD:12,3. Mean time since transplantation of 85,9 months (range,18 to 173 months). Mean time on dialysis of 38 months (range, 1 to 92 months). The heel BMD has shown a positive correlation with spine lumbar (0,5), femoral neck (0,362) BMD, weight (0,38) and height (0,35). The heel BMD has shown a negative correlation with age (-0,33). DXA measurements established the diagnosis of osteoporosis in 36,4% (28/77) of patients, and in 47,6%(10/21) of women renal recipients elder 60 years. Sensitivity (S) and specificity (s) of heel DXA for diagnosis of osteoporosis were 14,3% and 97,9% (T-score $\leq$ 2,5 SD).
Using the ROC plot, the optimal cutoff point was T-score $\leq$ 0,9. Both, sensitivity and specificity were 75%, and positive predictive value was 62% and negative predictive value was 83,7%.
Conclusions: Heel DXA is a practical screening technique in assessment of bone mass density in our renal transplant recipients. Sensitivity and specificity were 75% with T-score $\leq$0,9.

SaP452 UTILITY OF C2 MONITORING IN PREDICTION OF DIASTOLIC DYSFUNCTION IN RENAL TRANSPLANT RECIPIENTS

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Introduction and Aims: A number of experimental studies suggested that cyclosporine A (CsA) toxicity induced cardiac modifications like fibrosis and myocardial extracellular matrix disorganization with the disappearance of normal network among the fibers. These effects of CsA may cause diastolic dysfunction over the course of time. Doppler echocardiography with tissue doppler imaging could consistently detect diastolic dysfunction. C2 monitoring of CsA has been promoted as improving the results of renal transplantation. The purpose of this study was to assess diastolic dysfunction using C2 monitorization during CsA exposure in stable renal transplant patients.
Methods: Seventy eight kidney recipients (42 men, 36 women, mean age: 52±9 years, 47 from living and 31 from cadaveric donations), twelve or more months after transplantation, on triple therapy (CsA, mycophenolate and steroid) were involved. C2 levels were measured in every 2 months and 24 measurements for each patient were done. The patients underwent conventional and Doppler echocardiography with tissue doppler imaging. Blood pressure, serum creatinine levels and lipids were also measured.
Results: The patients were divided into two groups according to C2 levels less than 500 μg/l (Group 1, n=40) and greater than 500 μg/l (Group 2, n=38). The demographic parameters, serum creatinine and lipid levels, systolic and diastolic blood pressures, the number and the type of antihypertensive medication, conventional echocardiographic parameters did not differ significantly among groups. However, Group 1 patients had significantly higher isovolumic relaxation time (109±27 vs 86±14 ms), early diastolic deceleration time (189±52 vs 137±59 ms) and lower values of E velocity (56±32 vs 92±27 cm/s) and E/A ratio (0.81±0.23 vs 1.15±0.46) than Group 2. Tissue Doppler Imaging studies revealed significantly lower E'/A' (0.76±0.25 vs 1.09±0.32, $p<0.05$) in Group 1 than Group 2.
Conclusions: The data suggest that higher C2 levels may induce diastolic dysfunction in kidney recipient hearts without impairment of their contractile performance. Further studies are required to clarify whether dose reduction in many overexposed patients leads to improvements in both diastolic dysfunction and graft survival.

SaP453 IMMUNOSUPPRESSION WITH EVEROLIMUS INCREASES BONE MASS DENSITY LOSS IN LUMBAR SPINE

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Introduction and Aims: Mineral bone density loss is a common complication in renal trasplant recipients, mainly during the first year after the procedure. The role of anticalcineurinic immunosuppressive agents in its development is not well kwon. There are no data in the English literature about the effects of sirolimus and everolimus. However, it has been postulated that these agents could had a sparing effect on bone loss. The purpose of the present study was to prospectively investigate the impact of treatment with everolimus and low dose cyclosporine in bone mass density (BMD) in renal transplant recipients.
Methods: 15 patients on cyclosporine, everolimus and prednisone were included in the study. There were 6 male and 9 female, the mean age was 50.5±13.5 years. Measurements of BMD were done by dual-energy X-ray absortiometry (DEXA) at the lumbar vertebral bodies L2-L4 and in the rigth femoral neck at the time of transplant and at 12 months. The group was compared with another 15 renal transplant recipients transplanted inmediately before and treated with tacrolimus, mycophenolate mofetil and prednisone (Tas-MMF).
Results: Lumbar spine BMD at baseline was 0.860±0.201 g/cm^2 and it decreased to 0.822±0.199 g/cm^2 at 1 year ($p<0.05$) as did T-score (-1.69±1.88 baseline vs -1.99±1.77 at 1 year; NS) and Z-score (-0.73±1.48 baseline vs -1.03±1.47 at 1 year; NS). Femoral neck BMD at baseline was 0.800±0.239 g/cm^2 and 0.787±0.179 g/cm^2 at 1 year, T-score was -0.46±1.73 at baseline and -0.95±1.60 at 1 year, and Z-score was 0.36±1.67 and -0.17±1.68 respectively. On the contrary, lumbar spine BMD did not significantly changed in recipients on Tac-MMF, lumbar spine BMD at baseline was 0.980±0.150 g/cm^2 and 0.959±0.119 at 1 year. Femoral neck BMD increased from 0.825±0.199 at baseline to 0.866±0.166 g/cm^2 at 1 year.
Conclusions: Our findings do not support the idea that immunosuppression with everolimus could have bone-sparing effects.

SaP454 POSTTRANSPLANT PROTEINURIA IS ASSOCIATED WITH HIGHER RISK OF CARDIOVASCULAR AND GRAFT FAILURE IN RENAL TRANSPLANT PATIENTS

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Introduction and Aims: Proteinuria in the general population has been shown to be associated with cardiovascular disease (CVD). The incidence of CVD is higher among renal transplant recipients compared with healthy population and is the leading cause of death among renal transplant patients. In this study we aimed to determine whether proteinuria after renal transplantation has an associated with cardiovascular disease and long-term allograft survival.
Methods: One hundred thirty patients (105 male, 25 female; mean age 30.7±8.9 years; 105 living-related, 25 cadaveric) were included. Mean follow-up period was 63.21±19.9 months. All patients had been assessed for CVD as evidenced by ischemic heart disease, cerebrovascular disease and peripheral vascular disease. Proteinuria was defined as protein in urine more than 500 mg/day persisting more than 6 months after transplantation. Pre- and posttransplant data including sex, age at transplantation, smoking, pretransplant dialysis duration, donor status (living-related or cadaveric), presence of delayed graft function and acute rejection, body mass index, panel reactive antibodies, number of human leukocyte antigen mismatches, systolic and diastolic blood pressure levels, C-reactive protein levels, lipid profile and other biochemical parameters, immunosuppressive regimes, and pulse steroid dose were retrospectively recorded. Cox regression analysis

was used to asses the risk of proteinuria on development of cardiovascular disease. Allograft survival and mortality rates were analyzed via the Kaplan-Meier method.

Results: Proteinuria were significantly associated with CVD (P=0.001; RR=6.43; CI, 2.15-19.22). Patients with proteinuria showed significantly lower graft survival rates than those without proteinuria (58.62% vs. 80.41%; P=0.002). The mean apperance time of proteinuria was 14.1±11.4 (range1-36) months. When emerge of proteinuria was considered, it's emerge rather than timing was important for CVD and graft failure. There was no statistically significant association between proteinuria and patient survival. Patients with persistant proteinuria had higher number of acute rejection episode (1.20±1.17 vs. 0.62±0.85, p=0.004) and higher pulse steroid dosage (4380.0±3123.4 vs.2800.0±2766.7, p=0.022) than those without proteinuria.

Conclusions: In conclusion, persistant proteinuria is a strong risk factor for CVD in renal transplant patients. Therefore, when detected etiological search and antiproteinuric strategies should be considered to improve patient and graft outcome.

SaP455 SEXUAL DYSFUNCTION AND QUALITY OF LIFE (QoL) AFTER SIMULTANEOUS PANCREAS KIDNEY TRANSPLANTATION (SPK)

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Introduction and Aims: SPK is the treatment of choice for patients with diabetes mellitus type 1 and end-stage renal disease (ESRD) because it improves survival, is cost-effective and can mitigate secondary complications of diabetes.

Patient reported outcomes such as QoL and erectile dysfunction (ED) - the persistent inability to achieve or maintain an erection sufficient for satisfactory sexual activity - received increased attention in transplant recipients recently. Both, diabetes and ESRD are associated with ED. However, the prevalence and impact of ED on QoL after SPK is unknown.

Therefore we aimed to

1. determine QoL after SPK
2. assess the severity of ED in this cohort
3. compare QoL according to degree of ED
4. analyse the impact of ED on QoL after SPK.

Methods: 101 consecutive male SPK patients

Assessment of QoL: SF-36. Dimension scores, physical, and mental composite scores were calculated. The QWB-Index (Quality of Well-Being) was derived as a single preference based health utility score.

Assessment of ED: The International Index of Erectile Function (IIEF) and the Sexual Function Inventory (SFI) was used.

Statistical analysis: QoL indices of groups with different degrees of ED were compared by ANOVA. The association of ED and QoL was analysed

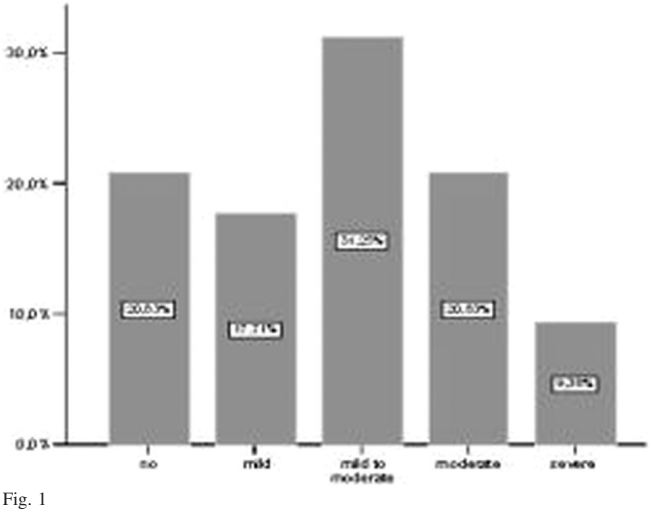

Fig. 1

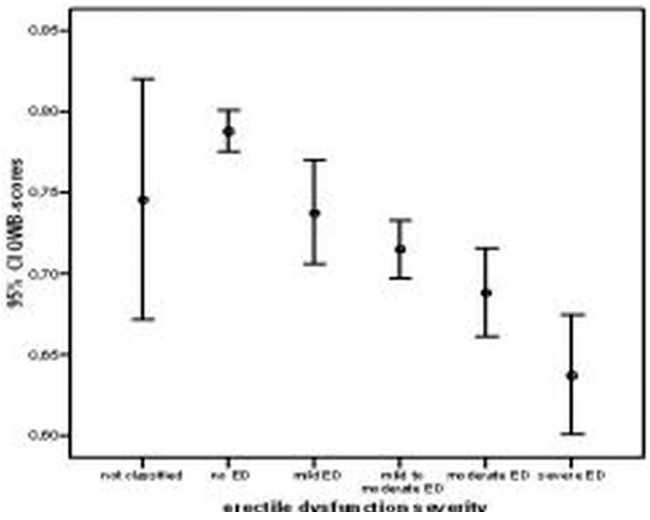

Fig. 2

in a stepwise multiple linear regression model using SF-36 composite scores and the QWB-index as dependent variables.

