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DIAGNOSTIC ACCURACY OF 320-DETECTOR CT CORONARY ANGIOGRAPHY IN PATIENTS WITH ATRIAL FIBRILLATION UNDERGOING OPERATIONS FOR RHEUMATIC MITRAL VALVE DISEASE

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Objectives To evaluate the diagnostic accuracy of 320-detector row CT coronary angiography (CTCA) to detect CAD in patients with atrial fibrillation (AF) undergoing operations for rheumatic mitral valve disease.

Methods Thirty-five patients were enrolled. All patients underwent both CTCA and conventional coronary angiography (CCA) before the operations. CT image quality (good, moderate, poor) and significant stenosis (≥50%) were evaluated by two cardiac surgeons, who blinded to the results of CCA. Pearson's correlation analysis was performed to compare image quality with mean heart rate. The sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) were calculated by using conventional coronary angiography as the reference standard. Agreement in detection of CAD between 320-detector CTCA and CCA were evaluated with κ statistics, which was also used to assess intraobserver agreement.

Results The mean heart rate was 94.7±21.4 beats/min. There was highly significant correlation between mean heart rate and image quality, especially for RCA (r=0.554, p=0.002) and LCX (r=0.559, p=0.016). On segment-based analysis, sensitivity, specificity, pPV and NPV were 87.5%, 99.4%,82.4% and 99.6%, while the data were 87.5%, 97.6%, 82.4% and 98.4% on vessel-based analysis, 84.6%, 86.3%,78.6% and 90.5% on patient-based analysis. The κ statistics were 0.843, 0.828 and 0.699, respectively. The agreement of intraobserver was 0.770.

Conclusions 320-row CTA allows accurate assessment of significant CAD. And it can be taken as a noninvasive coronary angiography to screen CAD in patients with atrial fibrillation, who scheduled for rheumatic mitral valve operations.