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IMPACT OF CORONARY CALCIUM SCORE ON THE RELATION BETWEEN HIGH-DENSITY LIPOPROTEIN CHOLESTEROL LEVELS AND THE PRESENCE OF HIGH-RISK CORONARY PLAQUE DETECTED BY CORONARY COMPUTED TOMOGRAPHY ANGIOGRAPHY

Poster Contributions
Hall C
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Background: High-density lipoprotein (HDL) cholesterol has various beneficial effects on atherosclerosis, and low HDL cholesterol levels were reported to increase the incidence of cardiovascular events. Furthermore, some recent studies revealed the relation between HDL cholesterol levels and the presence of vulnerable coronary plaque subsequently resulting in acute coronary syndrome. However, the impact of coronary calcium score (CCS) on the relation between HDL cholesterol levels and the presence of high-risk coronary plaque (HRP) detected by coronary computed tomography angiography (CCTA) has not been fully elucidated.

Methods: Two hundred and eighty-nine consecutive patients who underwent 64-slice multi-detector CT for suspected coronary artery disease in our hospital were enrolled. We calculated CCS and detected HRP, defined as non-calcified coronary plaque with both low CT value (<30HU) and positive remodeling. CCS was categorized as 0, 1 to 10, 11 to 100, 101 to 400 and >400. Receiver operating characteristic curve analysis was performed to evaluate HDL cholesterol levels for the prediction of HRP in each category of CCS.

Results: HRP was observed in 6 of 94 patients (6.4%) with CCS 0, in 4 of 20 patients (20%) with CCS 1 to 10, in 17 of 58 patients (29%) with CCS 11 to 100, in 22 of 60 patients (37%) with CCS 101 to 400, and in 21 of 57 patients (37%) with CCS >400. In all patients, multiple logistic regression analysis revealed that predictors for the presence of HRP were male (OR: 2.61, 95% CI 1.28-5.31, p=0.008) and HDL cholesterol levels (OR: 0.98, 95% CI 0.96-0.99, p=0.016). HDL cholesterol levels were more accurate for diagnosing the presence of HRP with areas under receiver operating curve (AUC) of 0.840 in patients with CCS 0, than with AUC of 0.633 in those with CCS 1 to 10, 0.605 in those with CCS 11 to 100, 0.591 in those with CCS 101 to 400 and 0.571 in those with CCS >400. The optimal cut-off points of HDL cholesterol levels to predict the presence of HRP in patients with CCS 0 were 51 mg/dl with a sensitivity of 83% and a specificity of 78%.

Conclusions: HDL cholesterol levels could be better predictors for the presence of HRP detected by CCTA in patients with lower CCS.