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Age is just a number, not a therapeutic obstacle

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Acute myocardial infarction (AMI) with systolic heart failure (HF) is a leading cause of morbidity, hospitalization, and mortality in older adults worldwide. The average age of patients with non-ST-elevation myocardial infarction (NSTEMI) and associated HF is increasing. Their management is complicated by a plethora of co-morbid conditions, polypharmacy, cognitive impairment, and poor functional capacity that increases the complexity of therapeutic decision making [1]. Despite this high real-world burden of disease in the elderly, the mean age of participation in large randomized controlled trials was approximately 60 years old. Fewer than 30% of participants were older than 70 years; octogenarians were rarely included and were overtly excluded in some studies.

When considering therapeutic decision making, there has been a historical reticence for aggressive medical/procedural therapy in the elderly due to age-related associations of polypharmacy and frailty with adverse outcomes [2]. These factors contribute to decreased prescriber compliance with guideline-directed medical therapy (GDMT). Studies of these patients generally support the current findings; that prescriber compliance in the very elderly is only 50–85% depending on the class of medication. [3]

This study is a retrospective review of a large very elderly (>80 yo) cohort from the SWEDEHEART registry presenting with AMI that provides important insights into the efficacy of medical therapy and interventions in HF stratified by left ventricular ejection fraction (LVEF). This is the largest cohort trial performed to date examining clinical therapies in the AMI population with data on revascularization, medication use, and LVEF, encompassing 6287 patients. Their findings largely confirm guideline recommendations based upon previous clinical trials (albeit in younger patient cohorts). The mortality trends associated with discharge LVEF after an index hospitalization of AMI are consistent with findings from data published by the thrombolysis in myocardial infarction (TIMI) investigators [4]. Likewise, the mortality benefits associated with established GDMT are well supported by studies that underpin current guideline recommendations. However, the revelation that mortality associations with adherence to GDMT have a similar, and significant effect on reducing mortality in the very elderly is novel (see Table 5 and Figs. 2A–F in the manuscript). Putting this into context with available data, the TIME-CHF trial showed no benefit in elderly patients >75 yo with GDMT [5]. However, other retrospective studies in the very elderly, albeit with smaller cohorts align with those of this SWEDEHEART cohort [3,6]. One way to help resolve the controversy would be to compile these studies into a meta-analysis of GDMT effects in very elderly patients.

The literature on the effects of percutaneous coronary intervention (PCI) or other modes of revascularization are not robust in the very elderly population; most trials have relatively low numbers and are retrospective in nature. Some studies suggest that mortality and bleeding increases and procedural success decreases with advancing age [7]. However, Degano and colleagues found improved in-hospital mortality with revascularization (versus medical therapy alone) in a subset of their 79,791 patients with AMI that were >75 yo [8].

Although the authors this SWEDEHEART trial do not analyze the significance of mortality differences between revascularized and non-revascularized groups, the absolute decrease in 1-year mortality approached 20% across all LVEF groups in patients that had revascularization and suggest that a positive effect is present. When taken in the context of other studies of safety and efficacy, the case for performing PCI in AMI patients regardless of age can be made [9,10].

Although retrospective in nature, the SWEDEHEART trial is the largest of its kind in assessing cardiac function and therapies in very elderly patients with AMI and provides support for more aggressive medical therapy and revascularization in this patient population. The associations are well-supported by head-to-head trials in younger populations, which suggests that the physiological underpinnings of established GDMT do not change significantly with advancing age. As such, our current dogma that advanced age necessitates more conservative therapies may not be in the best

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interests of our patients. In our humble opinion age should not be a significant factor in decisions to offer GDMT in clinical practice. As our population ages and the epidemiological impact of age-based decision making increases, public health funding for randomized-controlled studies in the elderly should be made available to solidify guideline recommendations and improve clinical decision-making in our very elderly patients.

Declaration of Competing Interest

The authors report no relationships that could be construed as a conflict of interest.

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