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CARDIAC FUNCTION AND HEART FAILURE

VISUALIZATION OF MYOCARDIAL SCARRING/FIBROSIS IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY: CARDIAC MAGNETIC RESONANCE VS DUAL SOURCE COMPUTED TOMOGRAPHIC IMAGING

ACC Poster Contributions

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Session Title: Myocardial Fibrosis and Cardiac MRI

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Background: Contrast enhanced (ce) cardiac magnetic resonance (CMR) is an established method to identify myocardial fibrosis as late ce in hypertrophic cardiomyopathy (HCM) patients. However, many patients with HCM cannot undergo CMR due to pacemakers or defibrillators. Late iodinated ce using multidetector computed tomography (MDCT) can detect focal scars in patients following myocardial infarction. We sought to investigate whether dual source ceMDCT can be used as an alternative method to ceCMR to detect myocardial scar or fibrosis in HCM patients.

Methods: Twelve HCM patients underwent ceCMR imaging using a TurboFLASH protocol and ceMDCT imaging using a dual source lower radiation dose technique. Fibrotic areas of the left ventricular (LV) myocardium were defined as focal or diffuse based on the pattern of late ce. The mean signal intensity (SI) (gray values) of the fibrotic regions, normal myocardium and LV blood pool contrast were measured with both methods for quantitative analysis.

Results: Focal scars were detected in ten patients and diffuse fibrosis was visualized in all patients by ceCMR. However, diffuse fibrosis was poorly visualized by ceMDCT (Figure) despite the significant difference in gray values compared to normal myocardium and the borderline significant difference compared to focal scars.

Conclusions: ceMDCT has potential as an alternative imaging method to detect focal myocardial scars in HCM patients. However, ceMDCT does not adequately visualize diffuse myocardial fibrosis.

