HISTOPATHOLOGY OF IMPLANTED KIDNEY ACCORDING TO BANFF’07 AND PREDICTION OF LONG TERM TRANSPLANTATION OUTCOME

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INTRODUCTION AND AIMS: Many analyses of peritransplant biopsies of cadaveric kidneys show high incidence of chronic abnormalities, especially glomerular sclerosis and vascular changes and increasing number of evidence indicate their impact on graft function. The aim of the study was to identify risk factors of graft loss considering for histopathological changes present at implantation and scored according to Banff’07 criteria.

METHODS: We conducted an observational prospective cohort study, of kidney recipients, with inclusion criteria as follows: successful kidney transplantation between 2000 and 2008 (immediate or delayed graft function), availability of preimplantation graft biopsy. Allograft function within first post transplant year was estimated by abbreviated MDRD formula, proteinuria semi-quantitatively by standard dip-stick test. The following chronic changes were analysed: arteriolar hyalinization (ah), interstitial fibrosis (ci), intimal sclerotisation (cv), tubular atrophy (ct), total inflammation score (ti) and percentage of sclerotic glomeruli. The following donor clinical variables were included: type (living/deceased), basic demographic data, cause of death, BMI, history of hypertension and other cardiovascular disease, diabetes mellitus, serum creatinine concentration before harvesting. For procedure characteristics: cold ischemia time, number of HLA mismatches, panel reactive antibodies. The following recipient characteristics were included: demographic data, weight and BMI, primary kidney disease, renal replacement treatment before transplantation, retransplants, chronic hepatitis, diabetes as primary disease or occurring after implantation, rejection episodes within first year, CMV infection/disease within first year of follow-up. Kaplan Meyer estimate was used to assess graft survival. Searching for independent risk factors of graft survival was performed by means of Cox’s proportional models (SAS System).

RESULTS: After fulfilling inclusion criteria 300 recipients were included in the study with mean observation time 7.5 years. Among study patients 42 (14%) lost the graft and required other mode of renal replacement therapy (hemo or peritoneal dialysis), 45 (15%) were lost to follow-up. In one-factor analyses we identified the following predictors of kidney allograft loss: donor age, donor history of diabetes, kidney allograft dysfunction within first post-transplant year (given as proteinuria occurrence or eGFR MDRD below 50 ml/min), recipient chronic hepatitis C. In terms of chronic abnormalities present at implantation arteriolar hyalinisation of any intensity nearly doubled the risk of allograft loss. As independent risk factors of kidney allograft loss in multivariate analysis we identified: donor age with additional 4% of entering dialysis per 1 year, post transplant diabetes mellitus, proteinuria at third months after engraftment which nearly doubled the risk of dialysis, and recipient chronic hepatitis C.

CONCLUSIONS: The effect of arteriolar hyalinisation on renal transplant survival is probably woven in other predictor of graft loss. Recognizing the negative impact of recipient chronic hepatitis C on graft survival as well as considering other risks associated with this infection HCV treatment should be provided to patients with advanced chronic kidney disease, wait-listed or already transplanted.