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Abstract 6: Additional Diagnostic Value of CT Perfusion Over Coronary CT Angiography in Patients with Suspected In-stent Restenosis or Coronary Artery Disease Progression The ADVANTAGE Prospective Study



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Introduction: Diagnostic performance of coronary CT angiography (CCTA) for the in-stent restenosis (ISR) detection is still challenging. Recently, adenosine-stress myocardial perfusion assessed by CT (CTP) demonstrated additional diagnostic power over CCTA in patients with unknown coronary artery disease (CAD). Yet, scarce data are available on CTP performance in patients with previous stent implantation. Aim of the study was to assess the diagnostic performance of CCTA alone, CTP alone and CCTA + CTP using a new scanner vs. invasive coronary angiography (ICA) and fractional flow reserve (FFR) as clinical standard.

Methods: We enrolled consecutive stable patients with previous coronary stenting referred for ICA. All patients underwent stress myocardial CTP and rest CTP + CCTA. Invasive FFR was performed during ICA when clinically indicated.

Results: In the 150 enrolled patients, CTP diagnostic rate was significantly higher than that of CCTA in all analyses. Similarly, CCTA + CTP diagnostic rate was significantly higher than that of CCTA alone in all analyses. When ICA was used as gold standard, CTP diagnostic accuracy was significantly higher than that of CCTA in all analyses (territory-based [92.1% vs. 85.5%] and patient-based [86.7% vs. 76.7%] analyses, respectively). The concordant CCTA + CTP assessment showed the highest diagnostic accuracy values. The radiation exposure of the whole cardiac CT examination was low (4.15 ± 1.5 , mSv).

Conclusions: In patients with coronary stents, CTP significantly improves diagnostic rate and performance of CCTA alone in comparison with both ICA and invasive FFR as gold standard. The radiation exposure of CCTA + CTP is lower than that of ICA.

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