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건강 검진 목적의 무증상 환자에서 고요산혈증과 관상동맥 석회화의 위험 요인

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Hyperuricemia and Risk for Coronary Artery Calcification in Asymptomatic Subjects Undergoing General Health Examination

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Background: Elevated serum uric acid level (sUA) is associated with hypertension and renal disease. Recent studies suggest that hyperuricemia may be associated with increased adverse cardiovascular events even in healthy subjects. Quantity of coronary artery calcium (CAC) correlates with atherosclerotic plaque burden and increased quantity of CAC indicates a substantially increased cardiovascular events. This study aimed to determine the relationship between coronary artery calcium score (CACS) and sUA as well as other traditional cardiovascular risk factors in asymptomatic subjects.

Method: We consecutively enrolled 5,491 asymptomatic subjects without history of coronary disease who underwent coronary CT angiography as part of a general health examination. The relationship of serum uric acid concentrations (sUA) to CACS was evaluated.

Results: The age of enrolled subjects ranged from 18 to 87 years with a mean age of 52.99±9.5 years. Overall, 8.5 % of subjects had an Agatston score greater than 100 (mean CACS: 36.16±147.987). The proportion of subjects with serum uric acid (sUA) of greater than 8.0 mg/dL in male were 5.3%, and sUA greater than 5.4 mg/dL in female were 13.9%. CACS correlated with uric acid for all cases of CACS >0 (correlation coefficient=0.053, p<0.038). Male gender, age, hypertension, diabetes, smoking, blood pressure, fasting blood glucose, sUA, estimated GFR were associated with CACS>100 on univariate analysis. After adjusted for age, gender, diabetes, hypertension, smoking, BMI, estimated GFR, higher calcium phosphorus products, higher uric acid, higher fasting blood glucose were significantly associated with CACS >100 [adjusted odds ratio (OR) CPP 1.019, p<0.001 ; uric acid 1.131 p<0.007, FBS 1.012 p< 0.000]. In multivariate linear regression analysis, male, old age, hypertension, diabetes, smoking, increased calcium phosphorus products (CPP), serum uric acid, fasting blood glucose was significantly associated with log transformed CACS.

Conclusion: Hyperuricemia and increased CPP are independent risk factors associated with increased coronary atherosclerosis as measured by CACS in asymptomatic subjects.

Key Words: 관상 동맥 칼슘 수치, 혈청 요산, 칼슘 인산 수치
Coronary artery calcium score, Serum uric acid