Pretransplant echocardiographic findings as predictors of late adverse outcomes following liver and kidney transplantation

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Introduction: Transthoracic echocardiography (TTE) is recommended as the standard of care in evaluation of cardiovascular (CV) disease in liver (LT) and kidney (KT) transplant candidates.[1,2] Guidelines for preoperative CV assessment are oriented at the immediate perioperative period and non-ischemic CV processes that would predict poor outcomes after LT and KT are defined less clearly. *Aim*: to establish whether ≥moderate mitral (MR), tricuspid regurgitation (TR) or ≥mild aortic stenosis (AS) on pretransplant TTE are associated with mortality, graft survival or major CV adverse events (MACE) in the late postoperative period (>30 days).

Patients and Methods: Patients were stratified into cohorts based on the presence of ≥moderate MR, TR and ≥mild AS. Exclusion criteria was loss to follow up, incomplete TTE findings and death within 30 days of transplantation. MACE were defined as stroke, myocardial infarction (MI) or heart failure. Patient survival was defined as time from transplantation to death or last follow-up and graft survival as time from transplantation to last follow-up, death, graft dysfunction or re-transplantation. Outcomes of interest were compared between cohorts via logistic or Cox regression.

Results: 306 LT (median age 59, IQR 53-64) and 196 KT patients were included (median age 52, IQR 40-61). Median follow up was 36 months for LT (range 14.3 – 55.9), 40,5 months for KT (range 18-64.9). MACE occurred in 4.25% LT and 4.59% KT recipients. Upon univariate analysis AS was associated with MACE in KT recipients but crossed the significance level after adjusting for common confounders (age, sex, hypertension, diabetes, smoking). 11.76% LT and 9.69% KT recipients died. The most common cause of death was sepsis. MR was found to be associated with LT patient survival, but the association was lost after adjusting for age. In an age adjusted model MR was found to be associated with KT patient survival (HR 2.97, 95% CI 1.06-8.26, P=0.037). Graft survival was not associated with any potential predictors.

Conclusion: Associating TTE findings with adverse outcomes after LT and KT might help distinguish patients who would benefit from closer management in the late postoperative period. Moderate or more severe MR was found to be associated with late mortality in KT recipients, however the significance of this is yet to be determined in larger sample studies.

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LITERATURE

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