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Application of the American Heart Association's PREVENT Equations in Kidney Transplant Recipients in Korea

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Objectives : Multivariable equations have recently been recommended by prevention guidelines to monitor the risk of cardiovascular disease (CVD). The aim of this study was to evaluate the clinical relevance of the American Heart Association's Predicting Risk of CVD Events (PREVENT) equations in Korean kidney transplant recipients.

Methods : This nationwide prospective cohort study enrolled kidney transplant patients between May 2014 and December 2022. Individual CVD and atherosclerotic cardiovascular disease (ASCVD) scores were calculated. Based on the calculated total CVD risk, a survival analysis was performed through the multiple cox proportional hazards model for death, CVD and graft loss. Along with the interaction analysis of variables, the point of the optimal CVD risk was predicted through the restricted cubic spline curve.

Results : A total of 6,351 kidney transplant recipients were analyzed, with a mean age of 49.72 years, 59.7% male, and a follow-up period of 3.32 ± 2.14 years. The mean CVD risk score of 26.83 ± 10.91 and a mean ASCVD risk score of 11.05 ± 5.62 . Cox regression analysis on the CVD and ASCVD risk scores showed that the adjusted hazard ratios (HRs) and 95% confidence intervals (CIs) for mortality were 1.03 (95% CI: 1.02-1.05) and 1.05 (95% CI: 1.02-1.07), respectively. For cardiovascular events, the adjusted HRs were 1.05 (95% CI: 1.03-1.06) and 1.06 (95% CI: 1.03-1.09) for the CVD and ASCVD risk scores, respectively. The adjusted HRs of graft loss were 1.03 (95% CI: 1.01-1.04) and 1.04 (95% CI: 1.02-1.06) for the CVD and ASCVD risk scores. The interaction between CVD risk scores and CVD events or graft loss varied by sex and CVD history. The CVD risk score of 27.28 showed a sensitivity of 54.0% and a specificity of 73.4%.

Conclusions : The PREVENT equation scores were significantly associated with composite clinical outcomes in Korean kidney transplant recipients. Further research is needed to improve risk prediction in this population.

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Beyond Challenges, Towards Healthier Kidney

