Navigating myocardial infarction in the oldest: Aging hearts, new challenges

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Related article
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Despite important advancements in interventional cardiology, myocardial infarction (MI) remains a formidable challenge in modern medicine, particularly among the elderly, who often present with unique clinical complexities and frailty and are burdened by extremely high mortality and complication rates [1]. Age, in fact, is one of the most important predictors of short- and long-term mortality after an MI due to its association with comorbidities and frailty [2].

Risk stratification of these patients is challenging because no dedicated risk score has been widely integrated into clinical practice. Thus, the choice of an invasive management in old patients with MI, especially non–ST-segment elevation acute coronary syndrome (NSTE-ACS), is often left to physician judgment and has been questioned in the last years.

On the other hand, as the global population ages, the number of octogenarians and nonagenarians presenting with MI will undoubtedly rise in the next years.

In a recent meta-analysis, including randomized controlled trials comparing invasive versus a conservative strategy for older patients (age ≥75 years) with NSTE-ACS, no evidence was found that routine invasive treatment reduces the risk of a composite of all-cause mortality and MI within one year compared with conservative management. However, there is convincing evidence that invasive treatment significantly lowers the risk of repeat MI or urgent revascularization [3].

The recently published SENIOR RITA trial, a prospective, multicenter, randomized trial involving patients 75 years of age or older (median age of 83 years), with NSTE-ACS at 48 sites in the United Kingdom, showed that an invasive strategy did not result in a significantly lower risk of cardiovascular death or nonfatal myocardial infarction during the follow-up [4].

Interestingly, in the SENIOR RITA trial, using contemporary angiography and interventional strategies, bleeding and procedure-related complications were minimal.

In this context, the study published in the current issue of the *Polish Heart Journal* by Kupisz-Urbańska et al. [5] provides some new insights into ACS treatment in very old patients.

The authors analyzed all patients aged at least 90 years hospitalized and diagnosed with acute MI in Poland between 2014 and 2020. A total of 14 970 patients with a median age of 93 years were included, mostly women (70%). In this cohort, coronary angiography was performed in 47.0% of patients, percutaneous coronary intervention in 39.8%, and coronary artery bypass grafting in 0.2% of patients. In-hospital mortality among nonagenarians with MI remains alarmingly high at 27.8%, with women experiencing higher mortality rates than men (29.0% vs. 25.1%). One-year all-cause mortality following discharge was 38.1%, the composite endpoint of all-cause death, MI, or stroke occurred in 42.6% of patients, while 59.0% experienced either death or cardiovascular hospitalization within a year.

This is one of the largest registries of very old patients admitted for MI. The median age

and the extremely high percentage of women included, differently from all previous published studies, make it unique in his field.

Interestingly, invasive management was associated with lower risk of mortality and major adverse events at follow-up. This is in contrast with the SENIOR RITA trial results; however, in the current study also ST-segment elevation myocardial infarction patients were included, and these patients, although very old, could probably benefit from an invasive revascularization and reopening of the occluded vessel, thus reducing the risk of heart failure development and mortality, both at short- and long-term follow-up [6]. Unfortunately, the authors did not present any sub-analysis on ST-segment elevation myocardial infarction vs. NSTE-ACS outcomes, preventing definite conclusions to be drawn on this topic [7].

The study identified several factors independently associated with higher in-hospital mortality, including advanced age, heart failure, atrial fibrillation, diabetes, and a history of stroke. Conversely, male sex, hypertension, prior MI, and invasive management were associated with reduced in-hospital mortality, suggesting that aggressive treatment strategies may confer benefits, even in this elderly cohort.

Moreover, participation in managed care programs following MI was linked to a lower risk of death or hospitalization for cardiovascular reasons. These findings reinforce the importance of structured, multidisciplinary follow-up care in improving outcomes for elderly patients.

Further studies are needed to precisely describe the correlation between comorbidities, ageing processes, and other factors influencing clinical outcomes of myocardial infarction in aged patients. However, age alone should not be seen as the reason not to perform an invasive treatment in very old MI patients.

Article information

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