

CARDIAC FUNCTION AND HEART FAILURE

GENDER ALTERS THE RELATIONSHIP BETWEEN QRS WIDTH AND MECHANICAL DYSSYNCHRONY: MADIT-CRT

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

Monday, April 04, 2011, 3:30 p.m.-4:45 p.m.

Session Title: Optimizing CRT Outcomes

Abstract Category: 24. Myocardial Function/Heart Failure—Clinical Nonpharmacological Treatment

Session-Poster Board Number: 1120-39

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Background. MADIT-CRT demonstrated that women were most likely to benefit from CRT and that CRT was beneficial in women with narrower QRS. We therefore assessed the influence of gender on the relationship between QRS width and mechanical dyssynchrony in MADIT-CRT.

Methods. We studied baseline echocardiograms from 1077 pts in NYHA I/II, QRS \geq 130ms and EF \leq 30 % enrolled in MADIT-CRT with adequate image quality. We examined the influence of gender on the relationship between QRS width and mechanical dyssynchrony by 2D speckle tracking imaging, defined as standard deviation of time to peak transverse strain out of 12 segments from apical 4- and 2-chambers.

Results. Women (n=268, 25%) were more likely to have LBBB (87 vs. 66%, $p < 0.001$), less likely to have ischemic cardiomyopathy (30 vs. 64%, $p < 0.001$), had slightly higher EF (30 ± 3 vs. $29 \pm 3\%$, $p = 0.008$), significantly higher longitudinal strain (-9.3 ± 3 vs. $-8.8 \pm 2.8\%$, $p = 0.01$) and transverse dyssynchrony (198 ± 60 vs. 184 ± 68 ms, $p = 0.003$). The relationship between dyssynchrony and QRS duration was shifted by gender; women had greater mechanical dyssynchrony for any given QRS width, even after adjusting for QRS morphology, body surface area, EF and disease etiology ($p = 0.023$; graph). A woman with a QRS of 130 ms had a similar degree of mechanical dyssynchrony as a man with a QRS of 150ms.

Conclusion. Women show greater mechanical dyssynchrony for a given QRS width compared with men; these results may partially explain the greater benefit of CRT in women with narrower QRS.

