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The relationship between smoking cessation and atherosclerotic cardiovascular disease and mortality among patients with chronic kidney disease: The findings from KNOW-CKD

Young Su Joo¹, Hae-Ryong Yun¹, Chan-Young Chung², Hyung Woo Kim², Heebyung Koh², Jung Tak Park², Tae-Hyun Yoo², Shin-Wook Kang², Seung Hyeok Han²

¹Department of Internal Medicine-Nephrology, Yongin Severance Hospital, Korea, Republic of/ College of Medicine, Institute of Kidney Disease Research, Yonsei University, Seoul, Republic of Korea

²Department of Internal Medicine-Nephrology, Severance Hospital, Korea, Republic of/ College of Medicine, Institute of Kidney Disease Research, Yonsei University, Seoul, Republic of Korea

Objectives: Smoking is highly related to increased risk of atherosclerotic cardiovascular disease (ASCVD) and mortality. However, whether quitting smoking is helpful for the primary prevention of ASCVD in patients with CKD is unclear.

Methods: We analyzed 1698 participants with CKD G1-G5 without requiring kidney replacement therapy (KRT) from the KoreaN cohort study for Outcome in patients With Chronic Kidney Disease (KNOW-CKD). Key exclusion criteria were 1) kidney failure requiring KRT, 2) prior history of ASCVD at enrollment, and 3) missing data for smoking history. The main predictor was smoking status. The primary outcome was a composite of ASCVD and all-cause mortality. The ASCVD event was defined as a composite of acute coronary syndrome, coronary or other artery revascularization, peripheral arterial disease, stroke, or cardiovascular death.

Results: During 12,168 person-years of follow-up (median 8.0 years), the ASCVD event occurred in 52 (3.1%) participants, and 111 (6.3%) participants died among the KNOW-CKD participants. There were 19 (2.0%), 18 (4.1%), and 15 (4.6%) ASCVD events in never (n=935), former (n=440), and current smokers (n=323), respectively. The incidence of primary outcome was higher in current smokers (17.6/1000 person-years) than in former (16.0/1000 person-years) and never smokers (9.2/1000 person-years). In multivariable Cox regression after adjustment of ASCVD risk factors, estimated glomerular filtration ratio, and proteinuria, quitting smoking showed comparable risk of primary outcomes compared with continuing smoking (HR, 0.67; 95% CI, 0.44-1.03). However, former smokers with smoking cessation ≥ 15 years (HR, 0.56; 95% CI, 0.33-0.95) and former smokers with low smoking load (smoked < 20 pack-year; HR, 0.52; 95% CI, 0.30-0.89) showed reduced risk for primary outcomes compared with current smokers.

Conclusions: In the present analysis, prolonged smoking cessation and low smoking dose were associated with reduced risk for ASCVD and all-cause mortality compared with continuing smoking in CKD patients.