Impact of pre-existing chronic heart failure on patient survival and graft function and immunologic outcome in kidney transplantation

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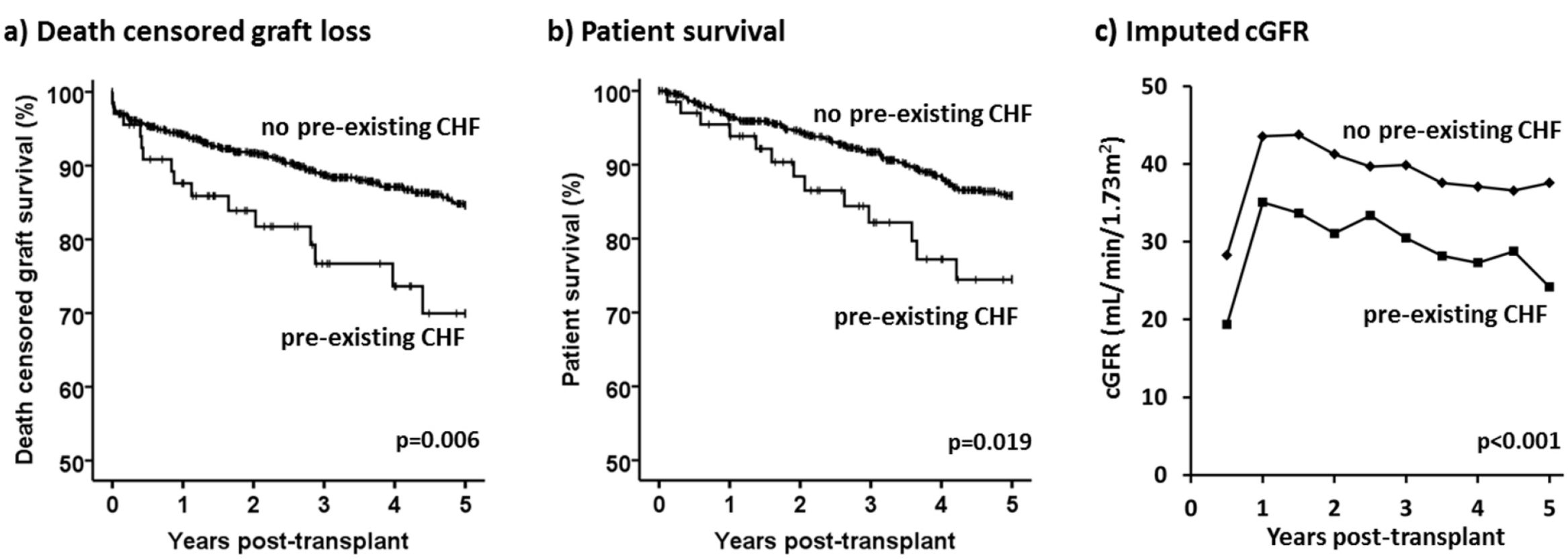
Background: Cardiorenal interactions influence graft and patient survival in kidney transplant recipients (KTR). There is only few data available analyzing pre-existing chronic heart failure (CHF) on long-term outcomes after kidney transplantation.

Methods: A retrospective single center long-term observational study included 878 adult deceased donor KTR transplanted 1999-2014. Prevalence of comorbidities was determined at time of transplantation. 69 patients with pre-existing echocardiographically diagnosed systolic or diastolic CHF were identified. Follow-up analysis included survival, graft function determined by imputed cGFR and graft survival over maximal 15 years.

Results: Mean follow-up in the cohort was 5.8±3.8 years. Mean age and donor age were 53±14 and 54±16 years, respectively. KTR with pre-existing CHF were significantly older, had higher donor age and higher prevalence of coronary artery disease. Gender, time on dialysis, number of previous transplants, diabetes, cold ischemic time and HLA-mismatches did not differ significantly.

KTR with pre-existing CHF had a significantly reduced graft (70 vs. 85%, p=0.006) and patient survival (74 vs. 86%, p=0.019) at 5 years post-transplant (Fig. 1 a,b). cGFR was significantly lower (5 years post-transplant 24 vs. 38 ml/min; p<0.001; Fig1c).
Multivariate cox regression analysis revealed CHF as an independent predictor for graft loss (HR 2.31, p<0.001). Other independent risk factors were donor age and HLA mismatches. Pre-existing diabetes or coronary artery disease did not contribute independently as risk factors for graft loss.
Further analyzing the incidence of post-transplant immunologic events in an adjusted model confirmed that TCMR (HR 2.25; p<0.001), de novo DSA (HR 2.48; p<0.001) and ABMR (HR 1.90; p=0.005) also independently added risk for graft loss to a comparable degree as pre-existing CHF.

Figure 1



Conclusions: Pre-existing CHF is not only associated with increased mortality but also a strong independent risk factor for deterioration of renal function and graft loss. This emphasizes the need for thorough pre-transplant evaluation and consequent treatment of CHF.

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