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Association of serum calcium level with non-alcoholic fatty liver disease in Korean population

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Objective: Increased serum calcium level has been suggested to be associated with metabolic syndrome. We conducted this study to investigate the association between serum calcium and Non-alcoholic fatty liver disease (NAFLD) in Korean subjects. **Methods:** A cross-sectional analysis was performed among 4259 health check-up subjects with normal calcium range. NAFLD was diagnosed on the basis of ultrasonographic finding, in the absence of excessive alcohol consumption as more than 20 g/day and other causes of liver disease. **Results:** NAFLD was present in 1311 (30.8%) participants. Mean serum calcium level was significantly higher in the subjects with NAFLD as compared with those without NAFLD (9.23±0.34 vs 9.14±0.34 mg/dL, p<0.001). The prevalence of NAFLD increased significantly from 40.2% to 47.4% in men and from 17.2% to 27.3% in women from the lowest to the highest quartile of serum calcium. Multiple logistic regression analysis showed that the highest quartile of serum calcium was associated with NAFLD, with an odds ratio of 1.52 (95% confidence interval 1.20-1.92, p<0.001) after adjustment for age, sex, body mass index exercise, waist circumference, blood pressure, fasting glucose, insulin, total cholesterol, triglycerides, high-density lipoprotein-cholesterol, smoking and exercise. **Conclusion:** Serum calcium level is associated with NAFLD independently of known metabolic risk factors, suggesting that serum calcium level, even within the normal range, might play a role in the development of NAFLD.

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The Clinical Usefulness of Cystatin C In Patients With Type 2 Diabetes Mellitus

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Introduction: Diabetic nephropathy is a risk factor for atherosclerotic cardiovascular disease, heart failure, and their mortality. Although microalbuminuria is used as a marker of early diabetic nephropathy, it has low accuracy. Recently, Cystatin C has been shown as a surrogate marker of renal dysfunction and it is more sensitive to detect mild decrease of GFR than serum creatinine. The present study was aimed to investigate the usefulness of Cystatin C detecting renal insufficiency and as a cardiovascular risk factor in patients with type 2 diabetes mellitus (T2DM). **Methods:** We conducted a retrospective observational study of total 696 (M:F=360:336) subjects with T2DM who visited Yeungnam University Hospital in 2011 and 2012. Urinary albumin excretion rate (UAER) and Cystatin C levels were analyzed according to estimated GFR (eGFR) of MDRD II equation. Additional subgroup analysis based on eGFR of CKD-EPI Cystatin C equation was performed in subjects who were examined brachial artery pulse wave velocity (BaPWV), ankle-brachial index (ABI) and echocardiography. **Results:** Cystatin C was more closely associated with eGFR than UAER (p<0.05). In subjects without albuminuria (UAER<30 mg/dL), Cystatin C based GFR was significantly associated with ABI positively (p<0.05). And it had significant negative association with left ventricular mass index and E/E' estimated by echocardiography (p<0.05). **Conclusion:** Serum Cystatin C may be a more useful surrogate marker to detect renal insufficiency than UAER in patients with T2DM. In addition, Cystatin C based GFR may be helpful in predicting risk of atherosclerosis, left ventricular hypertrophy and diastolic cardiac dysfunction in type 2 diabetics without albuminuria. To confirm these results, prospective large multicenter trials are needed.