

Graft vasculopathy, rejection and mortality predictors in heart transplant patients

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Purpose: We investigated pretransplant and posttransplant factors that could influence survival and development of cardiac allograft vasculopathy (CAV) and graft cellular rejection (CR) in heart transplant patients (Pts).

Methods: 120 study Pts in the follow-up 10 years, mean age $48,8 \pm 13,5$. The patient characteristics (age, gender, blood type, diagnosis, pulmonary vascular resistance — PVR), transpulmonary gradient, graft ischemic time and duration of extracorporeal circulation, ECC) and pretransplant comorbidities (diabetes mellitus, chronic renal failure, hypertension, hyperlipidaemia) were analysed. Posttransplant complications (postHTx hypertension, chronic renal failure — postHTx-RF, steroid diabetes mellitus — SDM) were also correlated with CAV and mortality, as well as biomarkers such as NT-proBNP and troponin T. Immunosuppressive regimens and cellular rejection were also analyzed. For statistical analysis chi-square test, student t-test and ANOVA were used (SPSS vers.21).

Results: Higher transpulmonary gradient (but not PVR) correlated significantly with higher mortality ($p=0,003$), as well as longer ischemic time ($p=0.004$) and ECC duration ($p=0.043$).

PostHTx-RF ($p=0.023$) and SDM ($p=0.042$) also significantly contributed to mortality. Female gender had an insignificant trend toward longer survival ($p=0.079$). Higher NT-proBNP values (5,833 vs 2,721 pg/ml, $p=0.025$) significantly predicted all-cause mortality. There was a trend with higher standardized corticosteroid doses to correlate with lower CAV incidence ($p=0.129$). NT-proBNP cut-off value of >750 pg/ml has a trend to predict CR ($p=0.084$). Standardized cyclosporine A concentration (CyA) less than 10 0ng/ml ($p=0.023$) significantly correlated with CR and CyA between 100-150 ng/ml had the same trend ($p=0.067$). Other variables had no statistical significance.

Conclusions: Patient pretransplant comorbidities did not have crucial impact on posttransplant survival, expected transpulmonary gradient which proved to be a very powerful parameter influencing survival (while PVR did not). Steroid diabetes and chronic renal failure (excluding early acutisation of preexisting RF) are important posttransplant comorbidities contributing to higher mortality. Immunosuppression plays an important role for the CAV prevention and in our study more potent corticosteroid therapy proved to lower CAV incidence. CR rejection was not associated with higher CAV incidence, it could be predicted by higher NT-proBNP levels and prevented by higher CyA concentration.

KEYWORDS: heart transplantation, vasculopathy, graft rejection, heart transplant, mortality.

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