BRAIN NATURETIC PEPTIDE AND THE RISK OF HEART FAILURE AND DEATH IN MADIT-CRT

ACC Moderated Poster Contributions
McCormick Place South, Hall A
Monday, March 26, 2012, 9:30 a.m.-10:30 a.m.

Session Title: Biomarkers in Heart Failure: Something Old, Something New
Abstract Category: 14. Heart Failure: Clinical
Presentation Number: 1227-589

Authors: Andrew Brenyo, Alon Barsheshet, Arthur Moss, Mohan Rao, Scott McNitt, Wojciech Zareba, Ilan Goldenberg, University of Rochester Medical Center, Rochester, NY, USA

Background: We hypothesized that elevated brain naturetic peptide (BNP) will identify heart failure (HF) patients at higher risk that may derive greater benefit from cardiac resynchronization therapy (CRT). Moreover, that reduction in BNP will be prognostic of positive CRT outcome.

Methods: The effect of baseline BNP (dichotomized at the upper quartile of 155 pg/ml) on the risk of HF or death and death alone in ICD only (n = 473) and CRT (n = 724) patients was assessed within MADIT-CRT. BNP response (>35% reduction [median]) at one year by treatment arm and its relation to the same endpoints was also analyzed.

Results: Upper quartile BNP was associated with an 88% (p = 0.004) increase in the risk of HF or death and a 44% increase (p = 0.09) in mortality among ICD patients. After multivariate adjustment, CRT in both high and low BNP groups conveyed a similar (44% vs. 40%) reduction in the combined endpoint. At 1-year follow-up, BNP response was seen more frequently with CRT (50%) compared to ICD (35.0%, p < 0.001). Such a reduction in BNP with CRT was associated with a 74% and 77% reduction in HF or death compared to ICD and CRT BNP non-responders respectfully (Figure 1). BNP responders also derived a significant mortality reduction compared to ICD only (HR 0.68, p = 0.026) and CRT BNP non-responders (HR 0.61, p = 0.008).

Conclusions: BNP is a powerful predictor of HF or death in mild HF but does not appear to predict CRT response. Reduction in BNP at one year is prognostic of positive CRT response and outcome.