Results: Assessment of QoL demonstrated only moderately reduced values as compared to healthy controls. For the first time the very high prevalence and severity of ED was determined in SPK-recipients.

Fig 1: Frequency and severity of ED according to IIEF. *Fig 2:* Severity of ED correlates inversely with QWB-scores, e.g. overall QoL decreases with increasing ED. ED is an important predictor of diminished QWB- and SF36 physical composite scores. A high correlation of erectile dysfunction and cardiovascular morbidity (e.g. presence of coronary artery disease and history of amputations) was noted.

Conclusions: QoL after SPK approaches values of normal age matched controls. ED is a predictor of impaired physical QoL but not of reduced mental aspects of QoL.

The high correlation of cardiovascular morbidity and ED supports the view that ED is of vascular origin in many cases and may be used as a sentinel event or surrogate marker for cardiovascular morbidity. In view of the emerging treatment options the opportunity for improvement of QoL in selected patients should not be missed.

SaP456 ENDOTHELIAL DYSFUNCTION AND VISFATIN LEVELS BEFORE AND AFTER KIDNEY TRANSPLANTATION

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Introduction and Aims: Endothelial dysfunction (ED) is strongly linked to cardiovascular disease and outcome of patients with chronic kidney disease (CKD). Kidney transplantation improves both survival and endothelial dysfunction of dialysis patients, through unknown mechanisms. We hypothesized that increased clearance of vasoactive proteins could contribute to an improved ED in kidney transplant recipients.

Methods: Fifty-eight living donor kidney transplant recipients, 31 (23 male, 29±5) on cyclosporine A and 27 (10 male, 26±5 years) on tacrolimus immunsupression, were studied longitiduainally. Sixty-three (30 male, 27±6 years) healthy subjects matched for age, gender and body mass index were enrolled as controls. Visfatin, adiponectin, highly sensitive C reactive protein (hsCRP) levels, brachial artery endothelium dependent vasodilatation (FMD), nitroglycerine mediated dilatation (NMD) and carotid intima-media thickness (CIMT) were measured before transplantation and on the 30th and 90th day after transplantation.

Results: Pre-transplantation visfatin, adiponectin and FMD values of pa-

tients were significantly higher than those of the controls ($p< 0.001$ for all). These values all significantly decreased after 30 and 90 days post transplantation (figure 1). Plasma visfatin, but not of adiponectin, correlated negatively with FMD levels both before and 90 days after kidney transplantation (rho= -0.53, rho= -0.41; respectively, $p<0.001$ for both). Carotid intima-media thickness and hsCRP levels decreased after transplantation ($p<0.001$ for all), but were not correlated to either visfatin or adiponectin levels.

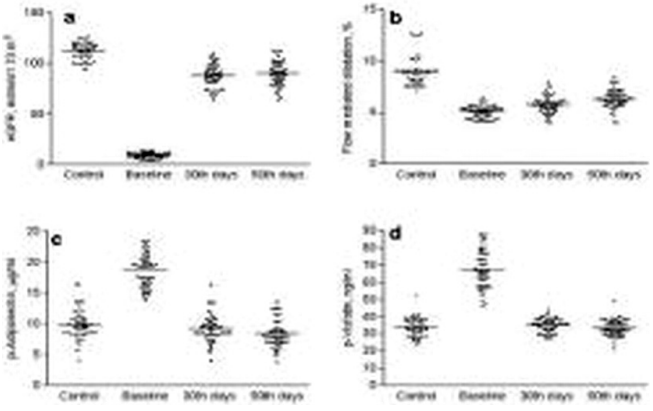

Fig 1. eGFR (a), FMD (b), p-visfatin (c), and p-adiponectin (d) levels of the controls and the patients before transplantation and on the thirteenth and nineteenth days.

Conclusions: Endothelial function improves already during the first month post transplantation, and is accompanied by reductions in visfatin, adiponectin, and hsCRP levels. Visfatin and adiponectin are associated with FMD in CKD both before and after kidney transplantation.

SaP457 SIROLIMUS MONOTHERAPY AS MAINTENANCE IMMUNOSUPPRESSION: SINGLE CENTER EXPERIENCE IN 50 KIDNEY TRANSPLANT PATIENTS

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Introduction and Aims: Chronic allograft nephropathy (CAN), cardiovascular mortality, and posttransplant malignancy are complications of conventional immunosuppression after kidney transplantation. Our group reported the feasibility of maintenance monotherapy with Sirolimus (SRL) in a pilot experience (Diekmann 2005).
The aim was to study safety and feasibility of sirolimus (SRL) maintenance monotherapy in a larger number of long-term kidney transplant patients.
Methods: All patients (n= 50 patients) from our center with at least 6 months follow-up after being put on SRL monotherapy were included into the study. SRL monotherapy was started by either converting patients with calcineurin inhibitor-based immuno-suppressive protocols and withdrawing concomitant immunosuppression before or after conversion from CNI to SRL or by reduction of concomitant immunosuppressive drugs in SRL-based protocols. During the first month after start of SRL monotherapy follow-up visits were performed weekly, then each month for the following 2 months. After that, patients were monitored every 2–3 months unless visits were necessary on a shorter basis for adverse events or other medical reasons. Each follow-up visit included a physical exam, laboratory screening inclusive creatinine, proteinuria, hemoglobin and lipid profile every year.
Results: Mean follow-up on SRL monotherapy was 6-48 months. The time between transplantation the start of monotherapy was 7,69±3,32 years. No rejections occurred after initation. During follow-up two patients died of cardiovascular disease (already diagnosed before monotherapy), two of previously diagnosed post-transplant malignancy and one of hepatitis C-related liver failure.
GFR (MDRD) was 60 ml/min*1,73m^2 at start of monotherapy and 55 ml/min*1,73m^2 after four years. The proteinuria was 632±562mg/24h at four years. During the follow-up no significant changes of the lipid profile,glycemia or hemoglobin occurred.
Conclusions: Sirolimus monotherapy is a safe long-term alternative in immunological low-risk patients without increased the risk of rejection and with an acceptable lipid profile.

SaP458 PNEUMOCYSTIS JIROVECII PNEUMONIA IN RENAL TRANSPLANT RECIPIENTS

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Introduction and Aims: In patients under current immunosuppressive therapy Pneumocystis jirovecii pneumonia [PCP] is a severe, in up to 50% letal opportunistic infection. Without antibiotic prophylaxis, it develops in approximately 5% of renal transplant recipients, incidence widely varying between centres. Majority of PCP occurs in patients 3-6 months after renal transplantation [RTX], PCP is rare after the first year post-transplant. Risk of PCP increases e.g. with number and type of acute rejection treatment [ART], cytomegalovirus [CMV] infection, is related to immunosuppressive regimen. Introduction of generalized primary trimethoprim-sulfamethoxazole [TMP-SMX] prophylaxis for at least 4 months after RTX and ART diminished PCP incidence. Usefulness of prolonged prophylaxis is still a matter of discussion.
Methods: Since publication of European Best Practical Guidelines for RTX in 2002 our centre follows the recommendations for standard PCP prophylaxis with TMP-SMX at a dose of 80/400 mg/day for 4 months after RTX and ART. From may 2002 to january 2007 there were documented 69 pneumonias in heart or renal transplant patients, 13 of the 14 cases of PCP occurred in patients after RTX. In the same period 240 RTX where performed. Our outpatient RTX centre cares for approximately 500 patients, incidence of PCP after RTX is 0.45/year per 100 patients. Usually 1-2 sporadic PCP per year, there was an outbreak with 5 cases in 2005. One of the 13 patients (9 male, 4 female, 44-72 (mean 58) years old, 4 months to 16 years, 80% within the first year after RTX) was on TMP-SMX prophylaxis.
Results: All patients initially received high dose intravenous TMP-SMX (TMP 16mg/kg/day, adjusted to renal function) and modification in immunosuppressive treatment; calcineurin inhibitors and mycophenolate mofetil [MMF] where transiently reduced/withdrawn, steroid dosage raised to 60mg/day. 10 patients (76.9%) where cured, 3 patients (23.1%) died for PCP, 1 (7.7%) lost renal function permanently, 4 (30.8%) needed intermittent haemodialysis; in 4 patients (30.8%) renal function (glomerular filtration rate estimated by Cockcroft and Gault formula) fully recovered. Incidence was related to immunosuppression with combined tacrolimus/MMF/methylprednisolone (59%), former ART and CMV episodes showed influence. 5 cases occurred under switching to sirolimus for several reasons more than 4 years after RTX.
Conclusions: Prolongation of PCP prophylaxis should be part of individualized risk stratification, also in patients after the first year after RTX, especially in conditions with CMV reactivation, other immunomodulating infections and switching to newer and more potent immunosuppressive agents, e.g. sirolimus.

SaP459 A MULTI-CENTRE COMPARISON OF LONG TERM OUTCOME OF QUALITY OF GRAFT FUNCTION & SURVIVAL AFTER TRANSPLANTATION (RTx) IN DIABETIC (DM) & NON-DIABETIC (NON-DM) PATIENTS. DATA FROM UK RENAL REGISTRY

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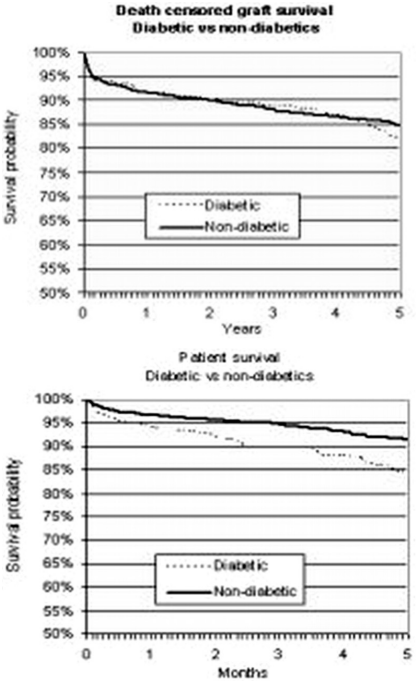
Introduction and Aims: Renal transplant recipients whose primary renal disease is diabetes mellitus have more co-morbidity than non-diabetic patients and are more at risk from cardiovascular disease. This analysis compares quality of care & outcomes after RTx in these groups, using UK Renal Registry data (UKRR).
Methods: In this *multi-centre* (n = 41) longitudinal observational study, *3,860* incident patients (DM – 11%, non-DM – 89%) with first RTx on the *UKRR database* by the end of 2003 were studied. UKRR electronically collects quarterly data (haemoglobin, blood pressures, calcium, phosphate,

parathyroid hormone (iPTH), bicarbonate & creatinine) in all patients on dialysis & RTx. *Sequential quarterly changes* in the estimated means for these variables were analysed using *ANOVA* after *adjusting for age, gender, ethnicity, time on dialysis, year of transplantation & eGFR.* The *rate of decline in eGFR* in two groups analysed. *Gross and adjusted survivals* (*recipient factors*: age at RTx, sex, ethnicity, prior duration on dialysis; *donor factors:* age, gender, type of Tx and creatinine) (patient & graft) were compared.

