Prognostic role of coronary artery calcium score in patients with metabolic syndrome

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Topic(s):
Coronary Calcium Score

Citation:

Background: Metabolic syndrome (MetS) is characterized by constellation of several risk factors such as hypertension, abdominal obesity, dyslipidemia, insulin resistance and glucose intolerance and considered risk for the development of the future cardiovascular disease and diabetes mellitus. Aim of the present study was to evaluate coronary artery calcium score (CACS) detected by multi slice computed tomography (MSCT) for the development of future cardiovascular disease (CVD).

Methods: 112 consecutive metabolic syndrome patients without history of cardiovascular disease and 56 healthy subjects were enrolled in this study. Multi slice computed tomography was conducted to estimate CACS and all patients were followed-up during the mean 48±12.6 months. All laboratory and instrumental measurements were performed at baseline and during the follow up period. Statistical analysis were done by using STATA software.

Results: Compared with controls, patients with metabolic syndrome had a higher degree of CACS (85.2±78.5 vs. 7.2±12.0, P<0.05). During the mean follow-up period in 15 patients CVD have occurred in patients with metabolic syndrome and in 1 patients in control group. Higher CVD have been occurred in patients with CACS 1-10 (6.0%), 10-100 (50.0%), >100 (44.0%). Among components of the MetS - high LDL Cholesterol (HR 11.0, CI 95% 5.50-18.24, P<0.05), abdominal obesity (HR 2.6, CI 95% 1.12-2.90, P<0.05), hypertension (HR 4.2, CI 95% 2.0-6.8, P<0.05) are predictors of future CVD. As well as, cox regression analysis has revealed that CACS>100 (HR 12.4, CI 95% 5.65-22.70, P<0.05) is a predictor of future CVD.

Conclusion: This study demonstrate that CACS detected by MSCT is a useful method for the prognosis of future CVD in patients with MetS.