OUTCOME OF RENAL ARTERY STENOSIS IN KIDNEY TRANSPLANT RECIPIENTS: A SINGLE-CENTER STUDY

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Objective: Stenosis of the transplant renal artery (TRAS) is a rare but important cause of arterial hypertension and allograft dysfunction. The aim of this study was to assess clinical and radiological presentation and outcome after percutaneous dilatation(PTA) or stenting (PTAS). **Methods:** Single- center, retrospective study including renal transplant recipients between 1998 and 2009. Clinical (systolic , diastolic blood pressure; number of antihypertensive drugs), biochemical (renal function) and radiological data (resistive index (RI), arteriography) were retrieved from an electronic database and assessed at different time points (before, 1 week, 1 month, 6 months after intervention). Parameters obtained at different time points and between groups were compared using Wilcoxon rank sum, chi² or Fisher's exact test.
Results: 47 interventions in 40 patients (60% male; 49yrs) were included in the analysis. The majority of the TRAS (74.4%) occurred within six months after transplantation. In the immediate posttransplant period (<1 month) the majority of stenoses (70%) were ostial or postostial ($p<0.0001$). Clinical presentation of TRAS was deterioration of renal function (60%), hypertension (19%) or both (21%). In 91% of patients doppler ultrasound findings suggested TRAS. 70% of the TRAS were treated with PTAS. Five of the 7 patients with restenosis were primarily treated with PTA; after restenosis PTAS was performed. Complication rate was low (12.5%) with only two major complications (embolisation). One patient underwent surgery because of failure of PTA. RI's increased significantly postprocedure ($p<0.0001$). Systolic and diastolic blood pressure decreased significantly one week and one month after procedure. After 1 month significance for systolic blood pressure was lost but diastolic blood pressure ($p=0.016$) and the number of antihypertensive drugs remained significantly lower ($p= 0.017$). Renal function improved significantly after the procedure ($p<0.001$).
Conclusions: TRAS can be safely and effectively treated by PTAS.The majority of patients with TRAS presented with deterioration of renal function. Clinical and radiological parameters improved significantly after intervention.

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REDUCED C_0-LEVELS AND INCREASED DOSE-REQUIREMENTS IN RENAL ALLOGRAFT RECIPIENTS CONVERTED TO THE NOVEL ONCE-DAILY TACROLIMUS FORMULATION

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Introduction/Aim Recently, a once-daily prolonged release formulation of tacrolimus (TacQD) has been approved for prevention of renal allograft rejection. Studies reported equivalent AUC_{0-24} and C_0-levels for TacQD as compared to the standard twice-daily tacrolimus formulation (TacBID). Hence, the package insert advices a 1:1 mg conversion. The aim of the current study was to report our independent experience with conversion to TacQD according to manufacturer's instructions in a large cohort of renal recipients.
Methods Retrospective single center study evaluating the evolution of C_0-levels and total daily dose-requirements following conversion to TacQD in 284 renal allograft recipients converted between 10/2008 and 10/2009. Potential clinical, biochemical and genetic determinants of changes in C_0-levels and dose-requirements following conversion were explored in uni- and multivariate analysis.
Results Following conversion C_0-levels decreased significantly (-1.36±2.51 µg/l or -12.66±24.36 %, $p<0.0001$). In 38.3 % of patients this decrease exceeded 20 %. Changes in C_0-levels were less pronounced in CYP3A5*1-allele carriers than in CYP3A5*3/*3 homozygous patients ($p=0.03$). TacQD dose had to be increased in 52.5 % of patients in order to keep C_0-levels within predefined target ranges. Average dose-requirements increased 0.71±1.78 mg/day or 14.68±28.87 % ($p<0.0001$). In 28.0% of patients dose-requirements increased more than 20 %. Dose-changes were more profound in patients converted within one year after transplantation and in this subgroup (n=78) higher creatinine and lower hemoglobin levels were associated with a larger increase in dose-requirements in multivariate analysis ($r^2=0.35$, $p<0.0001$). Despite dose adjustments average C_0-levels remained 9.09±28.85 % lower after conversion ($p<0.0001$).
Conclusion Conversion from TacBID to TacQD on a 1:1 mg basis results in reduced Tac C_0-levels and increased dose-requirements. Thus conversion is not as straightforward as suggested by the manufacturer and therefore converted patients should be monitored strictly until stable C_0-levels are achieved.

