

Prognostic significance of polyvascular disease in patients admitted with acute decompensated heart failure: the ARIC Study Community Surveillance

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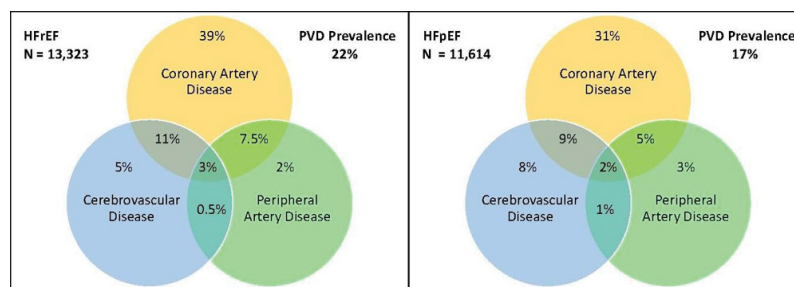
Introduction: The prevalence and outcomes of polyvascular disease (PVD) in patients admitted with acute decompensated heart failure (ADHF) have not been previously reported, nor is it known whether associations differ for heart failure (HF) with reduced vs. preserved ejection fraction (HFrEF vs HFpEF, respectively).

Purpose: To investigate the relationship between atherosclerotic involvement of multiple arterial territories and mortality in patients hospitalized with ADHF.

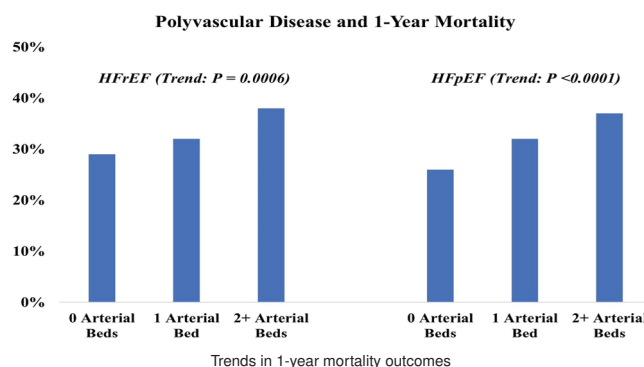
Methods: The Atherosclerosis Risk in Communities (ARIC) study conducted hospital surveillance of adjudicated heart failure in 4 US areas from 2005–2014, with events verified by physician review. Medical histories were abstracted from the hospital record. PVD was defined by coexisting disease in ≥ 2 arterial beds, identified by prevalent coronary artery disease, peripheral arterial disease, and cerebrovascular disease. Mortality hazards of PVD vs. no PVD were analyzed separately for HFpEF and HFrEF, with adjustment for age, race, sex, year of admission and geographic region. All analyses were weighted by the inverse of the sampling probability.

Results: Of 24,936 ADHF hospitalizations (52% female, 32% Black, mean age 75 years), 19% had PVD (22% among HFrEF hospitalizations, 17% among HFpEF hospitalizations), Figure 1. There was an increasing trend in 1-year mortality with 0, 1 and ≥ 2 arterial bed involvement, both for patients with HFrEF (29% to 32% to 38%; P-trend=0.0006) and HFpEF (26% to 32% to 37%; P-trend <0.0001). After adjustments, PVD was associated with a 20% higher hazard of 1-year mortality in patients with HFrEF (HR=1.23; 95% CI: 1.06–1.44) and a 30% higher hazard in patients with HFpEF (HR=1.33; 95% CI: 1.09–1.63), with no significant interaction by HF type (P-interaction = 0.5).

Conclusion: Patients hospitalized with ADHF and coexisting PVD have an increased risk of death, irrespective of HF type. Clinical attention should be directed toward PVD, with secondary prevention strategies enacted to improve the prognosis of this vulnerable population.



Distributions of arterial disease



Trends in 1-year mortality outcomes