PREVALENCE, PREDICTORS AND EFFECTS OF NESIRITIDE ON CHANGES IN RENAL FUNCTION DURING HOSPITALIZATION FOR ACUTE DECOMPENSATED HEART FAILURE: RESULTS FROM ASCEND-HF

Poster Contributions
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Background: Contradictory results have been reported on the effects of nesiritide on renal function in patients with acute decompensated heart failure (ADHF). We studied 1. prevalence and predictors on changes in renal function, 2. association of changes in renal function with clinical outcome, 3. effects of nesiritide on renal function in a large randomized clinical trial in patients with ADHF.

Methods: 7141 patients who were hospitalized with ADHF were randomized to receive either nesiritide or placebo for 24 to 168 hours in addition to standard of care. Baseline and discharge creatinine and blood urea nitrogen (BUN) measurements were available in 4708 patients. Worsening renal function was defined as an increase of serum creatinine of >0.3 mg/dL and >25% during hospitalization. Clinical events were the separate and combined end points of death from any cause and rehospitalization for heart failure at 30 days.

Results: Median (IQR) baseline creatinine was 1.2 (1.0-1.6) mg/dL, and decreased slightly to a median of 1.1 (0.9-1.5) mg/dL during hospitalization. Median baseline BUN was 25 (18-38) units and decreased slightly to 24 (17-36) units during hospitalization. Changes in both serum creatinine and BUN were similar in nesiritide and placebo treated patients (P=0.2029 and P=0.4117 respectively). In a multivariate model, independent predictors of an increase in serum creatinine were a lower baseline BUN, higher systolic blood pressure, lower diastolic blood pressure, and lower baseline potassium (all P<0.0001). The frequency of worsening renal function during hospitalization was similar in the nesiritide and placebo group (14.1% and 12.8% respectively, odds ratio with nesiritide 1.12 (0.95-1.32) P=0.1892) and was not associated with clinical events at 30 days. However, both creatinine at baseline and at discharge were associated with outcome; the relationship was stronger for the discharge value (Chi-square 61 vs 41 for mortality, and 118 vs 108 for the combined endpoint respectively).

Conclusions: Nesiritide did not affect renal function in patients with ADHF. Discharge renal function, but not worsening renal function, was associated with short-term clinical outcomes.