UNCOVERING THE MECHANISM OF THE PARADOXICAL ASSOCIATION BETWEEN CARDIAC DYSSYNCHRONY AND BETTER SURVIVAL IN HEART FAILURE

ACC Moderated Poster Contributions
McCormick Place South, Hall A
Monday, March 26, 2012, 11:00 a.m.-Noon

Session Title: New Mechanisms from Experimental Models II
Abstract Category: 15. Heart Failure: Basic
Presentation Number: 1220-334

Authors: Richard J. Jabbour, Jaymin Shah, Jamil Mayet, Darrel Francis, Imperial College London, London, United Kingdom

Introduction: Paradoxically, dyssynchrony before CRT is associated with a better prognosis. We tested whether this was dependent on device implantation or on how the cohort was defined (EF≤35 vs. All-comers).

Methods: 419 patients (67.8±11.3 years, 79.2% males, 127 deaths) with heart failure had echocardiographic assessment of mechanical dyssynchrony were followed up (median 3.1 years).

Results: 135 had dyssynchrony and 62 received CRT. The mean EF was 33.1±15.0%; 157 (35.2%) had an EF>35%. Amongst patients with EF≤35% (n=249), shorter aortic pre-ejection time (i.e. less dyssynchrony) was associated with a worse prognosis (p<0.05). All dyssynchrony markers were higher in survivors (p<0.001 by sign test, upper panel). EF was not prognostic and depressed by dyssynchrony (r=−0.4, p<0.001). By examining all patients (regardless of EF); the association between dyssynchrony and better survival disappeared (p>0.05, lower panel). EF was restored to its prognostic significance (p=0.02). Taking a different approach to define poor ventricular function - using low S-wave velocity - EF had prognostic significance (p<0.05) and dyssynchrony markers were non-prognostic (p>0.05).

Conclusion: Dyssynchrony predicts better survival in low EF groups because dyssynchrony artifactually lowers EF without damaging survival. The effect is independent of CRT. Replacement of EF with dyssynchrony-neutral measures of LV function e.g, peak S-wave velocity would avoid the appearance that dyssynchrony is favourable.