Risk factors of cardiovascular disease after renal transplantation

This study which explores conventional and new markers of cardiovascular diseases after a renal transplantation. We have paid main attention to new markers such as PAPP-A (pregnancy-associated plasma protein-A), AGEs (Advanced Glycation End Products) and matrix metalloproteinases (MMP-2 and MMP-9). All of them are involved in the pathogenesis of atherosclerosis and the plaque destabilization.

The serum levels of new markers were measured by an enzyme-like immunosorbent assay. The renal function is determined as inulin clearance in ml/s/1.73 m.We have used Excel and MedCal programs for the evaluation of the statistic data. New markers were evaluated by t-test. We have used 21 healthy controls.

We have had 142 patients, who have undergone renal transplantation within a period of one year between April 2007 and April 2008. The most numerous age was 60-70 years (31%), follows 50-60 years (28%). From 142 patients there were 98 men (96%) and 44 women (31%). At the time of the study 25% of the patients were smokers, 49% of them never smoke and 26% stopped smoking. The normal body mass index was found out in 39% of the patients, 58% was overweight . The average time of dialysis was 12-18 months. Only 8% of the patients had a basal diagnosis made by diabetic nephropathy. The serum levels of the new markers before a renal transplantation and 3 months after it were correlated and also correlations with healthy controls were taken.
Pregnancy-associated plasma protein-A (PAPP-A) is significantly increased before a transplantation and decreased as a renal function develops ($p<0,001$). There is an inverse correlation with inulin clearance (r-0,569, $p<0,01$). Soluble Receptor for Advanced Glycation End products (sRAGE) is eminently increased before a transplantation and it decreases as a renal function develops ($p<0,001$). Matrix metalloproteinase-2 (MMP-2) is decreased in three months after renal transplantation ($p<0,01$). Matrix metalloproteinase-9 (MMP-9) before a transplantation is comparable with that of controls. The serum levels of MMP-9 are significantly increased three months after a transplantation ($p<0,01$).

Three months after a successful renal transplantation the markers of oxidative stress and microinflammation tend to decline. The markers correlate with a developing renal function.