Results: Gross one, three & five year death censored graft survival for DM & non-DM were 91%, 88%, 81% & 91%, 88%, 85% respectively. Five year transplant survival (graft survival not censored for death) was 69% for DM & 78% for non-DM (p = 0.003). Five year patient survival was 85% & 91% for DM & non-DM respectively (p <0.0001). Throughout 5 year observational period, DM RTx recipients had higher SBP (5 mmHg; p <0.001.) & lower cholesterol (0.5 mmol/L; p < 0.001). Importantly there was no difference in haemoglobin, corrected calcium, iPTH & bicarbonate levels between DM & non-DM. Estimated median eGFR at one, three & five years for DM & non-DM were 47.1, 44.4, 39.2 & 45.6, 43.7, 41 ml/min/1.73m^2 respectively.



Conclusions: Overall quality of care of diabetic RTx patients in UK is similar to non-diabetics. Although some cardiovascular risk factors such as cholesterol level are lower in diabetics, others such as systolic blood pressure are high. Death censored graft survival is similar in the two groups. In diabetics, higher proportion of renal allografts is lost through patient deaths resulting in significantly lower transplant survival.

SaP460 TOLL-LIKE RECEPTOR mRNA EXPRESSION IN RENAL ALLOGRAFT BIOPSY TISSUE

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Introduction and Aims: Toll-like receptor (TLR) has been known as a mediator of innate immunity, but recent reports showed that TLR provided a link to adaptive immunity and was involved in allograft rejection. To explore the expression patterns in various conditions of renal transplantation, this study examined TLR subunits mRNA expression in renal allograft biopsy of acute rejection (AR, n=11), chronic rejection (CR, n=15), chronic cyclosporine (CsA) nephrotoxicity (n=19), and post-transplant immunoglobulin A (IgA) nephropathy (n=9) patients.

Methods: The diagnosis was made according to Banff97 classification with Banff2003 modification. Control tissues (n=7) were obtained from normal renal cortical tissue of renal cell carcinoma patients.

Results: TLR 2, 3, 4, and 9 mRNA expression was analyzed by realtime RT-PCR using SYBR green. TLR 2 and 3 mRNA expressions were not significantly different in allograft samples compared with control (P>0.05). On the contrast, TLR 4 mRNA was significantly increased in AR (P<0.05), CR (P<0.05), CsA toxicity (P<0.0001), and IgA nephropathy (P<0.05). TLR 4 mRNA expression was significantly higher in CsA toxicity than that of acute and chronic rejections (P<0.01), however, no significant difference was observed between AR and CR. TLR 9 mRNA was only upregulated in CsA toxicity (P<0.05) and IgA nephropathy (P<0.05).

Conclusions: These results suggested that expression of TLR 4 mRNA increased with renal transplant damage irrespective of causes. A strong expression of TLR 4 and 9 in chronic CsA toxicity among allograft samples may reflect different pathogenesis and help in the differential diagnosis with CR.

SaP461 THE SAFETY OF HAND ASSISTED LAPAROSCOPIC DONOR NEPHRECTOMY COMPARED WITH OPEN DONATION FOR ALL LIVING DONORS

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Introduction and Aims: Open Donor Nephrectomy (ODN) has been the conventional method for live kidney donation. Recently in many UK centres, minimally invasive live donor nephrectomy has become the method of choice which has resulted in an increase in organ availability, with equal graft and recipient survival. However, concerns remain regarding the safety of these techniques. We present a consecutive, prospective analysis of our experience of hand assisted laparoscopic donor nephrectomy (HALDN) performed at single UK centre compared historically to open donation.

Methods: The results of 141 donors who underwent HALDN between 2004-2007 were compared to 56 ODN patients just preceding the HALDN patients. For the HALDN cases, a trans-peritoneal approach was used in all cases with a midline incision for the Gelport™ (Applied Medical, CA,USA) and two 12 mm ports. Objective intra-operative and postoperative data were collected prospectively. For the ODN cases, a standard subcostal flank approach was used.

Results: Of 141 donors (79M/62F) the mean age was 45.6 yrs compared to 46.8 in the ODN group (21M/35F). For the HALDN group: mean operating time was 198 mins compared to 170 min for ODN group (P<0.001, Mann-Whitney U Test), and mean day 1 donor creatinine for the HALDN group was 113.5mmol/l compared to 118.4mmol/l for the ODN group. Mean post operative stay was 3.1 days for the HALDN group compared to 5 days for the ODN group (P<0.001). The mean time taken to return to normal activity was 3.5 weeks for the HALDN group compared to 12 weeks for the ODN group (P<0.001).

Complications: there was one open conversion for bleeding and 23 minor complications in 19 patients in the HALDN group. In the ODN group there was one re-exploration for severe post operative haemorrhage and 31 minor complications in 27 patients.

Conclusions: HALDN is a safe procedure with a complication rate of 14% compared to 50% with ODN group. In addition our results show a reduced hospital stay and an earlier return to normal activity compared with open kidney donation. HALDN has become the accepted method of choice for donation in our unit and there are no circumstances in which we prefer open donation. Major complications are rare and minor complications generally do not produce long-term morbidity.

SaP462 SUBCLINICAL INFLAMMATION IN RENAL TRANSPLANT RECIPIENTS: IMPACT OF CYCLOSPORIN MICROEMULSION VS TACROLIMUS

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Introduction and Aims: Renal insufficiency provokes a state of microin-

flammation that contributes to an increase in atherosclerosis in these patients. Renal transplant (RT) improves this situation but does not stabilize it. The contribution of anticalcinuerinic drugs (AC) to the inflammation present in these patients is not entirely known, nor whether there are any differences between the two drugs in this group.

Objective: To compare and establish differnced in the inflammatory state in two groups of transplanted patients treated with cyclosporine microemulsion (CsA) or tacrolimus (TC).

Methods: Prospective study of 81 RT divided into two groups according to AC: CsA group, n=35 (58±18 years; 26 men and 9 women; 25% preRT diabetes;30±3 months in dialysis) vs TC group, n=46 (50±1.4 years; 32 men and 14 women; 6% preRT diabetes;33±7 months in dialysis). The following markers of inflammation (MIF) were determined preRT and at 3 and 12 months postRT: C reactive protein (CRP) serum amyloid protein A (SAA) by nephelometry (BNP-ProSpec); Interleukin-6 (IL-6) and tumor necrosis factor alpha (TNFa) by chemoluminescence (Immulite-1,DPC); and serum plasma pregnancy associated protein A (PAPP-A) by Elisa. Samples were collected in stable patients with no rejection, active infection or inflammatory process present. Use of statins and ACE inhibitors/angiotensin II receptor blockers was evaluated in the long-term follow-up after RT.

Results: The inflammatory state improved with time after the RT, with decreases in the MIF studied. When we compared the two groups at 3 months postRT, there were no significant differences in any of the markers studied (CsA vs TC).

At 12 m postRT, patients treated with CsA showed higher levels of MIF than patients treated with TC: *SAA* (mg/l), 17.5±4 vs 8.5±1.2 p=0.04 and IL-6 (pg/ml), 7.9±1.5 vs 5.3±0.6 p=0.01. PAPP-A(mU/ml), 2.4±2.3 vs 1.7±0.9, did not reach statistical significance. In the non parametric analysis using multiple comparisons (preRT, 3 and 12 months), IL-6 and SAA were more elevated in the CsA group. The relationship of the MIF with the immunosuppression treatment was independent of age, preRT diabetes and statin and ACE inhibitor/angiotensin II blocker use.

Conclusions: Patients with stable RT treated with CsA showed a significant increase in inflammatory cytokines at 12 months postRT compared to patients treated with TC.

SaP463 FACTORS ASSOCIATED WITH ALLOGRAFT FUNCTION AT 1-YEAR – THE VALUE OF PROTOCOL BIOPSIES IN KIDNEY TRANSPLANT RECIPIENTS

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Introduction and Aims: Protocol renal allograft biopsy is considered as a potentially valuable diagnostic tool in identifying the histological changes associated with graft prognosis. In addition, a variety of clinical factors are associated with the long-term graft survival. The association between the histology of borderline/subclinical rejections (BR/SR) and findings of chronic allograft nephropathy (CAN) remain less clear, especially in view of the pulse corticoid therapy and late allograft failure. Our study aimed to identify the histology of BR/SR and CAN in protocol biopsies at 1 and 6 months in renal allografts and the possible implications of these and other clinical findings on the graft function at 1-year.

Methods: 40 paired allograft biopsies performed at 1 and 6 months after living related kidney transplantation were reviewed using the Banff schema. In order to assess variables associated with the graft function the cohort was divided according to the progressive rise in serum creatinine (sCr)>200 mmol/L in the interval from 1 to 12 months, to a group with high Scr (HsCr) and low sCr (LsCr).

Results: The HsCr group (n=9) presented with higher percentage of glomerulonephritis as primary kidney disease (66.6 vs 25.8%, p<0.05). The characteristic of this group was also susceptibility for urinary tract infections (2.8±0.5 vs 1.8±0.9, p<0.05) per patient for the study period of 1-year. There was a higher sCr at 1-month, which become significant in comparison with LsCr group at 6 and 12 months (199±29 vs 129±35 and 259±74 vs 129±34; p<0.01, respectively).

The number of treated patients with BR/SR tended to be lower in HsCr group with a higher percentage (22.2) of moderate grade (IIB) subclinical rejection at 1 and 6-month biopsy compared to the LsCr group (0%). The groups didn't differ in HI (histological index/total sum of scores for acute and chronic changes) and mean CAN score (sum of histological markers for chronicity) on 1-month biopsy, while both parameters increased significantly in the HsCr group on the 6-month biopsy (10.2±2.7 vs 7.1±3.6 and 6.1±1.5 vs 4.2±2.3; p<0.01, respectively). Interestingly, the predominant chronic histological changes were present on the vascular (cv: 1.8±0.4 vs 0.7±0.6; p<0.01) and interstitial structures (ci: 1.9±0.6 vs. 1.3±0.7; p<0.05).

