Accuracy of 64-row multidetector computed tomography in detecting coronary artery disease in 134 symptomatic patients: Influence of calcification

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Background

The new 64-row multidetector computed tomography (CT)–assisted angiography can now detect coronary artery disease with shorter breath-hold time and at faster heart rates for symptomatic patients. We aim to determine if the 64-row scanner can also overcome limitations due to mild to moderate calcification.

Methods

Scheduled for conventional coronary angiography, 134 symptomatic patients underwent multidetector CT–assisted angiography within 3 months. Patients were divided into those with low or high calcium score (median score 142) by modified Agatston formula: group A calcium score <142 Agatston score (68 patients, mean age 53 years, heart rate 62 beat/min) and group B calcium score ≥142 Agatston score (66 patients, mean age 57 years, heart rate 62 beat/min). Eleven major coronary segments were evaluated.

Results

In group A, 93.6% of segments were evaluable with 97.3% correlation. Segment-by-segment analyses for sensitivity, specificity, and positive and negative predictive values were 85.4%, 98.1%, 76.7%, and 99.2%, respectively. For group B, 86.9% of segments were evaluable with 90.5% correlation. Sensitivity, specificity, and positive and negative predictive values were 79.9%, 92.8%, 78.8%, and 93.5%, respectively.
Conclusions

The 64-slice multidetector CT coronary angiography can reliably detect the presence of significant coronary stenosis in symptomatic patients with mild calcification, but remains limited by moderate to heavy calcification.

Both authors contributed equally to the study. The author is an employee of Siemens Medical Solutions Germany and provided assistance on technical matters.

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