

# Safety and Efficacy of Intermittent, Short-Term, Outpatient Nesiritide Infusions for the Treatment of Decompensated Heart Failure

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## Objective

Nesiritide is a novel new intravenous natriuretic protein available for treatment of decompensated heart failure (HF). Because of its impact on central and peripheral hemodynamics including left ventricular filling and lack of arrhythmogenesis, we sought to evaluate the safety and efficacy of intermittent outpatient nesiritide infusions in patients with previous HF hospital admissions, ongoing evidence of volume overload on maximal medical therapy including ACE inhibitors and beta-blockers.

## Methods

We performed a case-controlled study of 16 patients (4 women, 12 men) aged 49-83 years (mean 67) with HF (9 ischemic, 2 idiopathic, 5 hypertensive).

Patients were selected if they had evidence of recurrent volume overload following a HF admission not responsive to diuretics alone. All patients were taking ACEI or ARB and 13 (81%) were on beta-blocker. Nesiritide was given as a 2 mcg/kg bolus followed by a 4-hour infusion at 0.01 mcg/kg/min, along with IV loop diuretics. The average number of treatments is 4.8 (range 1-12).

All patients were followed for 3 - 58 weeks following the final nesiritide infusion. Impedance cardiography (BioZ®, CardioDynamics) was performed at baseline and just prior to the final nesiritide infusion.

## Results

In the 16 patients there were no episodes of symptomatic hypotension or arrhythmia during any treatment periods. All patients diuresed with a mean weight loss of 14 lb (4-46, mean 5.6% of total body weight).

At a mean follow up of 30 weeks, there have been no recurrent admissions and improved functional class from 3.4 pre to 2.1 at last follow up. Cardiac index (L/min/M<sup>2</sup>) trended toward improvement from 2.4 (pre) to 2.6 (post)(p= NS). Systemic vascular resistance (SVR) was significantly improved from 1343 dynes/sec/cm-5 (pre) to 1086 (post)(p=0.02) and thoracic fluid content (TFC) was also significantly improved 49.4 (pre) to 37.5 (post)(p=0.002). There were no significant changes in serum creatinine.

## Conclusions

In a HF population at high risk for recurrent decompensation and rehospitalization, short term, outpatient nesiritide produces effective diuresis and improved hemodynamics with a suitable safety profile.

Because of these effects and previously known favorable effects on circulating neurohormones, brief intervals of intermittent outpatient nesiritide infusions may have a role in improving the clinical symptoms and quality of life and attenuate recurrent admissions for patients with decompensated HF who have become refractory to standard therapy. The logistics, frequency, dose and duration of therapy remains to be determined as well as its impact on survival.