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Evaluation of in-stent restenosis of overlapped stents by 320-slice computed tomography

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Introduction: Recently, 320-slice computed tomography coronary angiography (CTA) can obtain volumetric image of the heart in a single heart beat or gantry rotation. Therefore motion artifacts are reduced and non-invasive assessment of in-stent restenosis (ISR) using CTA is now becoming feasible. We studied whether 320-slice CTA is also useful for the assessment of ISR for overlapping stents. Methods: The population consisted of patients with coronary stent implantation for the re-stenosis of the previous stents. CTA studies were performed using a 320-row CTA scanner with 320 detector-rows, each 0.5 mm wide, and a gantry rotation time of 350 milliseconds. First, CTA stent image quality was assessed using a 3-point grading scale: (1) good image quality, (2) moderate image quality, and (3) poor image quality. Results: From October 2008 to June 2012, 35 patients were enrolled in this study retrospectively. The number of (1) good image quality, (2) moderate image quality, and (3) poor image quality were 5, 18, 12 respectively. All of the stents with poor image quality cannot be evaluated about the patency of the stents. Conclusion: Currently, the evaluation of ISR for overlapped stents by 320-slice CTA might not be feasible. It is thought that further improvement of CT scanner may be nessesary.