Abstract: **P945**

The impact of prior ejection fraction on clinical outcomes in patients with heart failure with mid-range ejection fraction

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**Topic(s):**
Chronic Heart Failure – Epidemiology, Prognosis, Outcome

**Citation:**
Background: Heart failure (HF) patients are classified according to ejection fraction (EF). Although HF with mid-range EF (HFmrEF) is recognized in guidelines, neither the clinical characteristics nor the natural history of this cohort of HF patients are fully defined. The heterogeneity of the HFmrEF population, which includes some patients whose EF had previously been preserved (HFpEF) and others with reduced EF that had partially recovered (HFmrecEF), contributes to this uncertainty.

Purpose: To compare the clinical characteristics and outcomes of patients with HFmrEF according to whether they previously had preserved EF that had fallen over time or reduced EF that had partially recovered.

Methods: All patients at our institution in 2015 with a diagnosis of HF who had an echocardiogram with an EF measured between 40-50% and had at least one prior echocardiogram three months or more prior were included. Patients were classified into groups according to whether their EF either: improved from a prior EF of <40% (HFmrecEF), was consistently between 40-50% on all past echocardiograms (HFmrEF) or had been greater than 50% on all past echocardiograms before falling into mid-range (HFpEF). Data was collected through retrospective review of the electronic medical record. Multivariable Cox regression analyses for outcomes were adjusted for age, gender, CKD, CAD and atrial fibrillation.

Results: Of the 915 patients with EF 40-50%, 467 patients who did not have a prior echocardiogram for comparison were excluded. Among the remaining 448 patients, 157 (35%) had HFmrecEF, 67 (15%) had stable HFmrEF, and 224 (50%) previously had HFpEF. Patients with HFmrecEF were younger and were more likely to have a history of symptomatic HF and CKD. Patients with HFpEF were more likely to be female. Most other variables were similar in the 3 patient groups. Over a median follow-up time of 2.2 years, prior HFpEF when compared to HFmrecEF patients exhibited a trends towards higher all-cause mortality (adjusted HR 1.52, 95% confidence interval [CI] 0.96-2.41, p=0.074), higher likelihood of all-cause hospitalization (adjusted HR 1.38, CI 1.01-1.09, p<0.04), and higher likelihood of the composites of all-cause mortality and HF hospitalization (adjusted HR 1.6, CI 1.02-2.21, p<0.02) and cardiovascular mortality and HF hospitalization (adjusted HR 1.71, CI 1.09-2.69, p=0.02). No significant differences in outcomes between HFmrecEF and HFmrEF were seen.

Conclusion: These findings demonstrate the diversity of the HFmrEF population. They suggest that the natural history of patients identified by an EF in the 40-50% range differs depending on their prior EF. Notably, HFpEF patients whose EF had reduced into the 40-50% range were at higher risk for events than patients in the other sub-groups.
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