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Heart Failure

A PROSPECTIVE, BLINDED STUDY OF BIOIMPEDANCE VECTOR ANALYSIS AND BIOMARKER TESTING FOR THE PREDICTION OF WORSENING RENAL FUNCTION IN CONSECUTIVE PATIENTS WITH ACUTELY DECOMPENSATED HEART FAILURE: PRIMARY RESULTS OF THE BIOMONITORING AND CARDIORENAL SYNDROME IN HEART FAILURE (BIONICS-HF) TRIAL

Poster Contributions
Poster Sessions, Expo North
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Session Title: Lessons Learned from Acute Decompensated Heart Failure
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Background: Worsening renal function (WRF) commonly affects patients with acutely decompensated heart failure (ADHF), and is associated with significant morbidity and mortality. The ability to predict WRF is limited.

Methods: In a prospective, blinded international study, 101 consecutive emergency department patients with ADHF were evaluated with bioimpedance vector analysis (BIVA), and blood was tested for blood urea nitrogen (BUN), creatinine, estimated glomerular filtration rate (eGFR), amino-terminal pro-B type natriuretic peptide (NT-proBNP), BNP, ST2, and neutrophil gelatinase associated lipocalin (NGAL). The primary endpoint was in-hospital WRF (defined as rise in creatinine by ≥0.3 mg/dL or ≥25% from baseline). The secondary endpoint was a composite of in-hospital WRF/ death.

Results: 26% developed WRF and 8% died. Baseline characteristics of subjects developing WRF were generally similar to those who did not, including similar initial diuretic dose. Results for BIVA, BUN, creatinine, eGFR or ST2 were not associated with either endpoint, while NT-proBNP (4846 vs 3024 pg/mL; p =.04), BNP (609 vs 435 pg/mL; P =.05) and NGAL (234 vs 174 pg/mL; P =.05) were each associated with WRF, and were most prognostic when used in combination (FIGURE). NT-proBNP, BNP and NGAL were similarly predictive of the secondary endpoint (P =.01).

Conclusions: In patients with ADHF, the combination of NT-proBNP/BNP and NGAL at presentation predicts impending WRF and WRF/in-hospital death (NCT#01570153).