Anemia and 1-year outcomes in hospitalized patients with heart failure with preserved ejection fraction: Findings from the China Cardiovascular Association Database-Heart Failure Center Registry

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Background: Little evidence exists regarding the association of anemia and clinical outcomes in patients with heart failure with preserved ejection fraction (HFpEF).

Purpose: To determine the associations of anemia and clinical outcomes in HFpEF.

Methods: Data were from 575 China Cardiovascular Association Database-HF Center certified secondary and tertiary hospitals across overall 31 provinces of mainland China. Between January 2017 and December 2021, 48,992 HFpEF patients with an left ejection fraction (LVEF) ≥50% and hemoglobin (Hb) data were included. According to the World Health Organization criterion (Hb <12g/dL for women and <13 g/dL for men), participants were categorized into two groups (with and without anemia). The primary outcome was a composite of hospitalization for HF and cardiovascular (CV) death, and the secondary outcomes were all-cause hospitalization and all-cause death.

Results: Among the overall patients, 50.0% were men, the mean age was 72.2 years, and 48.1% (n = 23,570) had anemia. Compared with individuals without anemia, participants with anemia were older and more symptomatic, more likely to have New York Heart Association class III/IV, and had greater comorbid burden. At 1-year’s follow-up, anemia was independently associated with an increased risk of primary outcome (hazard ratio [HR]: 1.08, 95% CI: 1.03-1.12), all-cause death (HR: 1.30, 95% CI: 1.21-1.38), and all-cause hospitalization (HR: 1.06, 95% CI: 1.02-1.10). There was a trend toward increased risk of primary and secondary outcome with increasing severity of anemia (all P-trends were <0.05). The results were consistent in all the subgroups analyses (sex, age (≥75 and <75 years old), NYHA class (I/II and III/IV), eGFR (≥60 and <60 ml/min/1.73m2)). The restricted cubic spline showed significant nonlinear relationships between primary outcome and hemoglobin as continuous variable, with a risk nadir around 13-15g/dL.

Conclusion: Anemia was common in Chinese HFpEF patients and was an independent risk factor for adverse clinical outcomes at 1 year’s follow-up. Further studies are needed to evaluate whether ameliorating anemia can improve outcome in HFpEF patients.