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Impact of comorbidity on renal transplant survival

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Introduction:

Comorbidity is increasingly common amongst transplant recipients, yet its impact on transplant outcomes is not well described. We analysed the effect of comorbidity on survival outcomes after renal transplantation in a national prospective cohort study; Access to Transplantation and Transplant Outcome Measures (ATTOM).

Methods:

2262 patients aged 18-75 undergoing renal transplantation between December 2011 and October 2013 were recruited from all 23 UK renal transplant centres. Extensive comorbidity data were collected at the time of transplantation. Two-year follow-up data were obtained for all patients from the UK Transplant Registry held by NHS Blood and Transplant. The outcome variable was transplant survival, defined as the time from transplant to graft failure or patient death. The impact of individual comorbidities as well as comorbidity score (modified Charlson index) on transplant survival was analysed for living donor (LD) and deceased donor (DD) transplants separately. Data were analysed using Kaplan-Meier estimates and Cox proportional hazards regression models using SAS® 9.4.

Results:

Patients with a higher comorbidity score had inferior transplant survival after DD transplantation ($p=0.0021$). In multivariate analysis, 2-year DD transplant survival was significantly worse for patients with congestive heart failure (hazard ratio HR: 2.32, confidence interval CI: 1.27-4.24), cerebrovascular disease (HR: 1.83, CI: 1.08-3.13) and obesity (HR: 1.39, CI: 0.95-2.03). For LD transplants, congestive heart failure (HR: 6.47, CI: 2.03-22.37) and diabetes (HR: 2.51, CI: 1.07-5.86) were associated with significantly poorer transplant survival.

Discussion:

Higher baseline comorbidity is associated with worse transplant survival at 2 years post renal transplantation. The impact of individual comorbidities on transplant survival differs for LD and DD transplants. Congestive heart failure has a significant negative effect on transplant survival for both DD and LD renal transplantation.