**ORIGINAL ARTICLE**

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# The relationship between coronary artery calcification detected by non-gated multi-detector CT in patients with suspected ischemic heart disease and myocardial ischemia detected by thallium exercise stress testing

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***Objective:*** To examine whether we could predict myocardial ischemia when coronary artery calcification is detected by non-gated multidetector CT in patients with suspected ischemic heart disease. ***Methods:*** Eighty-three patients suspected of having ischemic heart disease (55 men, 28 women; age range 36–83 years; mean age 68 years) underwent multidetector CT and Tl-201 single photon emission computed tomography. Prediction of myocardial ischemia by coronary arterial calcification detected on CT was evaluated by comparing the coronary artery territories that showed calcification with the area of myocardial ischemia determined by SPECT. The sensitivity, specificity, positive predictive value, and negative predictive value of multidetector CT for predicting myocardial ischemia were calculated. Coronary angiography was also examined and compared with multidetector CT. Risk factors, including hypertension, smoking, hyperlipidemia, diabetes, and family history, were compared for evidence of coronary artery calcification detected by multidetector CT and myocardial ischemia detected by thallium nuclear scans. ***Results:*** For analysis by patients, the sensitivity, specificity, positive predictive value, and negative predictive value of coronary artery calcification for myocardial ischemia detection were 65, 63, 56, and 71%, respectively. Similarly, for analysis by coronary arterial territories, those values were 56, 77, 41 and 86%, respectively. Coronary stenosis on CAG was also related to the ischemia determined by SPECT and calcification on multidetector CT. Ischemia was better influenced by risk factors than was coronary arterial calcification. ***Conclusions:*** For analysis by coronary arterial territories, the specificity and negative predictive value of coronary arterial calcification seen by multidetector CT are relatively high.

**Key words:** calcification, coronary vessels, ischemic heart disease radionuclide studies, MDCT, risk factors for ischemic heart disease