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Non-alcoholic fatty liver disease and abdominal obesity are associated with coronary calcification in mild renal insufficiency

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Objectives: Abdominal obesity has been considered as a strong risk factor for coronary artery disease (CAD). Recently, non-alcoholic fatty liver disease (NAFLD) is related closely risk factors for CAD, was found to be the hepatic manifestation of the metabolic syndrome. This study aimed to investigate whether the NAFLD and central obesity are associated with coronary artery calcification (CAC) in participants with mild renal insufficiency.

Methods: In the data from the medical records database in Gangnam Severance Hospital from 2005 through 2017, a cross-sectional analysis included participants with estimated glomerular filtration rate 60-89 mL/min/1.73 m^2 determined by the Chronic Kidney Disease Epidemiology Collaboration equation (n = 3799). Quantification of CAC determined by multi-detector computed tomography, known as the CAC score. Abdominal obesity was defined as a waist hip ratio above 0.90 for males and above 0.85 for females. NAFLD was diagnosed in patients with evidence of hepatic steatosis at ultrasonography. Logistic regression analyses were used to determine the association between coronary calcification and abdominal obesity or NAFLD by adjusting for the influence of confounders.

Results: Mean age was 54.8 ± 9.7 years. The prevalence of CAC was significantly higher in participants with central obesity or NAFLD. After adjusting for age, sex, systolic blood pressure, fasting plasma glucose, CRP, LDL-cholesterol and smoking status, both NAFLD and abdominal obesity were significantly associated with increased risk of CAC in participants with mild renal insufficiency [OR 1.462 (1.202-1.779), P<0.001 and OR 1.432(1.076-1.906), P=0.014, respectively].

Conclusions: Our study showed that abdominal obesity as well as NAFLD was associated with CAC in participants with mild renal insufficiency.