

# Multimorbidity in Older Adults with Heart Failure



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## KEYWORDS

- Heart failure • Multimorbidity • Multiple chronic conditions • Geriatrics
- Quality of care • Health outcomes • Polypharmacy • Cognitive impairment

## KEY POINTS

- Multimorbidity is a common feature of heart failure in older persons that impacts diagnosis, management, and outcomes.
- Diagnosis of heart failure may be difficult in patients with multimorbidity, as many diseases commonly found in older persons produce dyspnea, exercise intolerance, fatigue, and weakness.
- Treatment of heart failure is complicated by multimorbidity, which creates high potential for drug-disease and drug-drug interactions in the setting of polypharmacy.
- Treatment of complex older persons with multimorbidity and heart failure should be patient-focused rather than disease-focused.
- The care of older patients with multimorbidity and heart failure should prioritize universal rather than disease-specific health outcomes, cognitive assessment, provision of non-pharmacologic treatments, minimization of treatment burden for patients and caregivers, and care coordination by multidisciplinary teams.

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## INTRODUCTION

Multimorbidity, or the presence of multiple chronic conditions (MCCs), is the rule and not the exception among older adults with heart failure (HF). Almost 90% of adults with HF have 2 or more additional chronic conditions,<sup>1</sup> and almost 60% have 5 or more.<sup>2</sup> Multimorbidity is especially common in persons with HF and preserved ejection fraction (HFPEF), the most common form of HF in the elderly.<sup>3</sup> In addition to this high comorbidity burden, older adults with HF are more likely to have common geriatric conditions that reduce life expectancy and quality of life, such as functional limitations, mobility disability, and cognitive impairment.<sup>4,5</sup>

Multimorbidity is also tightly linked to adverse outcomes. For example, chronic kidney disease and chronic obstructive pulmonary disease (COPD) predict a greater risk of hospitalization for HF, hospitalization for noncardiac conditions, and death among Medicare beneficiaries with HF.<sup>6</sup> Similarly, the presence of geriatric conditions, including mobility disability and dementia, is associated with both short-term and long-term mortality among persons with newly diagnosed<sup>5</sup> and longstanding<sup>4</sup> HF. The frequent presence of multimorbidity likely explains why most index hospitalizations and 30-day readmissions among older persons with HF are for conditions other than HF.<sup>7,8</sup>

Despite its importance, multimorbidity has only recently become a focus of research and clinical practice for cardiology specialty societies in the United States. In 2014, the American Heart Association (AHA), American College of Cardiology (ACC), and US Department of Health and Human Services jointly published “Strategies to Enhance Application of Clinical Practice Guidelines in Patients with Cardiovascular Disease and Comorbid Conditions.”<sup>9</sup> This statement demonstrated a commitment by the AHA and ACC to have all future clinical practice guidelines explicitly discuss the applicability and quality of guideline recommendations for patients with common combinations of comorbidities. This initiative was followed by a joint workshop of the ACC, American Geriatrics Society, and National Institute on Aging to improve care for persons with MCCs by identifying their unmet needs, formulating a research agenda, and developing strategies to translate findings into improved care.<sup>10</sup>

In light of the increasing focus on MCCs in clinical research and guideline development, the aim in this review of multimorbidity in older adults with HF is to synthesize previous research to provide clinically useful information to improve patient outcomes. First described is the epidemiology of specific cardiovascular, noncardiovascular, and geriatric conditions among older patients with HF. Then, difficulties created by multimorbidity are described for the diagnosis and treatment of HF. Finally, specific recommendations are made for treating older patients with MCCs and HF. These recommendations are consistent with a patient-centered rather than a disease-centered framework for conceptualizing both treatment and outcomes.

## EPIDEMIOLOGY OF MULTIMORBIDITY IN HEART FAILURE

Older patients with HF typically have MCCs. As might be expected, these persons frequently have other cardiovascular conditions in addition to HF, with exact estimates varying by the data source used and the study population. For example, administrative data have shown that among Medicare beneficiaries with HF who are 65 years of age and older, 86% have hypertension, 72% have ischemic heart disease, and 29% have atrial fibrillation.<sup>9</sup> Similarly, prospectively collected interview and examination data from the National Health and Nutrition Examination Survey (NHANES) found that among persons with HF across all ages, 73% have hypertension, 48% have had a myocardial infarction, 27% have angina, and 20% have had a stroke.<sup>2</sup> The

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