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Association between fatty liver disease and progression of coronary calcification may differ according to obesity status and sex in mild renal insufficiency

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Objectives: Non-alcoholic fatty liver disease (NAFLD) has been considered a hepatic manifestation of metabolic syndrome and is associated with cardiovascular outcomes. We investigated whether NAFLD was associated with progression of coronary artery calcification (CAC) in participants with mild renal insufficiency after adjustment for other atherosclerosis risk factors, alcohol intake, and liver enzyme levels.

Methods: Among 67,441 participants, the data from 755 participants with estimated glomerular filtration rate 60-89 mL/min/1.73 m^2 determined by the Chronic Kidney Disease Epidemiology Collaboration equation who underwent a fatty liver status and CAC assessment routine health screening at Gangnam Severance Hospital, were analyzed. CAC scores were calculated using computed tomography. NAFLD was diagnosed in patients with evidence of liver steatosis via ultrasonography. Obesity was defined as body mass index ≥ 25 kg/m^2.

Results:

In multivariate analysis, the association between NAFLD and progression of CAC were not different according to obesity status. Subgroup analysis demonstrated a significant association between NAFLD and CAC in non-obese female participants (odds ratio 2.480, P=0.003 [1.07-1.75]), but not in male participants.

Conclusions: Our study showed that the association between NAFLD and progression of CAC may differ according to obesity and sex in participants with mild renal insufficiency.