

# Advanced heart failure in older adults: integrating palliative care

## Opinion

Advanced heart failure (AHF) in older adults must be interpreted within the context of accelerated population ageing, which is reshaping the epidemiology of cardiovascular disease. In the United States, the population aged  $\geq 75$  years is projected to double between 2022 and 2050; in this group, the prevalence of heart failure reaches 10.1% among those aged  $\geq 80$  years, with a predominance in women owing to the greater burden of heart failure with preserved ejection fraction.<sup>1</sup> Heart failure remains the leading cause of hospitalisation among older adults, with rehospitalisation rates approaching 70% within the first year in advanced stages of the disease.<sup>2</sup> This demographic shift is expected to result in a sustained increase in cases of AHF within complex geriatric populations.<sup>1</sup>

AHF is characterised by persistent New York Heart Association class III–IV symptoms despite optimal medical therapy, low cardiac output or refractory congestion, recurrent hospitalisations, and progressive intolerance to guideline-directed medical therapy, reflecting a critically reduced cardiovascular reserve.<sup>3</sup> In older adults, its clinical expression is shaped by multimorbidity, frailty, cognitive impairment, functional dependency and polypharmacy—factors that influence both eligibility for and proportionality of advanced interventions. In geriatric patients, therefore, AHF extends beyond a purely haemodynamic definition and should be regarded as a multidimensional clinical syndrome that compromises autonomy, quality of life and social support.<sup>2</sup>

Accelerated biological aging, common in older adults with advanced heart failure, has been linked to reduced Sirtuin 1 (SIRT1) activity. Decreased SIRT1 signaling contributes to oxidative stress, inflammation, mitochondrial dysfunction, and metabolic problems across cardiovascular and other organ systems. Experimental and translational research shows that activating SIRT1—especially through the NAD<sup>+</sup>/SIRT1 axis—may improve metabolic resilience and confer heart-protective effects, whereas SIRT1 inhibition has not shown therapeutic benefits in this context.<sup>4</sup>

Clinical worsening of heart failure, manifested by episodes of decompensation requiring hospitalisation or intensification of therapy, represents a dynamic marker of progression to advanced stages.<sup>3</sup> In older adults, each hospital admission not only affects cardiovascular prognosis but also accelerates functional decline, increases medication burden and heightens vulnerability to non-cardiovascular events.<sup>2</sup> Early recognition of these episodes should prompt therapeutic adjustment, periodic reassessment of treatment proportionality, and structured discussions regarding goals of care alongside the concurrent integration of palliative care.<sup>5</sup>

In high-complexity centres, AHF management is organised as a continuum of intensive decongestion and stepwise haemodynamic support. Following decompensation, significant escalation of

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intravenous diuretics during hospitalisation is prioritised and, where intravenous access is not feasible, intensive optimisation of oral therapy in the ambulatory setting may be undertaken to restore euvolaemia and reduce readmissions. In cases of refractory congestion, sequential nephron blockade using thiazides or intravenous acetazolamide may be considered and, in selected patients, ultrafiltration. When low output or hypoperfusion predominates, inotropes may be employed either as a bridge to advanced therapies or as palliative support in patients not eligible for durable mechanical circulatory support or transplantation. Temporary mechanical circulatory support may serve as a “bridge-to-decision” strategy in critical scenarios, although uncertainty remains regarding the optimal timing of transition to definitive therapies.<sup>3</sup>

Recent scientific statements support the longitudinal integration of palliative care into the management of advanced heart failure, distinguishing between primary and specialist palliative care competencies.<sup>5–7</sup> This approach is not confined to end-of-life care but encompasses structured communication, shared decision-making, advance care planning, and comprehensive management of refractory symptoms such as persistent dyspnoea and anxiety, alongside support for caregivers from the earlier stages of advanced disease. Nonetheless, a significant gap persists in geriatric populations: the absence of algorithms that systematically incorporate comprehensive geriatric assessment—including functional, nutritional, neurological, psychiatric and socio-economic domains—as a means of actively identifying potentially modifiable factors and optimising the overall condition of older adults with AHF,<sup>5</sup> in a context where individuals aged  $\geq 75$  years remain underrepresented in the evidence underpinning contemporary guidelines.<sup>1,3</sup>

In hospitalized older adults with heart failure, malnutrition and frailty are strongly linked to adverse outcomes.<sup>8</sup> Hypoalbuminaemia highlights the pathophysiological connection between nutritional decline and disease progression: beyond being a marker of inflammation and catabolic stress, reduced serum albumin impairs oncotic pressure, facilitates fluid redistribution, and increases the risk of congestion and decompensation.<sup>9</sup> These findings emphasize the importance of early nutritional assessment and targeted metabolic support within interdisciplinary approaches that include cardiology, geriatrics, and palliative care, as biological vulnerability and nutritional deficits significantly influence the course of advanced heart failure.<sup>8,9</sup>

Within this framework, the management of AHF in older adults requires structured care models that integrate cardiology, geriatrics, and palliative care.<sup>6,7</sup> The implementation of interdisciplinary advanced heart failure units represents a proportionate response to the biological, functional and ethical complexity of this population.<sup>2,6</sup> Such models may facilitate treatment decisions aligned with frailty status and patient values, optimise the selection and reassessment of advanced therapies, reduce potentially avoidable hospitalisations, and promote care trajectories centred on quality of life—an approach that should be regarded as a fundamental standard of care.<sup>5,7</sup>

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## Conflicts of interest

Declare if any conflict of interest exists.

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