



IMAGING AND DIAGNOSTIC TESTING

IMPACT OF SCAR BURDEN BY SPECT PERFUSION IMAGING AND ECHOCARDIOGRAPHIC DYSSYNCHRONY ON LONG-TERM OUTCOME AFTER CARDIAC RESYNCHRONIZATION THERAPY IN PATIENTS WITH ISCHEMIC CARDIOMYOPATHY

ACC Poster Contributions

Georgia World Congress Center, Hall B5

Monday, March 15, 2010, 3:30 p.m.-4:30 p.m.

Session Title: Assessing Dyssynchrony With Nuclear Techniques

Abstract Category: Nuclear Cardiology/PET

Presentation Number: 1204-236

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Background: Our objective was to test the hypothesis that scar burden in patients with ischemic cardiomyopathy (ICM) may impact response to cardiac resynchronization therapy (CRT) and long-term outcome, regardless of echocardiographic dyssynchrony.

Methods: We studied 68 CRT patients with ICM, ejection fraction (EF) $\leq 35\%$, and QRS ≥ 120 ms. Echocardiography was performed before and 7 \pm 8 months after CRT. Scar burden was assessed by resting SPECT thallium as perfusion sum rest score (SRS) before CRT. Dyssynchrony was assessed as longitudinal velocity maximum opposing wall delay from 3 apical views (≥ 65 ms predefined as significant), and speckle tracking radial strain antero-septal-posterior wall delay (≥ 130 ms predefined as significant).

Results: Overall EF improved from 25 \pm 6% to 32 \pm 11% ($p < 0.001$). However, EF improvement was insignificant in patients with a very high scar burden (SRS ≥ 27) from 23 \pm 6% to 27 \pm 11% ($p = \text{NS}$) in contrast to those with a low to moderate scar burden (SRS < 27) from 26 \pm 6% to 34 \pm 11% ($p < 0.001$), respectively. Importantly, survival free from transplant or ventricular assist device in patients with a very high scar burden was significantly worse over 4 yrs than that in those with a low to moderate scar burden ($p < 0.05$), and not predicted by dyssynchrony.

Conclusion: ICM patients with a very high scar burden by resting SPECT had a less favorable EF response and long-term outcome after CRT regardless of the presence of dyssynchrony. These observations may have clinical implications in ICM patients.

