

Myocardial Perfusion Defect Assessment – A New Coronary CT Angiography Application - Initial Experience

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Coronary CT angiography (CCTA) is a reliable non invasive modality allowing visualization of the coronary arteries. However, CCTA is only an anatomic imaging method. The presence of significant stenosis on CCTA, does not necessarily imply ischemia.

The purpose of this study is to analyze new software (Philips Brilliance workspace portal-myocardial defect assessment) for the evaluation of myocardial perfusion defects on CCTA.

Subjects and Methods: The study comprised of consecutive chest pain unit patients which underwent CCTA as part of a standard triage protocol. All cohort patients were found to have significant stenosis on CCTA and underwent coronary angiography. All CCTA scans were evaluated for the presence of myocardial defects utilizing novel software. Myocardial defect evaluation software provides visual and quantitative assessment of segmented, low-attenuation defect areas within the myocardium. Correlation was made between the presence of a myocardial segment with a perfusion defect, the finding of significant stenosis in the related coronary segment and whether angioplasty was performed in that coronary segment.

Results: The study included 12 patients; mean age 53; 11 males. CCTA significant stenosis and perfusion defect in the corresponding segments were demonstrated in 8/12 patients. Catheter angioplasty was performed in these 8 pts. Significant stenosis without perfusion defect was found in 3/12 patients, in whom no catheter intervention was performed. In 1/12 patients with significant stenosis and no perfusion defect catheter intervention was performed.

Conclusions: Perfusion CCTA is a novel tool allowing cardiac evaluation beyond coronary anatomy. Initial experience with this application shows promise in predicting the need for coronary intervention. Further evaluation in large series is warranted before wide-spread use is recommended.