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Low systolic blood pressure on admission as a predictor of outcome in octogenarian patients with heart failure and preserved ejection fraction

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Background: Heart failure (HF) is an epidemic in healthcare worldwide including Asia. It appears that HF will become more serious with aging of the population. The patients with heart failure and preserved ejection fraction (HFpEF) were older, more often female, and frequently have comorbidities including hypertension. However, lower systolic blood pressure (SBP) on admission is associated with poor outcomes in patients with HF. It remains unclear whether this association is similar in very elderly patients with HFpEF.

Purpose: To investigate clinical features and prognosis in octogenarian HFpEF subjects.

Methods: We analyzed 87 consecutive subjects aged 80 years or older who were hospitalized for acute decompensated HF with left ventricular ejection fraction (LVEF) $\geq 50\%$ between 2015 and 2017. Clinical characteristics and a composite event of cardiac death and HF hospitalization were compared in two groups according to SBP cut-off of 140 mmHg on admission.

Results: The prevalence of lower SBP subjects (mean BP = 118 mmHg) and higher SBP (mean BP = 166 mmHg) subjects were 41.4% and 58.6%, respectively. Lower SBP subjects were more comorbid with atrial fibrillation (72.2 vs. 45.1%, $p=0.01$). In the lower SBP group, diuretics, mineralocorticoid receptor antagonists (MRA), beta-blockers and ACE inhibitors/ARBs were more commonly used than higher SBP group (Table). During the observational period (median = 1.0 year), lower SBP on admission was associated with a 2.65-fold [95% confidence interval (CI): 1.29–5.55, $p=0.009$] greater likelihood of experiencing the composite events of cardiac death and rehospitalization for HF (Figure). This observation was still consistent even after adjusting clinical demographics and comorbidity [hazard ratio = 2.95, 95% CI: 1.30–6.87, $p=0.01$].

Conclusions: In octogenarian patients with acute decompensated HF and preserved LVEF, SBP on admission less than 140 mmHg is significantly associated with poor outcomes. Future studies need to prospectively evaluate optimal SBP treatment goals in very elderly patients with HFpEF.

Table 1

	Lower SBP group (n=36)	Higher SBP group (n=51)	P-value
Atrial fibrillation (%)	72.2	0.01	0.01
Loop diuretic (%)	97.1	83.7	0.08
MRA (%)	47.1	24.5	0.04
Beta-blocker (%)	52.9	44.9	0.51
ACE inhibitor/ARB (%)	59.2	29.4	0.01

Comparison of Major Adverse Cardiac Events*

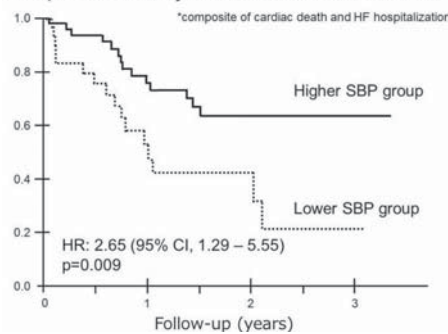


Figure 1