Heart Failure – Chronic Heart Failure,
Pathophysiology and Mechanisms, Heart Failure with Preserved Ejection Fraction (HFpEF)

737

Recurrent heart failure hospitalizations in patients with preserved ejection fraction: predictors and outcome

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Background: Heart failure with preserved ejection fraction (HFpEF) is the most common form of HF and its prevalence is approaching epidemic proportions. Current treatment strategies aim to improve clinical status and reduce mortality rates. Episodes of acute HF are one of the main reasons for hospitalization in people over 65 years; however, they have not been well studied in HFpEF patients yet.

Objectives: The aim of this study was to investigate the impact of recurrent HF hospitalizations on long-term outcomes and to find predictors for subsequent events.

Methods: Between December 2010 and December 2019, 422 patients with confirmed HFpEF were enrolled in this study and prospectively followed.

Results: During follow-up, 190 HFpEF patients (45%) experienced HF hospitalizations with a median frequency of 2 (IQR: 1–4). Those presenting with acute HF had higher body mass indices (p=0.018), worse performance in 6-minute walking tests (p<0.001), higher levels of N-terminal prohormone of brain natriuretic peptide (NT-proBNP, p<0.001) and, compared to stable patients, a larger proportion suffered from New York Heart Association functional class ≥ III (p<0.001). Furthermore, baseline left ventricular diastolic dysfunction (early mitral inflow velocity/early diastolic mitral annular velocity; p=0.002) as well as right ventricular afterload (pulmonary artery wedge pressure; p<0.001) were more pronounced in patients with acute deteriorations. Over the observation period 107 patients (25%) died. Kaplan-Meier curves revealed increasingly worse survival in patients with recurrent HF events (5-years survival: 1 HF event 66% vs ≥3 HF events 53%, p<0.001; Figure). Time to last hospitalization was a strong predictor of survival with an adjusted HR of 2.5 (95% CI 1.63–3.98; p<0.001) in multivariate Cox regression analysis. Predictors of recurrent HF hospitalization were 6-minute walking distance (OR: 0.07, CI 0.02–0.22; p=0.001), systolic pulmonary artery pressure (OR: 1.05, CI 1.03–1.07, p=0.001) and NT-pro BNP (OR: 4.92, CI: 2.68–9.04, p=0.001)

Conclusions: HFpEF patients experiencing recurrent HF hospitalizations have worse long-term outcome. Intensive efforts should be made to maintain HFpEF patients compensated over time.