

GW23-e2526

DIAGNOSTIC VALUE OF 320-SLICE CT ANGIOGRAPHY IN CORONARY ARTERY STENOSIS: A META-ANALYSIS

doi:10.1136/heartjnl-2012-302920a.116

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Objectives To evaluate the diagnostic accuracy of 320-slice CT coronary angiography (320-SCTA) compared with the standard reference conventional coronary angiography (CCA) in the detection of significant coronary artery stenosis ($\geq 50\%$).

Methods Relevant studies from December 2005 to April 2012 were systematically searched, reviewed and included according to appropriate criteria. Diagnostic accuracy of 320-SCTA was evaluated by the pooled results of per-segment, per-vessel, and per-patient analysis, respectively. Meta-regression was employed to explain study heterogeneity.

Results Twenty-eight studies were eligible for this study. In per-segment analysis (n=13351), pooled sensitivity, specificity, LR+, and LR- were 88.1% (95% CI, 86.5%–89.6%), 97.6% (95% CI 97.3% to 97.8%), 36.2 (95% CI 28.6 to 45.9) and 0.11 (95% CI 0.08 to 0.16), respectively. In per-vessel analysis (n=2085), the pooled outcomes of sensitivity, specificity, LR+, and LR- were 87.7% (95% CI 84.4% to 90.5%), 95.4% (95% CI 94.2% to 96.4%), 17.4 (95% CI 13.9 to 21.8), and 0.13 (95% CI 0.07 to 0.20), respectively. In per-patient analysis (n=1412), corresponding results were sequentially 95.8% (95% CI 93.1% to 97.7%), 89.2% (95% CI 85.7% to 92.1%), 7.4 (95% CI 5.6 to 9.6) and 0.08 (95% CI 0.05 to 0.13). The area under the summary receiver operating characteristic curve (AUC) in the per-segment, per-vessel, and per-patient analysis were 0.990, 0.983 and 0.960, respectively. Percentage of unassessable segments had significant influence on heterogeneity (p=0.03).

Conclusions The excellent diagnostic performance of 320-SCTA may enable it as an alternative to CCA for the detection of coronary artery stenosis.