Conclusions: One and 6-month biopsy may be valuable to determine histological changes associated with the outcome of renal allograft function. The presence of untreated BR/SR with predominant vascular changes in recipients with glomerulonephritis as primary kidney disease and greater susceptibility to urinary tract infection may lead to a rapid impairment of the graft function accelerating the process of chronic allograft nephropathy.

SaP464 PREVALENCE OF LEFT VENTRICULAR HYPERTROPHY IN RENAL TRANSPLANT RECIPIENTS

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Introduction and Aims: Cardiovascular events are the major cause of the death in renal transplant recipients. The left ventricular hypertrophy (LVH) is a crucial parameter for mortality prognosis. On the other hand, a partial regression of LVH is known to occur after renal transplantation.

The aim of the present study is to reveal the most important factors associated with progression/regression of LVH during the first year after renal transplantation.

Methods: Thirty patients (F=11 (36.7%), M=19 (63.3%); aged 40±13.1 years) are prospectively examined by echocardiography, clinical and laboratory monitoring for 3.5 - 12 months after their renal transplantation. All patients receive cyclosporine A combined with prednisone and cytostatics. Arterial hypertension is treated with calcium channel blockers, beta-blockers, and ACE inhibitors. Echocardiographic LV dimensions are recorded using the standard technique. The left ventricular mass index (LVMI) is then calculated by the modified formula of the American Society of Echocardiography. The LVH is detected if LVMI exceed 134 g/m^2 for man and 110 g/m^2 for women. Statistical analysis is performed using the SPSS software.

Results: The LVH criteria are met in 63.3% cases after 3.5 months and in 40% after 12 months. According to the progression or regression of LVH we subdivide all patients in to three groups: group 1 (*n*=8) without LVH during the follow-up period, group 2 (*n*=11) with a significant decrease in LVMI by the end of follow-up (after 12 months of follow-up) and group 3 (*n*=11) with a significant increase in LVMI at 12 months. The most important factors associated with progression and regression of LVH are given in Tab 1. One can see that the regression of LVH goes along with the normal serum creatinine levels (SCr) while the progression of LVH is accompanied by the renal dysfunction and high blood pressure.

Conclusions: We may conclude that considerable regression of LVH is achieved if kidney graft recipients are kept with the normal renal function and arterial blood pressure.

Abstract SaP464 – Tab1e 1. Dynamics of LVMI, mean BP, SCr in the three groups of renal recipients

	Group 1 (n=8)		Group 2 (n=11)		Group 3 (n=11)	
	3.5th month	12th month	3.5th month	12th month	3.5th month	12th month
LVMI, g/m^2	102.5(81.8;108.6)	92.7(61.7;101)	147.4(125;158)	100.5(89.9;126)*	147.7(121.7;158.8)	169(143;170)*
SCr, mmol/l	0.11(0.09;0.15)	0.11(0.08;0.14)	0.11(0.09;0.14)	0.11(0.08;0.15)	0.16(0.1;0.21)†	0.2(0.11;0.24)$^{\neq}$
mean BP, mm Hg	100(95;108.3)	95.6(93.3;107)	106.6(93.3;113.3)	93.3(86.6;97.5)*	106.7(103.3;110)	113.3(102.5;120)

Note: The table demonstrates the median and quartiles; *p<0,05 with the 3.5 month, †p<0,05 between groups at the same period of the study.

SaP465 RISK FACTORS FOR KIDNEY GRAFT LOSS: THE ROLE OF HCV INFECTION IN 400 CONSECUTIVE CASES

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Introduction and Aims: Hepatitis C (HCV) is common among hemodialyzed and transplanted patients and its role in kidney transplantation has been well demonstrated on the long term, with a higher mortality and graft loss risk. HCV infection has been associated with an increased risk of infective death, liver failure, higher proteinuria, post transplant diabetes, glomerulonephritis, cryoglobulinemia, and haematological disorders. This study aims to evaluate early and late role of HCV infection on patient and graft survival.
Methods: This is a retrospective study, including all the patients transplanted in our Center from 1998 to 2005: a comparison of the main characteristics was performed between the HCV negative and positive recipients, patient and graft survival (censored for death) were calculated with the Kaplan Meyer actuarial method, and the risk factors were identified with multivariate analyses.
Results: The patients were 400, with a mean follow up of 34 months (3-83). The comparison of HCV positive patients (n=52) with the HCV negative (n=348) showed a higher ratio of patients at re-transplantion (40,4% vs 8,9%; p=0,0001), with lower transplant age (46 vs 49 yrs; p=0,032) and a higher Panel Reactive Antibody peak (33 vs 11; p=0,0009) in the first group. Delayed graft function (DGF), post transplant diabetes and acute rejection were not significantly different among the two groups. Serum creatininemia (SCr) at discharge (2,35 vs 2,0 mg/dl; p=0,07) and the 6-month proteinuria (0,42 vs 0,23 g/24h; p=0,08) were higher in the HCV positive group, without reaching statistical significance. The 5-yr patient survival was similar in the two groups (95,8% vs 95,9%), but there were different causes of death: 2/2 HCV positive patients died of infection vs 2/12 of the negative.HCV positive graft survival was lower than HCV negative at the third month (99,1% vs 94,2%), first (98,5% vs 89,9%) and fifth year (97,1% vs 83,4%; p=0,001). Multivariate studies of graft survival showed as independent risk factors HCV-positivity (HR=3,47; 95%CI: 1,30–9,24), previous transplants (HR=3.36; 95%CI: 1.31–8.61), acute rejection (HR=5,93; 95%CI: 2.14–16.43) and DGF (HR=4,16; 95%CI: 1,47–11,76).
Conclusions: This study shows that HCV positivity is a risk factor for graft loss not only late after the transplant but also in the first months. Renal function and proteinuria have a worse trend since the first post-transplant months and notably the SCr gap at discharge between HCV positive and negative patients is reduced at the 6th month because of the higher graft loss occurred already in the first months. Furthermore, HCV positivity is confirmed as an independent risk factor even in the multivariate study adjusted by other risk factors that have a high prevalence in the HCV positive group. Therefore, this study confirms that the HCV positive transplanted population is a high risk population and needs a more accurate follow up and more specific therapies before and after the renal transplantation.

SaP466 INCIDENCE OF SAR AND CAN IN RENAL TRANSPLANT PATIENTS TREATED WITH DIFFERENT IMMUNOSUPPRESSIVE REGIMENS

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Introduction and Aims: Chronic allograft failure represents one of the most important challenges in transplantation medicine. Chronic allograft injury is the dominant cause of late renal allograft loss and appears to be associated to a variety of antigen-dependent and antigen-independent mechanisms. Protocol biopsies may uncover signs of acute rejection without associated graft dysfunction, subclinical acute rejection (SAR), as well as the early occurrence of chronic allograft nephropathy (CAN). They may also help to develope individually targeted immunosuppressive regimens or to identify novel less toxic immunosuppressants. As a consequence protocol biopsies have increasingly been used to assess renal allograft injury. In order to prospectively examine the role of different immunossuppressive regimens on SAR and CAN we also have introduced protocol renal allograft biopsies in our department.
Methods: We have prospectively analysed the incidence of SAR and CAN on surveillance biopsies performed in 65 consecutive patients transplanted between September 2004 and December 2006 at the time of engraftment and at month 1, 6 and 12 after transplantation. Patients were assigned to one of three immunosuppressive regimens: group A (n=19) = Everolimus + low-dose cyclosporine (CsA) + methylprednisolone (MP); group B (n=31) = CsA + MMF + MP; group C (n=15) = tacrolimus (Tac) + MMF + MP. One out of 121 (0.8%) kidney biopsies was complicated by serious hemorrhage. SAR and CAN were graded according to Banff97 classification for acute or chronic rejection respectively.
Results: SAR was identified in 4/65 (6.1%) patients always at month 1. Three out of 4 were from group A (23%) and 1 was from group B (3.1%). All SAR patients showing interstitial inflammation or tubulitis (Banff97 IA, IB) were treated. CAN was present in 7/65 (10.7%) patients. Four out of 7 were at month 6: 2 were from group B (6.4%) and 2 from group C (13.3%). Three out of 7 were at month 12: 2 were from group B (6.5%) and 1 was from group C (6.7%) respectively. Patients from group A never developed CAN. Renal toxicity from calcineurin inhibitors (CI) was found in 13/65 patients (20%): 7 were from group B (22.5%) and 6 were from group C (40%).
Conclusions: Preliminary data suggest that protocol biopsies are a useful tool to guide immunosuppressive therapy. Surveillance biopsies may also help to monitor effectiveness and safety of novel immunosuppressive regimens. The incidence of subclinical rejection early after kidney transplantation was high into the everolimus group when compared to CI-treated patients. Contrarily to several studies, suggesting that SAR may contribute to develope CAN, we found that only CI-treated patients presented chronic allograft injury and 1 out of 46 (2.2%) patients presented SAR. CAN instead never developed in patients treated with everolimus where SAR was present in 15.8% of patients.

SaP467 VITAMIN D STATUS IN KIDNEY TRANSPLANT PATIENTS: NEED FOR ROUTINE, ENHANCED VITAMIN D SUPPLEMENTATION

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Introduction and Aims: A high prevalence of vitamin D insufficiency has been found in the general population, and in patients with chronic kidney disease. Exposure to solar ultraviolet B (UVB) is generally considered crucial to satisfy requirements for vitamin D. Kidney transplant patients are recommended avoiding sun exposure due to a high risk of skin carcinomas induced by the immunosuppressive therapy. Consequently, these patients are particularly at risk of hypovitaminosis D (i.e. vitamin D insufficiency and deficiency). The present study was conducted to examine the prevalence, causes and consequences of hypovitaminosis D in a well-defined population of Danish kidney transplant patients.
Methods: From December 1st 2005 to April 1st 2006, data were collected from 173 kidney transplant patients (male/female, 86/87; mean age 53 (SD ±12) years, median graft age 7.4 (interquartile range 3.3-12.7) years) followed in the outpatient nephrology clinic at Copenhagen University Hospital in Herlev. Serum concentrations of intact parathyroid hormone (iPTH), 25-hydroxyvitamin D (25-OHD), and 1,25-dihydroxyvitamin D ($1,25(OH)_2D$) were measured. Dietary and supplementary intake of vitamin D, solar UVB exposure, and selected lifestyle factors were assessed in a subgroup (n=97) of the study population using an interviewer-administered questionnaire. Group differences were tested using unpaired t-tests or Mann Whitney U tests as appropriate. Three multiple linear regression analyses were performed to describe the relation between S-25-OHD, S-$1,25(OH)_2D$ and S-iPTH respectively, and possible explanatory variables.
Results: Fifty-one % of the patients had vitamin D insufficiency (S-25-OHD 40-75 nmol/L), and an additional 29% of the patients had moderate to severe vitamin D deficiency (S-25-OHD 39 nmol/L). In a multiple

regression analysis, sun avoidance was inversely (P=0.004) and native vitamin D (ergocalciferol) supplementation was positively (P <0.0001) associated with S-25-OHD. The association between the (low) dietary vitamin D intake and S-25-OHD was non-significant. According to our regression model (data not shown), the average kidney transplant patient avoiding the sun needs a daily supply of 22 μg ergocalciferol to reach the desired S-25-OHD concentration of 75 nmol/L (cut-off level suggested by K/DOQI guidelines). Low S-25-OHD concentrations were associated with: 1) increased S-iPTH concentrations (P=0.0002), independently of the S-1,25$(OH)_2$D concentration and 2) decreased S-1,25$(OH)_2$D concentrations (P=0.002), independently of the estimated glomerular filtration rate.