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LATE REFERRAL AND CHRONIC DIALYSIS: LESSER INCIDENCE AND BETTER OUTCOME?

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Introduction: Since the late 1990's, a lot of attention is paid to the timing of referral of chronic kidney failure patients (pts) to the nephrologist. As poor outcome on dialysis was observed the later the pts were referred, many initiatives, such as guidelines, courses and organisation of pre-dialysis clinics have been set up to minimize late referral (LR). We analysed the impact of those initiatives on the subsequent incidence and outcome of LR in the dialysis registry of the Flemish region of Belgium.
Patients and methods: All incident pts, starting renal replacement between January 1, 2000 and December 31, 2007 in Flanders were included (N= 8447). Referral was divided into 2 categories: <6 months and ≥6 months. Around 9.5% of patients had insufficient data to assign LR status and were excluded from analyses.
Results : The number of incident pts initially increased between 2000-2003; thereafter the annual inflow was nearly stable. The annual % of LR pts decreased gradually from 51% to 42%, with the greatest effect in the elderly pts (65+ yrs). LR was always least prevalent in pts with glomerulonephritis or cystic disease. Dialysis-independency during the 1st year occurred for a constant 6% of the LR pts (1% for non-LR pts). The 1-year mortality of 25% in LR pts (vs 15% in non-LR pts) did not change over time, with similar and stable distributions of the causes of death. The differences between LR and non-LR pts were more pronounced when LR was defined as referral <1 month prior to the start of dialysis. In pts who survived the 1st year of dialysis, LR still was a predictor of poor outcome for the 2nd year (18% vs 14%).
Conclusion: Over the last years, the % of pts starting as LR decreased gradually. Nevertheless, the poor outcome remained, even after surviving the first year of dialysis. More efforts should be done to avoid LR and to monitor LR pts closely once on dialysis.

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URINARY OR PLASMA NGAL?: AN ANALYTICAL POINT OF VIEW

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Introduction: Neutrophil gelatinase-associated lipocalin (NGAL) has emerged as a promising marker for the detection of acute kidney injury. Recently, two commercially available kits for NGAL determination appeared on the market, one for plasma (Biosite Triage) and the other for urine (Abbot Architect). The aim of this study was to perform an analytical validation of these new tests to evaluate their suitability in routine practice.
Material and methods: We evaluated the analytical performance of these new techniques with a strong and innovative methodology (Arlenda®, Liège). Notably, the method will provide accurate results if the 95% β-expectation tolerance interval at each concentration level is fully included in the acceptance limits that were settled at ±20%. We also verified the reference range.
Results: Urine NGAL on Architect were completely validated between 81 and 1315 µg/L. NGAL determined on EDTA plasma with the Biosite Triage gave more inconsistent results. Indeed, we have found that for a patient presenting a value of 163 µg/L, the "true value" could range, with a confidence of 95%, between 109 and 221 µg/L with the Triage (by comparison, a urine value of 141 µg/L on Architect could range in the same way between 125 and 158 µg/L). Abbott has determined that the expected "normal" range was ≤131.7 µg/L. In our population of 45 healthy laboratory staff (23 males, 39.4±14.9 yo), the value which corresponded to the 95th percentile was 148.5 µg/L. The expected range of Triage NGAL values was 149 µg/L. In our population, the 95th percentile was found to be lower, at 110 µg/L.
Conclusions: The aim of our study was not to compare the ability of urine *versus* plasma NGAL to detect an AKI, but rather to compare the analytical performances of these devices. Plasma NGAL, as determined with the Biosite Triage showed important analytical limitations, the main point being the high variation around the proposed cut-off. The Abbott Architect NGAL gave much more precise results.

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