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In Cardiology

Not All Type 2 Myocardial Infarctions Are Alike Karol E. Watson, MD, PhD, FACC, reviewing Bularga A et al. JAMA Netw Open 2022 Jul 11 Type 2 MI related to hypoxemia or anemia carried a greater 1-year mortality risk than type 1 MI. Type 2 myocardial infarction (MI) is due to myocardial oxygen supply-demand imbalance, which is caused by various underlying factors. Type 2 myocardial infarction (MI) is defined by a rise and fall of cardiac biomarkers and evidence of ischemia without unstable coronary artery disease (CAD), due to a mismatch in myocardial oxygen supply and demand. Myocardial injury is similar but does not meet clinical criteria for MI. Whether these different etiologies carry different prognoses is unclear.

In a secondary analysis of clinical trial data, investigators examined the prevalence and outcomes of different factors associated with oxygen supply-demand imbalance in patients with type 2 MI. Among 6,096 patients (median age, 70 years; 43% women) with an adjudicated type 1 or type 2 MI, 1115 patients had type 2 MI. Compared with type 1 MI patients, those with type 2 MI were older and had more comorbidities, including higher rates of cardiovascular disease and kidney disease. In patients with type 2 MI, the most common factor associated with oxygen supply-demand imbalance was tachyarrhythmia (55%), followed by hypoxemia (20%), anemia (9%), hypotension (8%), severe hypertension (5%), and coronary mechanisms such as spasm or dissection (3%). At 1 year, the all-cause mortality rate was 23% in patients with type 2 MI and 15% in those with type 1 MI.

In uni-variable analysis, hypoxemia, anemia, severe hypertension, and hypotension were each associated with increased odds of death at 1 year. In multivariate analysis, compared with patients with type 1 MI, those with type 2 MI had increased odds of mortality for underlying factors of hypoxemia (adjusted odds ratio, 2.35) and anemia (aOR, 1.83) but not tachyarrhythmia or coronary mechanisms (aORs of 0.83 and 1.07, respectively). COMMENT these data confirm the poor prognosis associated with type 2 MI and reveal variation in outcome related to the underlying etiology of the oxygen supply-demand imbalance.

Deaths among patients with type 2 MI are equally likely to have cardiovascular or non-cardiovascular causes and often reflect the patient's underlying systemic illness. These findings suggest that management should primarily address the underlying systemic illness and the factors associated with oxygen supply-demand imbalance.

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