ESTIMATION OF SCAR BY SPECKLE TRACKING RADIAL STRAIN TO GUIDE LEAD PLACEMENT IN PATIENTS RECEIVING CARDIAC RESYNCHRONIZATION THERAPY

ACC Moderated Poster Contributions
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Background: Left ventricular (LV) lead placement in viable myocardium is important for cardiac resynchronization therapy (CRT). Our aim was to use speckle tracking radial strain to estimate scar in comparison to routine echo and SPECT thallium in patients undergoing CRT.

Methods: We studied 64 CRT patients by speckle tracking radial strain at basal and mid LV levels and by rest-redistribution Ti201 SPECT myocardial perfusion imaging. Strain % wall thickening was compared with scar by echo visual assessment (bright, thin wall < 5mm in systole) and absent uptake defined as scar by SPECT imaging.

Results: In 508 segments with matched SPECT, routine echo visual assessment and radial strain data, visual echo had very low sensitivity (32%) but high specificity (98%) to detect scar segments. In contrast, radial strain < 10% had 77% sensitivity and 89% specificity to detect scar tissue; radial strain 18.5±9.8% in non-scar segments vs. 7.4±4.9% in scar segments (p<0.0001).

Conclusions: Estimation of scar by speckle tracking radial strain had increased sensitivity to routine visual echo assessment but was slightly less specific using SPECT as the standard for comparison. Speckle tracking echo may play a role in guiding LV lead position in CRT.