Conclusions: Hypovitaminosis D is common in Danish kidney transplant patients, and is associated with adverse metabolic consequences. Due to the necessity of sun avoidance in this patient group and the limited dietary sources of vitamin D, routine prescription of 22-30 μg/d ergocalciferol to kidney transplant patients should be considered to ensure S-25-OHD levels equal to or above 75 nmol/L.

SaP468 THE ASSOCIATION OF DILTIAZEM WITH SIROLIMUS PERMITS A SAFE AND SIGNIFICANT REDUCTION OF IMMUNOSUPPRESSIVE FINANTIAL COSTS

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Introduction and Aims: Sirolimus (SLR) has gained a place in the immunosuppressive therapeutics option in kidney transplantation. However its price is much higher than current formulations of cyclosporine. SLR is metabolized by the cytochrome P450 CYP3A enzymes and several drugs interfere with their activities, diltiazem (DTZ) being one of the best known. The degree of inhibition and safety of the association of SRL with DTZ has not been reported although this may allow a significant reduction of therapeutics budget, which pushed us to perform this study.

Methods: Nineteen kidney transplants (Ktx) of cadaver origin were admitted to this study. All but two received cyclosporine A with mycophenolate mofetil (MMF) and prednisolone from the beginning, one received SRL from the outset (with MMF and pred) and another received azathioprine with cyclosporine and pred. Eighteen had SLR substituted for cyclosporine at a variable time post-transplantation for different reasons. Every Ktx presented a stable graft function and did not show any specific contraindication for DTZ use. Sixteen Ktx were treated for high blood pressure prior to DTZ. Whenever a Ktx was treated with another calcium blocker or a βblocker these drugs were stopped. SRL dose was halved when DTZ at a 120 mg bid was commenced and Ktx were observed at the outpatient clinic every two weeks until stabilization. Every case gave his informed consent. Statistics by paired Student t Test.

Results: Eighteen Ktx completed the study, one stopped DTZ at the first visit because of significant leg edema. Ktx were receiving SRL for 19.4±8.4 months prior to DTZ and the follow-up was 5.3±3.7 months. The doses of prednisolone and MMF did not change. SRL doses were stable by the fourth outpatient visit. The following values are presented, pre-DTZ/final, with each representing the mean of the last two measures for each variable - weight: 66.7±14.1/66.0±14.5 kg; SRL dose: 2.94±1.07/1.38±0.54 gr/d (p<0.0001); SRL levels: 9.4±2.9/11.7±3.6ηg/ml (p=0.089); creatinine: 1.61±0.49/1.70±0.49. We did not observe any sigificant change on systolic and diastolic blood pressure, heart rate, urinary protein, red blood cell indices, platelets, leukocytes and lipids and no significant clinical event occurred during the study.

Conclusions: The association of DTZ with SRL in stable Ktx is safe and well tolerated by the majority of cases and allows considerable budget savings. For the prices in our country that will translate into a 7.5€/day/patient savings for SRL while DTZ costs around 0.1€/day. The amount of SRL dose reduction is quite variable, from 25 to 87.5% reduction in our cases, thus a close surveillance is needed until stabilisation is reached.

SaP469 RISK FACTORS FOR CHRONIC KIDNEY DISEASE IN KIDNEY DONORS

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Introduction and Aims: Although several previous studies have reported that kidney donors are not at increased risk for adverse effects, some donors have been found to progress to chronic kidney disease (CKD). We therefore retrospectively evaluated the risk factors for CKD in kidney donors.

Methods: Of the 756 individuals who underwent open donor nephrectomy between June 27, 1990, and April 30, 2001, 104 had follow-up records for 50 months or more. Estimated glomerular filtration rate (GFR) of 60 mL/min/1.73 m^2 from the MDRD equation at final follow-up divided these individuals into a normal group (n=78) and a CKD group (n=26). We compared several clinical parameters between the two groups at baseline and follow-up to evaluate the risk factors for CKD in kidney donors.

Results: Median age and follow-up of the enrolled donors were 42 years (range, 19-63 years) and 89 months (range, 52-177 months). The CKD group was significantly older than the normal group at baseline (47±12 vs 41±11 years old, P=0.02). Hypertension was more prevalent in the CKD group at baseline (15% vs 2%, P=0.005). Binary logistic regression analysis showed that age and hypertension at baseline were independent risk factors for CKD (P=0.02 and P=0.04, respectively). Average estimated GFR during the immediate post-operative period was significantly lower in the CKD group (52±12 vs 60±13 mL/min/1.73 m^2, P=0.007). At final follow-up, the prevalence rates of hypertension (31% vs 8%, P=0.006) and proteinuria (15% vs 0%, P=0.003) were significantly higher in the CKD group.

Conclusions: Older kidney donors and those with hypertension were significantly more liable to progress to CKD.

SaP470 EFFECT OF THYMOGLOBULIN IN HIV-INFECTED RENAL TRANSPLANT RECIPIENTS

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Introduction and Aims: Renal transplantation can be safe and effective in selected HIV-infected patients, but the most adequate immunosuppressive regimen has not been established in these patients. The use of thymoglogulin as an induction agent produces deep lymphopenia and has been associated with an increased risk of serious bacterial infections in HIV-negative patients. For this reason there is some concern over its use in the HIV-infected population.

Methods: Between January 2005 and May 2006, 26 renal transplant recipients received thymoglobulin as induction therapy at our institution. We compared the progress of the three HIV-infected renal transplant recipients with the 23 HIV-negative recipients, with a median follow-up of 12 and 11 months, respectively.

Table 1. HIV and non-HIV infected renal transplant recipients

	HIV-Infected	Non-HIV-Infected
Number of cases	3	22
Mean age (SD)	37.5 (1.9)	47 (15.1)
Female	3 (100%)	12 (52%)
Median time (range) follow-up (months)	12 (9-18)	11 (6-21)
Type of transplant		
Living donor	0	3 (13%)
Cadaveric donor	1	14 (61%)
Non-beating heart donor	2	6 (26%)
One episode of bacterial infection	1	5 (22%)
CMV	0	2 (9%)
Acute rejection	2	3 (13%)
Death	0	1

Abstract SaP470 – Table 2. Baseline characteristics of 3 HIV-infected renal transplant recipients

	Case 1	Case 2	Case 3
Age (years)	35	37	38
Gender	female	female	female
CRF aetiology	mesangiocapillary glomerulonephritis	focal and segmental glomerulosclerosis	mesangiocapillary glomerulonephritis
Time under hemodialysis (years)	10	6	7
Time of HIV diagnosis (years)	10	9	10
Cadaveric donor	NHBD	NHBD	BDD
Immunosuppressive regimen	ATG-MMF-SRL-St	ATG-MMF-SRL-St	ATG-MMF-FK-St
Follow-up (months)	12	9	18
Creatinine level (mg/dL)	0.88	2.37	0.86

Results: Table 1 shows the characteristics and complications of both groups. The main characteristics of the three HIV-positive patients are summarized in Table 2. Nadir lymphocytopenia was observed at one week in both groups, and their absolute lymphocyte count recovery was similar. An early, deep (<30 cells/mm^3) and transitory (eight weeks) CD4+ T-cell lymphocytopenia was seen in two of the three HIV-infected patients. Neither opportunistic infections nor other serious infections were diagnosed in HIV-positive patients while five HIV-negative patients (22%) had one or more serious infections

Conclusions: Thymoglobulin induced an early, profound and transitory reduction in the absolute lymphocyte count in both groups. Thymoglobulin was safe in our HIV-infected patients because no severe infections were observed. Nevertheless, close monitoring is recommended during the period of thymoglobulin-induced CD4+ T-cell lymphocytopenia.

SaP471 THE IMPACT OF HIGH BODY MASS INDEX AND POST-TRANSPLANT WEIGHT GAIN ON KIDNEY GRAFT AND PATIENT OUTCOME

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Introduction and Aims: Despite of high body mass index (BMI) constitutes a significant risk factor for morbidity and mortality in the general population it has been associated with an increased survival in dialysis patients. Its effects in renal transplant outcome is controversial. The aim of our present work was to investigate the impact of high body mass and postransplant weight gain in patient and graft outcome.

Methods: 1000 consecutive renal transplant recipients, 631 men and 369 women were included in the study. The mean age was 42.9 years and their lowest follow-up 2 years. Basal immunosuppresion was azathioprine and steroids in 196 patients, cyclosporine (CsA) in doble or triple therapy in 557 and 239 were given tacrolimus (Tac).

Results: At the time of transplant the mean BMI was 23.7±3.9 kg/m^2; it was <20 kg/m^2 in 16.5%; 20-25 in 52%; 25-30 in 25% and >30 in 7,6%. Pretrasplante obesity was associated with old age and female sex. Obese patients have a higher risk of delayed graft function (p<0,01) and surgical wound complications (p<0.01). After one year, 659 patients had a weight gain >5%, mean 8.6±10.4% or 5.0±6.1 kg. Patients on Aza increased the body weight by 11.9±10.9%; CsA patients by 9.5±10.3% and Tac patients by 4.9±9.1% (p<0,001). Univariate and multivariate analysis showed that pretransplant BMI had no effects on graft or patient survival in the whole group neither in the patients treated with CsA or TAC. Post-transplant weight gain above 5% or 10% did not influence graft outcome.

Conclusions: The new immunosuppressive regimes reduce post-transplant weight gain. Pre-transplant high body mass and 1 year post-transplant weight gain are not risk factors for graft survival.

SaP472 EVALUATION OF HEPATOCYTE GROWTH FACTOR AS A SENSITIVE MARKER FOR EARLY DETECTION OF ACUTE RENAL ALLOGRAFT REJECTION

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Introduction and Aims: It has been shown that hepatocyte growth factor (HGF), besides its well-established hepatotrophic effect in liver regeneration, is involved in the regeneration of the kidney after injury. In the present study we investigated whether HGF can serve as a marker for detection of acute rejection in the early posttransplantation period.

Methods: HGF levels were determined in pre- and posttransplant sera (up to day 21) of 26 recipients with biopsy-proven acute rejection, 30 recipients with acute tubular necrosis (ATN), and 32 recipients without posttransplant complications.

