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 parameter in the development of in the progression of CKD is not well established.

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), 1,939 patients who measured total cholesterol (TC), low density lipoprotein cholesterol (LDL-C), high density lipoprotein cholesterol (HDL-C), and triglycerides (TG) were included in the analysis. Study endpoint was a composite of a ≥ 50% decline in estimated glomerular filtration rate or the onset of end-stage renal disease.

Results: The mean age was 53.8 ± 12.2 years and 1,192 (61.5%) patients were males. The mean serum concentrations of TC, LDL-C, HDL-C, and TG were and 174.1 ± 38.9, 96.9 ± 31.3, 49.3 ± 15.5, and 156.6 ± 96.9 mg/dl, respectively. During a median follow-up of 3.0 years, 421 patients (21.7%) reached the composite end point. In the fully adjusted multivariable Cox models, HDL-C was significantly associated with increased risk of CKD progression (HR, 1.11 per 10 mg/dl increase; 95% CI, 1.01-1.22; P = 0.03), while TC (HR, 0.99 per 10 mg/dl increase; 95% CI, 0.95-1.03; P = 0.53), LDL-C (HR, 1.01 per 10 mg/dl increase; 95% CI, 0.97-1.06; P = 0.68), and TG (HR, 0.99 per 10 mg/dl increase; 95% CI, 0.98-1.01; P = 0.35) were not. However, areas under the curve of these 4 lipids were similar and none of the parameters did not improve the net reclassification improvement and the integrated discrimination improvement for the progression of CKD.

Conclusions:

HDL-C only was significantly associated with CKD progression. However, all lipid parameters had limited roles in improving risk stratification for adverse renal outcome.