CORONARY CALCIFICATION IS ASSOCIATED WITH ANGIOSCOPIC INTIMAL YELLOW PLAQUE DISPOSITION

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**Background:** Extensive coronary calcification has been reported to be associated with an increased incidence of adverse cardiovascular outcomes. A previous study reported that the presence of yellow plaque on angioscopy in patients with stable angina may predict the future occurrence of an acute coronary event. However, the relationship between coronary calcification severity and the yellow plaque grade has not been fully evaluated. We investigated whether the coronary calcium score on multidetector computed tomography (MDCT) is correlated with the yellow plaque grade on angioscopy in diseased vessels.

**Methods:** A total of 108 consecutive patients (mean age: 68 ± 9 years; 81% male) undergoing both cardiac MDCT for suspected coronary artery disease and subsequent angioscopy immediately before angioplasty were included in the present study. The coronary calcium score of diseased vessels was calculated using the same method as the Agatston score. Angioscopic images were classified into 4 grades based on the yellow color intensity. Patients with ST-elevation acute myocardial infarction or prior angioplasties for diseased vessels were excluded. A multivariate analysis was performed to assess the relationship between the calcium score and yellow plaque grade of diseased vessels.

**Results:** The median calcium score of diseased vessels was 56 (interquartile range: 0 -150), while the median value of the maximum yellow grade was 3 (grade 1: 21, 2:17, 3: 63, and 4: 7 patients, respectively). On multivariate analysis, an increased angioscopic yellow grade (P<0.001) and higher age (P=0.002) were independent predictors of an increased coronary calcium score, whereas the presence of diabetes, decreased renal function and other cardiovascular risk factors had no association with the calcium score. The risk of an above-median calcium score increased significantly with the presence of a higher angioscopic grade of yellow plaque of more than 3 (OR: 5.1, 95% CI: 2.1-12.7, P< 0.001).

**Conclusions:** A higher calcium score was correlated with an increased angioscopic grade of yellow plaque, independent of the renal function, diabetes and other cardiovascular risk factors.