Results: While no association was found between pretransplant HGF and death-censored functional graft survival, receiver operating characteristic (ROC) curves demonstrated that HGF measured during the entire posttransplant study period, and especially on days 3-5, was a good marker for differentiating recipients who subsequently developed acute rejection from recipients with an uncomplicated course (p<0.0001, specificity 87%, sensitivity 84%). HGF measured from day 3 until day 21 post-transplantation, and especially on days 7-9, was also a sensitive marker for differentiating recipients with ATN from recipients with an uncomplicated course (p<0.0001).

Conclusions: Our data suggest that HGF measured during the early posttransplant period might be a useful parameter for early detection of acute renal allograft rejection.

SaP473 MDRD EQUATIONS FOR ESTIMATION OF GFR IN RENAL TRANSPLANT RECIPIENTS

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Introduction and Aims: After renal transplantation monitoring and detection of slight to moderate changes in GFR is a prerequisite for an optimal patient management. Recently, several equations to estimate GFR were developed and verified in the MDRD study cohort. However, little is known about the application of the MDRD in the setting of renal transplantation. We prospectively conducted a study of the GFR estimates of the Cockcroft and Gault (C&G), MDRD7 and abbreviated MDRD(aMDRD), creatinine clearance (Cr Cl), mean of urea and creatinine clearance (m U&Cr Cl) with the true GFR as measured by Tc-DTPA clearance in 77 consecutive patients with stable kidney graft function(44 males, 33 females).

Methods: We prospectively conducted a study of the GFR estimates of the Cockcroft and Gault (C&G), MDRD7 and abbreviated MDRD(aMDRD), creatinine clearance (Cr Cl), mean of urea and creatinine clearance (m U&Cr Cl) with the true GFR as measured by Tc-DTPA clearance in 77 consecutive patients with stable kidney graft function (44 males, 33 females).

Results: *On average the DTPA clearance* was 49.7±18.3 ml/min/1.73m^2, with differed significantly from estimates of GFR byC&G(69.9±25.5 ml/min/1.73m^{2}2, P=0.001), Cl Cr (59.07±20.2 ml/min/1.73m^2, P=0.01), aMDRD (65.6±20. ml/min/1.73m^2, P=o.oo1). *However,* DTPA clearance differed non significantly from mU&Cr Cl (43.3±14.7 ml/min/1.73m^2, P=0, 15), and MDRD7 (53.4±16.7ml/min/1.73m^2, P=0.2). *For a value of 60 ml/min by DTPA clearance*, the estimated values of Cr Cl, mU&CRCl, C&G, MDRD7,and aMDRD were 69.8, 54, 80.1, 63.and 75 ml/min/1.73m^2 respectively.

Conclusions: MDRD7 and mean urea and creatinine clearance perform significantly better than the commonly used C&G and aMDRD formulas. Moreover, the MDRD7 provides the best diagnostic performance, and should therefore be preferred in renal transplantation.

SaP474 BK VIRUS NEPHROPATHY IN IRANIAN RENAL TRANSPLANT RECIPIENTS

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Introduction and Aims: BK virus nephropathy (BKN) is recognized as a cause of graft loss in renal transplant patients (pts). This may be related to the introduction of new and potent immunosuppressive regimens. In Iran, our experience regarding its prevalence, clinical significance, and outcome is still limited. In this study, our primary purpose is to outline the prevalence, outcome, and clinical characteristics of BKN as observed at urmia University Hospital.

Methods: We retrospectively analyzed 160 specimens from episode biopsies. All transplantations were from living donors. Cyclosporine and corticosteroid were used in all pts; in addition azathioprine (AZA) was used in 41(25.6%) pts and mycophenolate mofetil (MMF) in 119(74.4%) pts. Anti lymphocyte globulin was used in 84(52.5%) pts. BKN was diagnosed by light microscopic examination and a positive immunohistochemical staining (formalin-fixed, paraffin-embedded tissue was processed using standard heat-induced antigen retrieval protocols and the monoclonal antibody to large T-Antigen of BKV), (Chemicon). In order to investigate the outcome and potential risk factors of patients with different histological staging, we divided the patients into groups: Acute rejection, chronic allograft nephropathy and interstitial nephritis. Data was ananalized using Fischer exact and T test. P< 0.05 considered as significant.

Results: Among 160 patients, 109(68.1%) were male, mean age was 35.5±11.6 year (rang 9-59). Twenty one (13.1%) was diagnosed with BKN. Mean interval between biopsy and transplantation was 13.6±10.67 month. There were no significant differences between BKN patients and non-BKN patients with respect to age, sex, interval between diagnosis and transplantation, cyclosporine blood level and AZA versus MMF based immunosuppressant. Graft loss occurred in 57.1% of BKN pts versus 18.1% of non BKN pts (p= 0.005). There was significant difference between ALG and non ALG group in respect to BKN (6.6% in non ALG versus 19% in ALG groups) p=0.02. BKN was diagnosed by immunohistochemistry in 40% of those specimens with acute rejection according to light microscopic evaluation.

Conclusions: This is the first report of BKN in Iranian renal allograft recipients. In our hospital, the prevalence of BKN was higher than those previously reported for non-Iranian recipients. BKN had a negative impact on graft survival.

SaP475 ENTERIC-COATED MYCOPHENOLATE SODIUM (EC-MPS) IMPROVES GI SYMPTOMS AND IMMUNOSUPPRESSION IN PATIENTS TREATED WITH MYCOPHENOLATE MOFETIL (MMF)

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Introduction and Aims: GI symptoms are the first cause of MMF dose reduction, as the consequence of either medical prescription or patients own decision; however, in absence of definite markers of the immunosuppressive status of the patient, this empirical reduction may expose the patients to the risk of transplant rejection.

Methods: Twelve renal transplant patients with stable renal function under cyclosporin in whom MMF dose had to be reduced because of GI symptoms, underwent the determination of AUC_{MMF} and were then shifted to equivalent doses of EC-MPS (1g MMF=720 mg EC-MPS). EC-MPS doses were increased at weekly intervals until the appearance of GI-symptoms or up to 720x2 mg/day; after 4 weeks of stabilization with the new dose, the $AUC_{EC\text{-}MPS}$ was performed.

Results: The shift allowed an average increase in equivalent doses of EC-MPS by 57% (p<0.001); only 3/12 patients presented GI effects under EC-MPS similar as with MMF, and could not increase the dose of the drug. An unexpectedly high AUC_{MMF} was detected (65.7±38.6 mg·h/L), considering the low mean dosage of MMF (875±310 mg/day), and AUC was further increased to 80.0±40.8 under EC-MPS (+23%, p<0.01). The better tolerability of the drug was mirrored by the significant positive changes observed either on quality of life (KTQ-34, p<0.01) and on GI symptoms (GSRS, p<0.002). Renal function and biochemical parameters remained stable throughout the study, and no rejection episode was observed.

Conclusions: In conclusion, the preliminary data of this study suggest that EC-MPS is better tolerated than MMF and a greater immunosuppression is attainable, if needed. Considering, however, the high inter-patient variability in MMF metabolism and the high costs of these therapies, a pharmacokinetic study is advisable before shifting any patient to EC-MPS or modifying the doses of EC-MPS, to verify if the AUC of the drug already is in the expected immunosuppressive range (averaging 60 mg·h/L).

SaP476 DOES PEAK SYSTOLIC VELOCITY (PSV) CORRELATE WITH RENAL ARTERY STENOSIS IN PAEDIATRIC KIDNEYS TRANSPLANTED INTO ADULT RECIPIENTS?

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Introduction and Aims: There is increasing evidence that paediatric kidneys transplanted into adult recipients have good graft function and satisfactory graft survival. There exists considerable controversy regarding threshold values for peak systolic velocity (PSV) which should prompt further investigations to diagnose transplant renal artery stenosis (TRAS) in adult renal grafts transplanted into adult recipients. However, PSV correlation with the presence of TRAS in paediatric kidneys transplanted into adult recipients is not known. We therefore initiated an evaluation of renal transplant arteries in adults receiving a first kidney transplant from a paediatric donor (less than 10 years of age) more than 5 years ago.

Methods: 15 patients with a total of 19 infant kidney transplants were examined with ultrasound Doppler 5-7 years after transplantation. 11 patients had received a single kidney and four had received two kidneys. Angle corrected PSV was measured in the renal artery(ies), and if present, in the donor aorta. If PSV was found to be ≥ 1.8 m/s the patient underwent a contrast-enhanced 3D MR angiography (MRA) or an intra-arterial angiography (IA) with pressure measurement (one patient with a stent in the renal artery).

Results: There was no clinical suspicion from either elevated blood pressure or serum creatinine of renal artery stenosis in any of the patients. Mean blood pressure was 135/78 mmHg and mean s-creatinine was 85 μmol/l (range 32-131). PSV in the renal arteries ranged from 0.9 – 3.8 m/s, mean 1.7 m/s and median 1.5 m/s. Seven of the 15 patients (47%) had a PSV exceeding 1.8 m/s, mean 2.5 m/s (range 2.0 – 3.8 m/s). Accordingly all these seven patients were further examined with MRA (n=6) or IA (n=1). Four of the 15 patients (27%) had a PSV ≥ 2.5 m/s. Two of these had a significant stenosis (lumen diameter reduction ≥ 50%) verified with MRA or angiography with pressure measurement, whereas the other two had normal renal arteries on MRA. Three patients had 1.8 ≥ PSV < 2.5 m/s and MRA demonstrated non-significant stenosis in all of them (lumen diameter reduction < 50%).

Conclusions: We detected a high incidence of elevated PSV in paediatric renal transplant arteries, both with a PSV cut-off value of 1.8 m/s (47%) and 2.5 m/s (27%). Only two patients (both with PSV $\geq$ 2.5 m/s) had a significant stenosis confirmed by MRA or IA. Thus, findings of elevated PSV as an indicator of significant stenosis should be interpreted with caution in paediatric renal transplant arteries. Based on our data we propose a threshold of PSV $\geq$ 2.5 m/s for initiating further investigation.

