

## 신장이식 환자에서 이식 후 단백뇨가 심혈관계 질환에 미치는 영향

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### Prognostic Value of Post-transplantation Proteinuria for Cardiovascular Outcomes in Kidney Transplant Recipients

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**Background:** Proteinuria has been shown to be associated with mortality, progression to kidney failure, and cardiovascular disease events in general population. Herein, we have analyzed the effect of proteinuria on cardiovascular outcomes, graft loss, and mortality in kidney transplant recipients (KTRs).

**Methods:** We performed a retrospective multi-center study to evaluate the effect of post-transplantation proteinuria on cardiovascular outcomes, graft loss, and patients' survival. This study enrolled a total of 2052 KTRs in Seoul National University Hospital and Asan Medical Center, and patients were classified into three groups according to the amount of proteinuria (<150 mg/day [group 1] vs. 150-1,500 mg/day [group 2] vs. >1,500 mg/day [group 3]). The primary endpoint was major adverse cardiac events (MACE), defined as composite cardiac death, nonfatal myocardial infarction, or coronary revascularization.

**Results:** The mean age of the recipients was 43.6±11.4 years, and 58.6% were male. During a median 55.3-month follow-up, there were 38 (1.9%) cases of MACE, 71 (3.5%) graft loss, and 44 (2.1%) deaths. In a Cox model adjusted with multiple covariates, proteinuria was significantly associated with MACE (group 1 [reference] vs. group 2 [HR 3.29, CI 1.02-10.60, p=0.046] vs. group 3 [HR 5.81, CI 1.28-26.31, p=0.022]). KTRs with higher proteinuria showed significantly higher graft loss rate than those without proteinuria (group 1 [reference] vs. group 3 [HR 3.97, CI 1.65-9.56, p=0.002]). However, there was no significant association between proteinuria and all-cause mortality. KTRs with proteinuria showed a greater number of acute rejection episodes (10.5% [group 1] vs. 20.5% [group 2] vs. 37.1% [group 3], p<0.001).

**Conclusion:** Post-transplantation proteinuria is a strong prognostic factor for cardiovascular outcomes among KTRs. Therefore, evaluation and management of proteinuria should be considered to improve graft and patients outcomes.

**Key Words:** 신장 이식, 단백뇨, 심혈관계 질환

Kidney transplantation, Proteinuria, Cardiovascular outcomes