

Clinical-morphological correlations and factors affecting long-term outcomes in kidney transplant patients

Leelo Järv^{1,2}, Živile Riispere³, Anne Kuudeberg⁴, Margus Lember^{1,2}, Mai Rosenberg^{1,2}

1 Tartu University Clinic Internal Medicine; 2 Institute of Clinical Medicine, University of Tartu; 3 Pathology Service of Tartu University Clinic; 4 Department of Pathological Anatomy and Forensic Medicine, University of Tartu

BACKGROUND

Kidney transplant (KT) survival depends on various immunological and non-immunological factors. The basis of our study was the hypothesis that overweight and obese patients have more early changes in the kidney tissue indicating chronicity, which affect the survival of NS, compared to normal weight patients.

OBJECTIVES To investigate clinical-morphological relationships and factors affecting long-term outcomes in KT patients.

MATERIALS AND METHODS

A retrospective study included 124 KT patients (74 men and 50 women aged 20-63 years), whose serial biopsies could be evaluated (KT biopsies at 0 or 3 months and 1 year), and data on the following clinical parameters were collected: renal function (eGFR), acute rejections (AR), KT resistance index (RI), number of antihypertensive drugs, donor age and body mass index (BMI). Patients were divided into two groups according to BMI (BMI<25 vs BMI≥25). KT and the patient's 10 years. survival. Morphological factors included the presence of tubulointerstitial fibrosis (TIF) and glomerulosclerosis (GS) and the results of immunohistochemical (collagen-3, TGF-beta) studies.

RESULTS

Significant clinical-morphological associations occurred more in the BMI≥25 group of KT patients, where we found the following associations: age and number of antihypertensive drugs (R=0.41, p<0.05); age and 1.y. With RI (R=0.41, p<0.05), TIF and eGFR change (R=-0.6, p<0.05), 1.y. RI and GS increase (R=0.36, p<0.05) and 1.y. Change in RI and eGFR (R=-0.36, p<0.05). In the same BMI<25 group, only the following relationships occurred: age of the recipient and 1.y. RI (R=0.45, p<0.05); TIF and AR (R=0.26, p<0.05); collagen-3 and AR (R=0.31, p<0.05). The long-term results of KT were influenced by donor age (HR=0.9, p<0.05), 3-m BMI (HR=1.69; p<0.05), 1-year HT medication amount (HR=3.92, p<0.05) and early collagen accumulation (HR=12.62, p<0.05). The patient's 10-year survival was

influenced by 1-year BMI (HR=2.53, $p<0.05$), early collagen accumulation (HR=91.26, $p<0.05$).

CONCLUSIONS

This work confirmed our hypothesis that changes in TIF and GS are associated with worse KT function in overweight people and that KT 10-year survival is influenced by 3-month BMI and early fibrotic changes. Patient survival is also influenced by early fibrotic changes and 1-year BMI.