SaP477 TRIPLE THERAPY WITH NEORAL, STEROIDS AND ENTERIC-COATED MYCOPHENOLIC ACID VS EVEROLIMUS: EFFICACY, SIDE EFFECTS AND PHARMACO-ECONOMIC ASPECTS. A MONOCENTRIC EXPERIENCE

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Introduction and Aims: Aim of this study was to compare efficacy and safety of Everolimus based therapy in association with Neoral low dose, with Myfortic based therapy with Neoral full dose as prophylactic therapy in kidney transplant patients in our Center.
Methods: Fifthy-two patients were randomized to receive either Basiliximab, Neoral standard dose, Myfortic and steroids (group M) or Basiliximab, Neoral reduced dose (to obtain predefined levels), Everolimus (trough levels 3-8 ng/ml) and steroids (group E).The follow-up period was 6 months.Clinical and biological data were collected at 14 days, 1,2,3,6 months after transplantation.Patients characteristics were similar for donor and recipient age and gender.Statistical analyses were performed by Kaplan-Meier estimates, t-test, Mann-Whitney, chi square methods when appropriate.
Results: Delayed graft function (DGF) rate was higher in gropup M with respect to group E (30% vs 25%) but group E DGF were longer (4.71 vs 3.47 dialysis treatment/patient). Unexpectedly we observed more biopsy proven early acute rejections in group E (6 vs 1).Graft and patient survival rates were similar (96%). Glomerular filtration rate (GFR) was higher in group M at 1st, 2nd, 3rd, 6th month after transplantation (74.57$\pm$29.40 vs 60.57$\pm$25.49; 71.90$\pm$25.39 vs 65.86$\pm$32.63; 77.0$\pm$31.55 vs 56.7$\pm$25.99; 69.93$\pm$26.58 vs 59.26$\pm$24.41 ml/min; $p<0.05$). 24 hour protein excretion rate was significantly higher in group E at 14th day (841$\pm$771 vs 445$\pm$363 mg;$p<0.03$). 24 hour protein excretion rate remained significantly higher both at 1st, 2nd, 3th, 6th month. Triglyceride levels were higher at 6 month in group E (260.4$\pm$130 vs 180.9$\pm$60.81 mg%; $p<0.02$). Similarly total cholesterol was higher in group E (272.4$\pm$84.58 vs 231.6$\pm$36.22; $p=0.06$). In the first 6 months the need of hospitalization, beyond the hospitalization due to transplant procedures, evaluated as days/patient, was extremely higher in group E: 35.5 vs 10.4 days/patient (RR 2.073, $p=0.0002$). In group E Everolimus levels were overall in the predefined range, on the contrary Neoral C2 levels were below range in 36% and 45% patients at month 1st and 2nd. Neoral C2 levels were over range in 60% and 36% at 3rd and 6th month.
Conclusions: In conclusion, in a small cohort of patients and over a short time, our data confirm the results of the two main everolimus studies in kidney transplantation (RAD B201 and RAD B251) both comparing Everolimus with mycophenolic acid. In particular Everolimus based therapy causes higher proteinuria excretion rate, mainly in the first period, and lower GFR. According our data, the known interference between Everolimus and Cyclosporine is difficult to manage and causes over or under immunosuppression besides renal toxicity. This is in our opinion the main cause of the higher hospitalization rate. Due to the short follow-up period, our data can't document any beneficial effect of a combination therapy of Everolimus with Neoral low dose over chronic allograft dysfunction.

SaP478 LONG-TERM EFFECTS OF A CALCINEURIN-INHIBITOR-FREE IMMUNOSUPPRESSION WITH MYCOPHENOLATE MOFETIL IN RENAL TRANSPLANT RECIPIENTS WITH CHRONIC ALLOGRAFT NEPHROPATHY

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Introduction and Aims: Little ist known about the longterm effects of a calcineurin-inhibitor (CNI)-free immunosuppression with mycophenolate mofetil (MMF) in renal transplant recipients with biopsy-proven chronic allograft nephropathy (CAN). Results of our randomized, prospective study of 35 weeks comparing a CNI-containing therapy with a CNI-free therapy on the basis of MMF and prednisolone have been published before. We now report about the 5-years follow-up.
Methods: After addition of MMF to a prednisolone- and CNI-based immunosuppression, CNI was either kept (group A: triple therapy, n=20) or withdrawn (group B: dual therapy, n=18).
Results: In group A, 6 patients did not finish the 35-weeks study: 3 for graft loss, 3 for other adverse events. Among the latter, 2 suffered graft loss later. 7 patients did not complete the follow-up: 1 moved, 6 for graft loss. Thus, in group A 11 out of 20 patients (55%) suffered graft loss during follow-up. In group B, 2 patients did not complete the 35-weeks study: 1 for cardiovascular death, 1 for diarrhea. The latter suffered graft loss later. 8 patients did not complete the follow-up: 1 moved, 5 for graft loss, 2 died with a functioning graft. Therefore, 6 out of 18 patients (30%) of group B suffered graft loss censored-for-death during follow-up.
Among the patients who completed the follow-up (group A: n=7, group B: n=8) 2 patients from group A were switched to group B, since graft function deteriorated under CNI. Serum (s)-creatinine of one of them improved after withdrawal of CNI (from 2.1 mg/dl in week 36 to 1.5 mg/dl in week 60). 1 patient from group B was switched to group A. Therefore, 5 patients of group A and 7 patients of group B were included into the according-to-protocol analysis.
At baseline, mean s-creatinine of group A was 2.52$\pm$0.88 mg/dl, vs 2.60$\pm$0.52 mg/dl in group B (ns). Most of the patients had already progressive chronic kidney disease stage 3 at baseline (mean GFR 40.6$\pm$15.5 vs 35.7$\pm$9.8 ml/min). After 5 years, there was a marked trend toward a better allograft function in group B (s-creatinine group A: 3.86$\pm$2.1 mg/dl vs 2.51$\pm$0.70 mg/dl in group B).
Among the 7 patients who finished the follow-up in group A, 4 experienced an increase of s-creatinine between 0.74 and 3.54 mg/dl, whereas s-creatinine decreased between -0.36 and -0.86 mg/dl in 3.
Among the 8 patients of group B, s-creatinine increased in 3 between 0.13 and 1.02 mg/dl, while it decreased in 5 patients between -0.30 and -0.93 mg/dl.
Therefore, in group A, there was a higher percentage of deterioration (57% vs 37.5%).
Conclusions: The results show a trend towards a better long-term graft survival among patients with CNI-free immunosuppression with MMF, even in patients with CAN and a compromised allograft function. The reason for the high number of graft losses throughout this 5-years follow-up period might be markedly compromised allograft function at baseline. Possibly, an earlier switch to CNI-free therapy might show more favourable results. Nevertheless, in some patients with progressive transplant dysfunction, CNI-free immunosuppression with MMF is effective.

SaP479 GHRELIN, GLUCOSE HOMEOSTASIS AND CARDIOVASCULAR DISEASE IN RENAL TRANSPLANTATION

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Introduction and Aims: Alterations in glucose homeostasis (AGH) occur frequently in renal transplantation (RT) and favor vascular lesions.
To analyze whether ghrelin is a marker of AGH and an indicator of preclinical atherosclerosis in RT patients with baseline glycemia < 126 mg/dl.
Methods: 78 RT patients with more than 3 months of evolution. Sex: 53 men. Age: 53$\pm$11 years. An oral glucose tolerance test (OGTT) was carried out at baseline and at 120 minutes. AGH was diagnosed based on ADA criteria. Carotid ultrasound was used to determine vascular injury by measuring intima-media thickness (IMT). Ghrelin was determined in plasma.
Results: After the OGTT: 11 (14.1%) patients were diagnosed with DM, 29 (37.2%) with alterations in glucose (in fasting (AGF) and intolerance

(OGI)) and 38 (48.7%) had normal glycemia (NG). The left carotid IMT in patients with AGH (DM+OGI+AGF) was greater than NG patients (p=0,03). The serum concentration of ghrelin was inferior in the group of patients with AGH (p=0.007). Differences in the concentration of ghrelin were found in relation to sex (p=0.024). The percentage of patients serum ghrelin concentration lower than the mean was greater in patients with AGH (p=0.005) and in RT patients with a greater carotid IMT (0.039). The logistic regression analysis showed that ghrelin was an independent risk factor for AGH (p=0.02).

Conclusions: 51.3% of RT patients with baseline glycemia < 126 mg/dl had AGH after an OGTT. Patients with lower levels of ghrelin had more AGH and greater vascular affectation (greater IMT). Ghrelin is a risk factor, independent of age, for the AGH.

SaP480 A RENAL WEIGHT MANAGEMENT PROGRAMME COMBINING EXERCISE, DIET AND ORLISTAT CAN ACHIEVE SIGNIFICANT WEIGHT LOSS AND IMPROVED FUNCTIONAL ABILITY WHICH IS MAINTAINED AT 12 MONTHS

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Introduction and Aims: A multi-disciplinary renal weight management programme was established to determine whether obese patients with chronic kidney disease (CKD) could achieve significant weight loss, improved exercise capacity, greater functional ability, and reach an acceptable weight for kidney transplantation. An individually tailored programme comprising of a low fat, reduced energy diet, exercise prescription, and Orlistat 120 mg tds. was followed for 12 months.

Methods: 32 (20M;12F) obese patients (mean BMI 35.7±4.5 kg/m^2) with CKD have completed 12 months in the programme. Changes in body weight (BW), waist circumference (WC), and exercise performance (6 minute timed walk test (6MTWT), sit to stand 60 (STS60), timed up and go (TUAG), and the Duke's functional activity status index (DASI) were measured at baseline, 3, 6, 9 and 12 months.

Results: Mean BW and WC decreased by 6.6% (p<0.001) and 12.1 cm (p<0.001) respectively at 6 months. All improvements were maintained at 12 months. Functional capacity increased progressively throughout the study; the 6MTWT improved by 45% (p<0.001), STS60 by 30% (p<0.001), TUAG by 37% (p<0.001), and Duke's by 50% (p<0.001) after 12 months.

Conclusions: This renal weight management programme has achieved significant weight reduction, improved exercise capacity and significant improvements in functional ability in patients with CKD. The significant decrease in waist circumference and the maintenance of weight loss at 12 months may be attributable to the inclusion of exercise in this programme. Eight patients have been listed for kidney transplantation and two of these have received transplants as a direct result of the weight loss achieved in this programme.

SaP481 NO ASSOCIATION BETWEEN THE BK/JC VIRUSES AND ACUTE RENAL TRANSPLANT REJECTION

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Introduction and Aims: Persisting polyomavirus replication is widely recognized as a cause of renal allograft dysfunction, but it may accompany acute rejection, resulting in complications with respect to its diagnosis and treatment.

Twenty-seven consecutive renal transplant recipients with one-year post-tranplant follow-up were studied to evaluate the incidence of BK (BKV) and JC (JCV) viruses and their association to acute rejection.

Methods: Fifteen patients that had suffered acute rejection (evaluated by clinical diagnosis or by biopsy) were studied, and compared with twelve patients with the same characteristics over the same period. Samples where collected over the first four months post-transplant. BKV and JCV were analysed using multiple PCR; quantitative BKV was measured by real time PCR. 224 urine samples were analysed (7.94±1.35 for the group of patients who suffered rejection and 8.7±0.57 in the group with no rejection), as also were 112 plasmas in 8 of the patients who suffered rejection (7.94±2.4 per patient) and 7 who did not (7.5±1.87 per patient). The demographic data for both groups were similar (9 males and 9 females, aged 52±14 vs. 51±17). The number of samples per patient was equally similar both for urine (7.94±1.35 vs. 8.7±0.57) and for plasma (7.94±2.44 vs. 7.5±1.87).

