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CARDIAC FUNCTION AND HEART FAILURE

WHAT IS THE MODE OF DEATH AMONG HEART FAILURE PATIENTS WITH HYPONATREMIA AND IMPLANTABLE CARDIOVERTER DEFIBRILLATORS?

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

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

Session Title: Underappreciated Mechanisms in Heart Failure

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

Session-Poster Board Number: 1121-14

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Background: Hyponatremia (HN) is a well known marker for mortality among patients with systolic heart failure (HF); however, the mode of death whether related to ventricular arrhythmias (VA) or HF progression remains unknown.

Methods: We identified 911 patients with an EF \leq 40% and baseline sodium (Na) values who underwent ICD implantation. HN was defined as Na \leq 136mg/dl (N=401, 44%). Patients were grouped according to mild HN (134-136, N=267), moderate HN (131-133, N=104) and severe HN (\leq 130, N=30). Multivariable Cox proportional analysis was used to calculate the adjusted hazard ratios (AHR) among each HN group, as compared to patients with a normal Na (\geq 137, N=510, 56%), on the incidence of all-cause mortality, appropriate ICD therapy for VA and HF hospitalization.

Results: Overall the mean age was 67 \pm 12 years, EF of 24 \pm 18%, 78% male, with 61% implanted for primary prevention indications. When compared to patients with normal Na, those with moderate (mean Na 132 \pm 0.7) and severe HN (mean Na 128 \pm 2) exhibited a 2 and 3 fold increased risk in mortality with a similar increase in probability of HF hospitalization [AHR 1.9 (95% CI 1.1- 3.1) p=.02] and [AHR 3.0 (95% CI 1.4 - 6.3) p=.004, figure A] but did not differ in the risk of appropriate ICD therapy [AHR 0.8 (95% CI 0.6 - 1.8) p=0.26] and [AHR 0.7 (95% CI 0.5 - 1.4) p=0.32, figure B]

Conclusions: Heart failure patients with hyponatremia and ICD are at an increased risk of death that is mediated by progressive pump dysfunction and not related to sudden cardiac death.

