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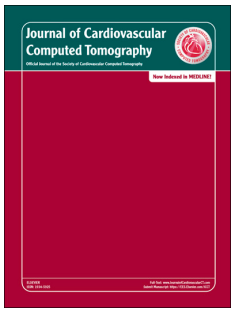

Difference of coronary stenosis severity between systolic and diastolic phases in quantitative CT angiography

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Difference of Coronary Stenosis Severity between Systolic and Diastolic Phases in Quantitative CT Angiography

Abstract

Background: To compare the difference of coronary diameter stenosis by quantitative analysis of CT angiography (QCT) in the systolic (QCT-S) and diastolic phase (QCT-D) of the cardiac cycle, with invasive catheter angiography (QCA) as reference standard.

Methods: A total of 109 patients (57.5 ± 10.6 years, 78.9% male) with suspected coronary artery disease (CAD) who underwent both CT angiography and invasive catheter angiography were retrospectively included in this study. Coronary diameter stenoses in systolic and diastolic coronary CTA reconstructions were compared with QCA.

Results:. Mean time interval between CT angiography and invasive angiography was 17.4 ± 4.4 days. QCT-D overestimated coronary diameter stenosis by 5.7%-8.5% while QCT-S overestimated coronary diameter stenosis by 9.4%-11.9% ($p < 0.05$). In calcified lesions, QCT-D overestimated coronary diameter stenosis by 13.2 ± 4.3%, while QCT-S overestimated by stenosis by 16.6 ± 4.3% ($p <0.05$).

Conclusions: Coronary diameter stenosis was overestimated by QCT-D as well as QCT-S, respectively, when compared with QCA. Overestimation was more pronounced in calcified lesions.