Correlation between Coronary Calcium Score and Incidence of Major Adverse Cardiovascular Events During 5-year Follow-up

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Background: Calcium deposition on coronary arterial wall is related to atherosclerotic process. Coronary calcium score measured by Computed Tomography is significantly associated with atherosclerotic plaque areas detected by histopathology. The correlation between coronary calcium score and the incidence of major adverse cardiac events such as death and myocardial infarction has been evaluated during the 5-year follow-up study.

Objective: To identify the correlation between coronary calcium score and incidence of major adverse cardiovascular events during 5-year follow-up.

Methods: Patients who received non-contrasted coronary Computed Tomographic angiography at Phramongkutklao Hospital during October 2008 and April 2011 were enrolled. Baseline characteristics and Agatston coronary calcium score (0, 1-10, 11-100, 101-400 and >400) were collected at baseline. Death and myocardial infarction were observed as primary endpoints for 5 years. Logistic regression analysis was performed to examine the association between coronary calcium score and cardiovascular events.

Results: A total of 412 patients were enrolled. Mean age was 63±11 years and 238 patients (57.8%) were male. Baseline characteristics showed 309 patients (75%) had hypertension, while 302 patients (73%) had hyperlipidemia and 99 patients (24%) had T2DM. During the 5-year follow-up, 7 patients (1.7%) were death and 69 patients (16.7%) had myocardial infarction. Agatston coronary calcium score 101-400 and more than 400 groups were significantly correlated with the incidence of myocardial infarction (p<0.001) with odds ratio of 9.32 (95% CI, 3-28.95) and 25.69 (95% CI, 8.67-76.15), respectively.

Conclusion: High coronary calcium score at baseline is significantly associated with the incidence of myocardial infarction during the 5-year follow-up.

Keywords: Coronary calcium score, Cardiovascular events, Myocardial infarction, Calcium