Association between serum lipid profiles and cardiovascular outcomes in CKD patients: KNOW-CKD study

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Objectives: Dyslipidemia has been linked to an increased risk of cardiovascular morbidity and mortality in patients with chronic kidney disease (CKD). However, the role of individual lipid parameters in the development of cardiovascular events in the CKD population is not well established. Here, we analyzed the relative contribution of 4 lipid profiles such as total cholesterol (TC), low density lipoprotein cholesterol (LDL-C), high density lipoprotein cholesterol (HDL-C), and triglycerides (TG) to the risk of cardiovascular morbidity and mortality in patients with non-dialysis CKD.

Methods: Among 2,238 patients with non-dialysis CKD enrolled in the KoreaN cohort study for Outcome in patients With Chronic Kidney Disease (KNOW-CKD), 1,728 patients who measured TC, LDL-C, HDL-C, and TG and were not previously diagnosed with cardiovascular disorders were included in the analysis. Study endpoint was a composite of major cardiovascular events or death.

Results: The mean age was 52.9 ± 12.1 years and 1,023 (59.2%) patients were males. The mean serum concentrations of TC, LDL-C, HDL-C, and TG were and 175.5 ± 38.5, 98.0 ± 31.2, 49.8 ± 15.6, and 156.9 ± 96.6 mg/dl, respectively. During the median follow-up duration of 3.0 years, 105 patients (6.1%) reached the composite end point. In the fully adjusted multivariable Cox models, HDL-C (HR, 1.05 per 10 mg/dl increase; 95% CI, 0.92-1.12; P = 0.50), TC (HR, 1.03 per 10 mg/dl increase; 95% CI, 0.98-1.09; P = 0.36), LDL-C (HR, 1.03 per 10 mg/dl increase; 95% CI, 0.97-1.10; P = 0.36), and TG (HR, 1.00 per 10 mg/dl increase; 95% CI, 0.98-1.02; P = 0.75) were not associated with increased risk of cardiovascular events or death.

Conclusions: This study showed that four lipid profile parameters did not predict the future adverse outcomes nor improved cardiovascular risk stratification in patients with CKD.