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PROGNOSTIC VALUE OF MICROVASCULAR OBSTRUCTION ASSESSED BY CONTRAST ENHANCED MAGNETIC RESONANCE IMAGING IN COMPARISON TO TC99M-SESTAMIBI SPECT IN ACUTE MYOCARDIAL INFARCTION

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

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Session Title: MRI: Myocardium at Risk - the Role of Tissue Characterization

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Background: Infarct size is an important cardiac risk predictor after acute myocardial infarction. The currently best validated modality for its assessment is Tc99m-Sestamibi SPECT. During the last years data is emerging that microvascular obstruction (MVO) in delayed enhanced magnetic resonance imaging (MRI) may also provide prognostic information, however, so far no direct comparison between both modalities has been reported.

Methods: We analyzed all consecutive patients (n=352) with AMI and primary angioplasty who underwent both Tc99m-Sestamibi-SPECT and contrast enhanced MRI imaging at a median of 4 days after the acute event. MVO size and MRI scar size were measured 15 minutes after gadolinium injection. Clinical follow-up was performed after a median of 2.4 years. Primary endpoint of the study was a composite of all cause mortality, recurrent myocardial infarction and congestive heart failure requiring hospitalization.

Results: Correlation with the primary endpoint was best for MVO size (Hazard ratio (HR) 1.10, 95%CI 1.03-1.18, p=0.003), followed by SPECT scar size (HR 1.03, 95%CI 1.01-1.05, p=0.011) and MRI scar size (HR 1.02, 95%CI 1.01-1.05, p=0.031). In a multivariable analysis including all three parameters and patients' age as the best clinical predictor, only age and MVO size remained statistically significant.

Conclusion: The size of MVO in cardiac MRI has an excellent prognostic value in predicting severe cardiac events following AMI which is superior to other parameters such as infarct size.