THE AMERICAN JOURNAL of MEDICINE®

Outcomes after Myocardial Infarction in Older Adults: Where Should We Go from Here?

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Increasing age is a potent risk factor for the development of atherosclerotic cardiovascular disease, and it is also a powerful predictor of adverse outcomes following an incident cardiovascular event. Further, the epidemiology of atherosclerotic cardiovascular disease evolves with age, and the relative incidence of non-ST-elevation acute coronary syndromes increases while that of ST-elevation myocardial infarction decreases. As the size of the older population continues to increase in the US and around the world, the global burden of atherosclerotic cardiovascular disease in older adults will inevitably increase.[1] It is thus critically important, from the public health perspective, to understand current practice patterns and outcomes associated with atherosclerotic cardiovascular disease in older people.

In the current issue of ***The American Journal of Medicine***, Lopes et al[2] provide detailed, age-specific data on treatment patterns and 1-year mortality and rehospitalization rates in 36,771 patients ≥65 years of age who survived an index admission for non-ST-elevation myocardial infarction (NSTEMI) from 2003-2006. Consistent with prior studies, increasing age was associated with reduced utilization of all standard medical and interventional therapies, with the exception, perhaps surprisingly, of beta-blockers. Most strikingly, the proportion of patients undergoing cardiac catheterization decreased from 78.7% in the 65−79-year age group, to 15.5% among patients ≥90 years of age. Correspondingly, percutaneous coronary intervention was performed in 44.3% vs 9.8% of patients aged 65-79 years and ≥90 years, respectively. Prescriptions for statins at discharge also decreased from 80.9% to 56.0% in these age categories.

With respect to 1-year outcomes, among patients aged 65-79, 80-84, 85-89, and ≥90 years, mortality increased progressively from 13.3% to 23.6%, 33.6%, and 45.5%. More than half of patients were re-hospitalized within 1 year, a substantial proportion of readmissions were for noncardiovascular causes, and, surprisingly, readmission rates were similar across age groups.

Strengths of this study include the robust sample size, with over 5000 patients 85-89 years of age and nearly 2800 patients ≥90 years of age; comprehensive data collection by trained abstractors at the time of index admission; and nearly complete follow-up with respect to 1-year mortality and readmissions. The authors acknowledge several limitations, including the lack of data on certain comorbid conditions (eg, chronic lung disease, malignancy), procedures (defibrillators), and other parameters (left ventricular function) that may have impacted outcomes. In addition, information on baseline functional status, cognition, and patient preferences was not available; these factors may have led some patients to decline aggressive therapy or choose palliative care, thereby contributing to increased mortality and relatively lower likelihood for readmission, especially among the very elderly. Data on key functional outcomes in this age group, such as quality of life and maintenance of independence, were also unavailable. Finally, baseline data collection occurred approximately 10 years ago and management of NSTEMI has evolved in the intervening period; thus, the applicability of the findings to contemporary patients is uncertain.

An important question that remains unanswered by this study is the extent to which the occurrence of an NSTEMI shortens lifespan among older adults. Thus, it is not surprising that increasing age confers worse prognosis in this

Table Life Expectancy by Age in Men and Women

Men, life expectancy in years						
Age, y	70	75	80	85	90	95
Healthy	18.0	14.2	10.8	7.9	5.8	4.3
Average	12.4	9.3	6.7	4.7	3.2	2.3
Frail	6.7	4.9	3.3	2.2	1.5	1.0
Women, life expectancy in years						
Age, y	70	75	80	85	90	95
Healthy	21.3	17.0	13.0	9.6	6.8	4.8
Average	15.7	11.9	8.6	5.9	3.9	2.7
Frail	9.5	6.8	4.6	2.9	1.8	1.7

Funding: None.

Conflicts of Interest: None.

Authorship: The author is solely responsible for writing this manuscript.

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http://dx.doi.org/10.1016/j.amjmed.2015.02.009

population; indeed, as shown in the **Table**, advancing age is associated with marked curtailment of median survival in the general population, and this is modulated further by health status. It would therefore be of interest to compare 1-year outcomes, including mortality, hospitalizations, and quality of life, following NSTEMI to those in the general population as a function of age, sex, race/ethnicity, and a host of other factors, such as prevalent comorbid conditions, geriatric syndromes, baseline health status, and other demographic variables (eg, socioeconomic status, education, region of residence). From the clinical perspective, these issues are of great importance because of their implications for decision-making. Simply knowing that a nonagenarian presenting with NSTEMI has a 50% chance of dying within 1 year (including hospital mortality) is insufficient to guide practice; what we need to know is the impact of pharmacologic, invasive, and behavioral (eg, cardiac rehabilitation) interventions on clinical outcomes that are meaningful and important to each individual patient. Thus, while Lopes et al[2] have provided high-quality benchmark data on select 1-year outcomes following NSTEMI in older patients, there is a compelling need for additional research that will enable more informed patient-centered decision-making in this growing population.

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