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Atherosclerotic Cardiovascular Disease Risk Stratification using lipid profiles in Diabetes and Chronic Kidney Disease: a nationwide population-based study from Korea

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Objectives: Diabetes is a main risk factor for end-stage renal disease (ESRD) and the most advanced stage of chronic kidney disease (CKD). This condition, also known as diabetic nephropathy, increases atherosclerotic cardiovascular disease (ASCVD) and mortality risk. Although lipid metabolism disorders are more frequent in these patients, the association of this important clinical parameter with ASCVD risk has not been fully evaluated in patients with diabetes and CKD. The main purpose of our study was to identify possible correlations between lipid profile parameters and ASCVD risk in patients with diabetes and CKD.

Methods: We analyzed the association of lipid profile parameters with ASCVD risk and all-cause mortality in a nationally representative cohort of 51,757 patients. Multivariable, time-dependent Cox proportional hazards regression analyses were performed.

Results: Among lipid-lowering medication-naïve study patients extracted from the National Health Insurance Services Health Screening cohort, 10,775 (20.8%) had advanced stage of CKD (eGFR<30). During the median follow-up of 7.3 years, 6,555 ASCVD events and 7,289 all-cause deaths occurred, respectively. Associations of stratified lipid profiles (serum TG, LDL, HDL and TG/HDL ratio) with ASCVD risk and all-cause mortality were inconsistent overall in patients with diabetes and CKD. These non-correlations were more prominent in advanced CKD group.

Conclusions: Analyzed data showed nonlinear and insignificant association between lipid profiles and ASCVD risk in patients with diabetes and CKD. The risk prediction of stratified lipid profiles was particularly inconsistent in patients with diabetes and advanced CKD.