Results: The BK virus was found in the urine of 11 (73.3%) patients that had suffered rejection and in 10 (83.3%) of those who had not, p=0.6. The average time from transplant to the first positive sample was 21±15 in the "rejection group" and 22±5 in the "non-rejection" group, p=0.8. The mean number of positive viruria was 4.2±2.2 and 3.7±1.16 respectively, p=0.5. It was found in the plasma of 4 patients (50%) of the rejection group and in two in the non-rejection group (28.6%), p=0.6, although only in a single sample per patient.

The JC virus was detected in the urine of 11 (73.3%) patients in the rejection group and in 4 (33.3%) of the non-rejection group (p=0.057), after 17±12 and 10±6 days post- transplant respectively, p=0.1. The mean number of positive samples was 4.2±3.2 and 7.7±1.2, p=0.009. It was detected in the plasma of 4 patients in the rejection group (50%) and in 3 in the non-rejection group (42.8%), generally en only one sample.

No patient suffered of BK nephropaty. However, in two patients with BK nephropaty demonstrated both histologically and immunochemically, BKV was found repeatedly in the urine and plasma. Sample quantification gave an average of 28x10^6 c/ml in urine and 35,000 c/ml in plasma.

Conclusions: To conclude, in this study: 1) BK and JC viruria was frequent, ongoing and of early onset in renal transplant patients. Viremia is also frequent, but more sporadic; 2) neither BK viruria nor viremia were related to the diagnosis of rejection; 3) broader studies are needed to try to establish the relationship between VBK, VJC and acute renal transplant rejection.

SaP482 DESCRIPTIVE STUDY OF NT-proBNP AND cTROPONIN T AFTER RENAL TRANSPLANTATION

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Introduction and Aims: Renal failure is a condition in wich serum markers of myocardial damage are elevated. Data regarding serum levels of cTroponin T (cTnT) and NT-proBNP as cardiac biomarkers in renal transplant recipients (RTR) are limited. Little is described about its role in diagnosis or prognosis after renal transplantation (RT) independently of its renal function.

Methods: We performed a descriptive study where we determined plasmatic NT-pro-BNP and cTnT in 51 non selected RTR without any acute cardiac symptom. We defined its levels, its relationship with renal function, other cardiovascular risk factors, previous coronary artery disease (CAD) and immunosuppressive and concomitants treatments.

Results: Mean (SD) age was 51.4 (10.4) years, and mean time after RT was 124.5 (73.8) months (range 22-276), We found diabetes, hypertension, dyslipemia, and previous CAD on 9.8%, 76.5%, 49%, and 11.6% of patients, respectively. Mean (SD) creatinine Cr was 1.41 (0.5) mg/dl (Cr clearance (CrC): 61.2 (40.5) ml/min). Mean cTnT was under 0.01 ng/ml, with only 3 patients with levels above 0.01 ng/ml, otherwise mean NT-proBNP was 562 (898) pg/ml (range 37-3900). We observed a significant correlation between NT-proBNP and renal function (Cr and CrC, r: 0,48 and r: -0,46, p< 0,001) and those patients in worst renal function tertile also showed higher levels of NT-proBNP (p<0.001). No differences in NT-proBNP were observed in hypertensive (76.5%), diabetic (9.8%) or dyslipemic (49%) patients. No differences were observed in regard on immunosuppresive treatment (51.1% and 37.7% were treated with CsA and tacrolimus respectively, close to 40% with MMF, and 49% with steroids). Patients with previous CAD showed higher levels of NT-proBNP (p< 0.005) without differences in renal function.

Conclusions: The overall trend in circulating cTnT concentrations did not seem to be affected by renal function in RTR without advanced renal insufficiency. Nevertheless, mean NT-proBNP is elevated in RTR without cardiac symptoms and we observed an association between NT-proBNP and

renal function. Further studies of myocardial function are needed to define the usefulness of cTnT and NT-proBNP as cardiac markers after RT.

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SaP483 A MULTI-CENTRE STUDY OF LONG-TERM OUTCOMES AFTER RENAL ALLOGRAFT FAILURE: DATA FROM UK RENAL REGISTRY

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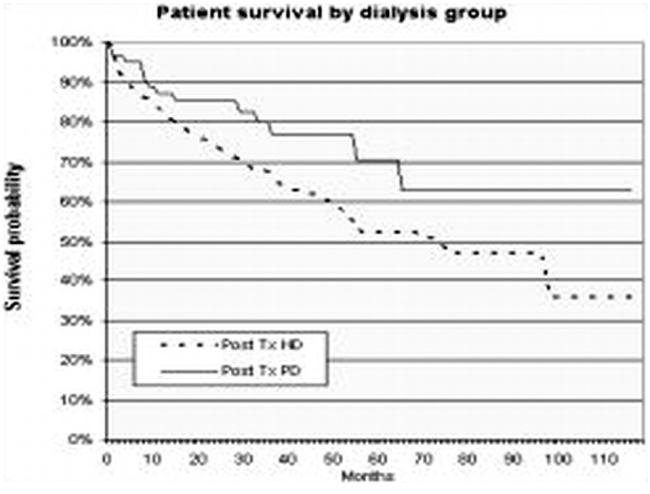
Introduction and Aims: With increasing number of renal transplantations, the number of graft failures is also increasing. These patients invariably return to dialysis. This analysis compares the patient survival, technique survival, re-listing for transplantation and re-transplantation rates in patients with first renal allograft failure who returned to dialysis (HD vs PD).
Methods: In this multi-centre (n=41), retrospective study, using UKRR data, all first renal allograft recipients, between 1996 and 2003, returning to dialysis after graft failure, were studied. Patients were divided into PostTx-HD (going on HD after graft failure) and PostTx-PD (going on PD after graft failure) groups. Data were collected until death, re-transplantation, transfer to HD or PD or end of observation period (31/12/2005). Various outcomes (patient survival, technique survival, re-listing for transplantation, re-transplantation, death rates) were compared in the two groups.
Results: Out of 3860 patients with first renal allograft, during the study period, 11% (414) had graft failure and retuned to dialysis. Of these, 78% (n=324) went on HD (PostTx-HD) and 22% (n=90) (PostTx-PD) went on PD. Median age was higher in PostTx-HD group compared to PostTx-PD group (48yr vs 44yrs; p = 0.04). Median time on dialysis prior to first transplantation and median time on transplantation prior to transplant failure were significantly longer in PostTx-HD group. The two groups did not differ for haemoglobin, blood pressure, cholesterol, calcium, phosphate and iPTH at the start of dialysis. Median eGFR at the start of dialysis was significantly higher in PostTx-HD group (15ml vs 11ml, p = 0.001). Kaplan-Meier patient survival and re-transplantation rates were similar in both groups. Pure technique survival was significantly lower in PostTx-PD group (p=<0.001). When adjusted for age, gender, duration on dialysis prior to transplantation and duration on transplantation prior to graft failure, using Cox-regression, patient survival and re-transplantation rates remained similar in two groups.



Conclusions: Post primary graft failure, patients going on PD tend to be younger females where as patients going on HD tend to be older male. Patients in PostTx-HD group were significantly longer on dialysis and transplantation prior to graft failure and had significantly higher eGFR at dialysis initiation. Patient survival is similar in post transplant failure PD and HD groups. Re-transplantation rate is dialysis modality independent.

SaP484 LONG TERM OUTCOME OF RENAL TRANSPLANTATION PATIENTS WITH VESICOURETERAL REFLUX NEPHROPATHY

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Introduction and Aims: Vesicoureteral reflux (VUR) nephropathy takes an important place among the etiologies of end stage renal disease (ESRD). In this retrospective study we aimed to analyze posttransplant graft and patient survival rates in renal transplant recipients whose primary disease was VUR nephropathy.
Methods: 745 patients transplanted in our institution between 1983 and 2006 were included in the study. Outcome of patients with VUR nephropathy were compared to a control group that consisted from consecutive age-matched, non-diabetic patients whose primary disease was chronic glomerulonephritis.
Results: The cause of ESRD was VUR nephropathy in 52 (7%) of whole group. Before renal transplantation, unilateral [left (4), right (7)] and bilateral nephrectomies (12) were performed. The types of donors were 41 living related and 11 cadaveric in each group. The mean age of the patients in VUR nephropathy and control groups were 24.9±8.9 and 24.9±7.4 years, respectively (p=0.99). The 2 groups did not show any significant difference regarding pretransplant dialysis modality, HLA matching, immunosuppressive protocols or duration of dialysis. Both groups did not differ with regard to the incidences of delayed graft function, acute tubular necrosis, urinomas, urine leaks, lymphoceles, hematomas, acute rejection or days of hospital stay after transplantation in the early posttransplant period. During the follow up period, in the VUR nephropathy group, 21 patients developed urinary tract infection, 7 experienced acute rejection, 5 suffered from malignancies and 2 developed CMV disease. In the control group, 16 patients developed urinary tract infections, 5 experienced acute rejection and 2 patients suffered from malignancies. The 2 groups did not show any significant difference regarding posttransplant cardiovascular complications, malignancies and diabetes mellitus. In the VUR nephropathy group 43 patients are still being followed up with functioning grafts, 8 required dialysis support and 1 died. In the control group 37 patients are still being followed up with functioning grafts, 12 returned to dialysis and 3 died. One-year graft survival rates in VUR nephropathy and control groups were 98% and 96%, respectively (p=0.43).
Conclusions: Despite higher incidence of urinary tract infections, patient and graft survival rates did not show significant difference in VUR nephropathy patients as compared to the control group.

SaP485 RISK FACTORS FOR POSTTRANSPLANT DIABETES MELLITUS

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Introduction and Aims: Posttransplant Diabetes mellitus (PTDM) is a frequent metabolic complication in renal transplant recipients and is associated with increased morbidity and mortality. This study purpose was to determine the risk factors related to PTDM development.
Methods: PTDM was diagnosed according to the American Diabetic Association criteria. We retrospectively compared: demographic features, body mass index, cause of kidney disease, HCV infection, episodes of acute rejection, use of tacrolimus and use of steroids pulse's, between a group of patients that developed PTDM (group A) and another group of kidney transplant recipients that didn't had the disease (group B). We also compared graft and patient survival between groups.
Results: There were 65 patients in the PTDM group and 311 in the other group. The incidence of PTDM was 21% and the mean time since transplantation to the diagnosis of this disease was 15±27 months. Univariate analysis showed that patients that developed PTDM had older age, greater body mass index and more autosomal-dominant polycystic kidney disease. The number of acute rejection episodes, steroid pulse's, use of tacrolimus and HCV infection was similar among groups. There was no difference in graft or patient survival between groups.In multivariate analyses: age, and body mass index (BMI) were independent risk factors for development of PTDM.