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Proteinuria At 1 Year After Kidney Transplantation and Long-term Graft Survival

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Objectives: There is a need for developing non-invasive biomarkers that can predict long-term kidney graft survival. Proteinuria occurs commonly after kidney transplantation and is a well-known risk factor for graft loss after kidney transplantation. However, there is no specific guideline for proteinuria in kidney transplant. The objective of this study is to clarify the association between proteinuria and long-term graft outcome based on clinical data at 1 year after kidney transplantation.

Methods: We studied 447 patients who have had kidney transplantation in Severance hospital from April 2011 to April 2018. The main exposure of interest was urine protein at 1 year after kidney transplantation and the primary outcome was death-censored graft failure. Urine protein was measured as spot urine protein-to-creatinine ratio (UPCR).

Results: During mean 3.8 ± 1.7 years from 1 year after kidney transplantation, there were 19 patients with graft failure. Among 447 kidney transplants, 296 (66.2%) had living donor kidney transplantation, and 67 (15.0%) had ABO incompatible kidney transplantation. The mean number of human leukocyte antigen (HLA) mismatch was 3.2 ± 1.5 and the baseline mean eGFR was 68.2 ± 21.1 mL/min/1.73m^2. In a multivariable Cox proportional hazard model, higher UPCR was associated with death-censored graft failure (adjusted hazard ratio per 1 log-transformed UPCR increase, 2.54; 95% CI, 1.62-3.97) and with graft failure (adjusted hazard ratio per 1 log-transformed UPCR increase, 2.52; 95% CI, 1.56-4.07).

Conclusions: Proteinuria at 1 year after kidney transplantation was significantly associated with poor long-term graft survival.