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Title : Heart failure specialist nurse-led day case ambulatory management with intravenous diuretics reduces hospitalisations for acute decompensated heart failure irrespective of ejection fraction

Topic : 11.4.3 - Acute Heart Failure: Multidisciplinary Interventions

Category : Bedside

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Option : Nursing and Allied Professions Investigator Award

On Behalf : Aintree Ambulatory Heart Failure Unit

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#### Introduction

Acutely decompensated heart failure (ADHF) leads to frequent hospitalisations and prolonged in-patient stay. A specialist nurse-delivered HF unit with a multi-disciplinary approach could safely manage these patients in an ambulatory setting without the need for hospitalisation.

#### Purpose:

Our ambulatory HF unit (AHFU) receives referrals from emergency department, primary care and community teams. The unit provides intravenous (IV) bolus furosemide (if required) at 4mg/mt in an ambulatory setting. A multi-disciplinary approach is used through regular input from day-case renal, pleural and ascites clinics, as well as palliative care team. We analysed the efficacy of ambulatory management of ADHF and compared the outcomes based on the ejection fraction (EF).

#### Methods

335 consecutive patients (479 patient visits) who received IV furosemide in the AHFU from December 2014 to December 2017 were included in this study. Mean follow-up was 10±6.7 months. Hospitalisations were compared for an equal period pre and post-AHFU treatment. Statistical analysis was performed using One Way ANOVA or Student's T test.

#### Results

53% (179/335) patients had HF with reduced EF (HFREF), 35% (117/335) had HF with preserved EF (HFPEF) and 12% (39/335) had HF with mildly reduced EF (HFmREF). HFPEF patients were significantly older (median age 80; range 40-97; p=0.02) than HFmREF (76 years; range 28-93) or HFREF patients (76.5 years; range 18-96). There were more males in the HFREF group (76% vs. 53% in HFPEF and 59% in HFmREF groups). HFREF patients also had higher BNP levels (median 4555 ng/L range 267-35000; p<0.001) versus 2057 ng/L (range 215-35000) in HFPEF and 1807 ng/L (range 236-11741) in HFmREF. Baseline renal function (measured by eGFR) was similar in the 3 groups (HFREF mean 49±20 ml/min; HFPEF 49±17 ml/min and HFmREF 46±17 ml/min; p=0.6).

HFPEF patients required a higher dose of IV furosemide (median dose 200 mg, range 60-440mg; p=0.02) as well as a higher number of visits (mean 5.3±2.5; p<0.001) compared to HFREF patients (median dose 180mg; range 40-400 and mean no. of visits 4±2) and HFmREF groups (median dose 200mg, range 80-480 and mean no. of visits 4.3±2.1). HF hospitalisations reduced significantly in the HFREF group (mean 0.97±0.42 pre-AHFU service to 0.45±0.1 post-AHFU treatment; p<0.001), in HFPEF group (0.88±0.4 pre-AHFU to 0.4±0.1 post-AHFU; p<0.001) and in the HFmREF group (0.84±0.35 pre-AHFU to 0.37±0.15 post-AHFU; p<0.001). Mortality during the follow-up period was the highest in the HFREF group (33%; p=0.03) when compared to HFmREF (12%) and HFPEF (24%).

#### Conclusions

A specialist HF nurse-led ambulatory unit can lead to a significant reduction in hospitalisations for ADHF irrespective of the EF. HFPEF patients are generally older, require higher diuretic doses and more prolonged treatment compared to other sub-groups. Further research is required to ascertain if this could be due to a higher degree of diuretic resistance.

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