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CAN EARLY DECLINE IN ESTIMATED OR MEASURED GFR BE USED AS A SURROGATE FOR LONG-TERM RENAL TRANSPLANT OUTCOME?

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INTRODUCTION AND AIMS: GFR Decline $\geq$ 30% over 2 years is a surrogate that can substitute to the conventional "doubling of serum creatinine" to predict CKD-related complications, especially ESRD, in patients with native kidneys. While CKD

trajectory is less predictable in transplanted patients, recent data have suggested that similar GFR decline might also be an acceptable proxy for long-term transplant outcome. We sought (i) to confirm the prognostic value of an early GFR decline $\geq$ 30% in kidney transplant recipients and (ii) to determine whether using direct measurement of GFR with inulin can improve the performance of this surrogate for predicting graft failure and recipients mortality.

METHODS: We retrospectively analyzed all recipients transplanted between January 1989 and December 2000, having a functioning graft at 5 years' post-transplant and for whom inulin-measured GFR was available at 1 and 5 years' post-transplant with concomitant CKD-EPI estimated GFR. Prognostic evaluation of GFR change between years 1 to 5 as a risk factor for graft failure and all-cause mortality was conducted for a fixed follow-up of 11 years after the 5th anniversary of transplantation by evaluating discrimination (time-dependent ROC AUC) and calibration (subdistribution hazard ratio with competing risk model).

RESULTS: Out of 417 kidney transplant recipients, 116 patients had lost their graft and 77 had died with a functioning graft 16 years after transplantation. While being significantly associated with graft failure (sHR=2.37 [1.47-3.83]), CKD-EPI calculated GFR decline $\geq$ 30% failed to appropriately predict long term graft survival (C statistics of 0.63). Concordance between inulin-measured GFR and CKD-EPI-estimated GFR to detect patients with similar GFR change was only 53%. Inulin-measured GFR change was however not better in predicting 16 years' post-transplant graft loss (C statistics of 0.59). Comparable results were observed for all-cause mortality and for other thresholds of GFR decline (20% and 50%).

CONCLUSIONS: Our data suggest that early GFR decline is a poor surrogate for long term transplant outcome, even when change in GFR is directly measured by a reference method. Whether combining evaluation of GFR decline with other parameters (e.g. albuminuria) can refine prediction needs to be tested.