

Multiple Chronic Conditions in Older Adults with Acute Coronary Syndromes



Joakim Alfredsson, MD, PhD^{a,b,c}, Karen P. Alexander, MD^{c,*}

KEYWORDS

- Acute coronary syndrome • Myocardial infarction (MI) • Older adults
- Multiple chronic conditions • Type 2 MI

KEY POINTS

- Multimorbidity is increasingly prevalent among older adults presenting with acute myocardial infarction, and includes both cardiovascular (CV) (heart failure, hypertension, and arrhythmias) and non-CV (anemia, chronic kidney disease, and depression) conditions.
- Hospital mortality and length of stay increase in a dose-dependent fashion with the number of CV and non-CV comorbidities.
- Evidence-based recommendations for patients with multiple chronic conditions (MCCs) are not available, as such patients are often excluded from randomized clinical trial populations.
- Type 2 myocardial infarctions (MIs), due to mismatch in oxygen supply and demand, are common with comorbid disease presentations (eg, chronic obstructive pulmonary disease, pneumonia, atrial fibrillation) and carry a twofold higher mortality rate than other MI types.
- Individualized decision making is recommended, as the presence of MCC may shift risk-benefit ratios of standard treatments.

INTRODUCTION

Multimorbidity (≥ 2 conditions) is present in up to 70% of older (age ≥ 65 years) community-dwelling populations.^{1,2} With older age, comorbidity dyads (2 conditions) and triads (3 conditions) more often include cardiovascular (CV) risk factors, and the risk for an acute coronary syndrome (ACS) rises commensurately. As the age of the population with myocardial infarction (MI) increases, so too does the accompanying comorbidity burden.³ Comorbid conditions in ACS populations can be classified as

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^a Department of Cardiology, Linköping University, Linköping, Sweden; ^b Department of Medical and Health Sciences, Linköping University, Linköping, Sweden; ^c Duke Clinical Research Institute, Duke University Medical Center, Durham, NC 27710, USA

* Corresponding author.

E-mail address: Karen.alexander@duke.edu

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concordant or discordant to the CV disease causal pathway.⁴ Concordant comorbidities include CV risk factors, stroke, and peripheral vascular disease, whereas discordant comorbidities include anemia, chronic kidney disease (CKD), chronic obstructive pulmonary disease (COPD), and cancer.

ACSs include non-ST-elevation MI (NSTEMI), ST-elevation MI (STEMI), and unstable angina, with diagnosis based on biomarker elevation along with symptoms or electrocardiogram (ECG) changes indicating ischemia. With increasingly sensitive biomarker assays, elevation of troponins above the MI detection limit is frequently found among those presenting for cardiac conditions other than ACS, such as heart failure (HF) or arrhythmias. Troponin also may be elevated in patients presenting with noncardiac illnesses, such as COPD, anemia, or severe infections, especially if septicemia is present. The universal definition of MI distinguishes between 2 primary MI presentations: type 1 MI caused by plaque rupture with thrombus formation, and type 2 MI caused by oxygen supply and demand mismatch.⁵ Clinically distinguishing between these MI types may be challenging.

Almost 50% of patients with troponin elevations in the emergency room have presenting diagnoses other than ACS.⁶ Also among MI populations, approximately 26% of all MIs are type 2 MIs.⁷ Patients with type 2 MIs are older and have more comorbidity (anemia, COPD, and renal failure) compared with those with type 1 MIs. These patients also have lower peak troponins, receive less invasive care, and are discharged on fewer cardiac medications. Importantly, mortality with type 2 MIs was nearly 50% at 2 years, and twofold higher than with type 1 MIs⁸ (Fig. 1). Understanding the significance and typical patterns of troponin elevations in the setting of comorbid illness is of utmost importance. This will better inform the treatment of an ACS in the context of comorbid diseases. It will also help clarify which troponin elevations reflect an MI, and which are present only due to underlying coronary disease and represent myocardial injury instead of myocardial infarction.

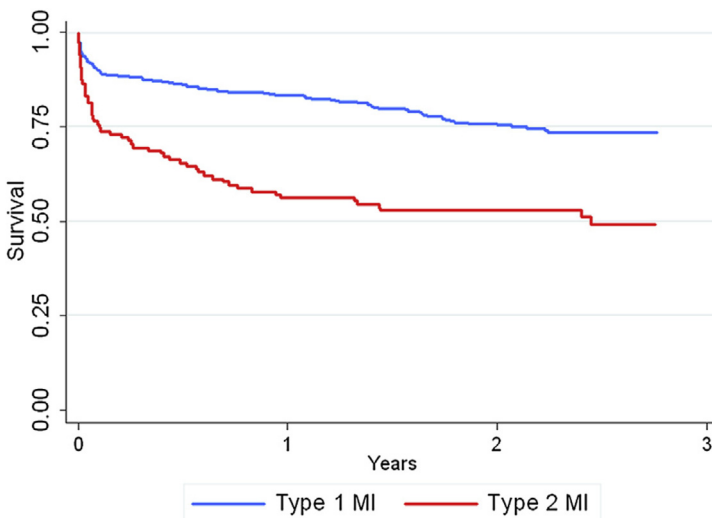


Fig. 1. Kaplan-Meier survival curves according to classification of myocardial infarction as type 1 and type 2. (From Saaby L, Poulsen TS, Diederichsen AC, et al. Mortality rate in type 2 myocardial infarction: observations from an unselected hospital cohort. *Am J Med* 2014;127:299; with permission.)

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