

*Vanderbilt University
1215 21st Avenue South
MCE 5th Floor South Tower
Nashville, Tennessee 37232
E-mail: julie.boyd@vanderbilt.edu
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Please note: Both authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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Medicare Trends of Takotsubo Cardiomyopathy Outcomes

Is it Just the Tip of an Iceberg?

We have read with interest the work by Murugiah et al. (1) exploring the trends of diagnosis and outcomes of patients with principal and secondary diagnoses of Takotsubo cardiomyopathy (TTC) using Medicare fee-for-service database. The current study illustrated an increase in the trend of TTC diagnosis coinciding with enhanced awareness of this condition. The authors showed that the incidences of in-hospital, 30-day, and 1-year mortality in patients with TTC were less compared with patients with acute coronary syndrome. However, these incidences might be underestimated given how the authors defined patients with TTC in their cohort. The authors attempted to ensure an accurate diagnosis of TTC by ascertaining that all the patients who received the International Classification of Diseases-9 code of TTC had also received a procedure code of coronary angiography during the same hospitalization. Although this approach would be helpful in the accurate estimation of primary (principal) TTC trends, the same does not hold true for patients with secondary TTC and such an approach might be a source of unintentional selection bias in the current study. Secondary TTC usually occurs following a physical stressor that might be neurologic in nature (e.g., subarachnoid hemorrhage, intracranial hemorrhage, or acute ischemic stroke) (2,3). Multiple studies had shown that patients with secondary TTC carry different characteristics and worse outcomes compared with patients with primary TTC (3,4). Thus, such group of patients with TTC, by default, would

have a lower chance of receiving a coronary angiography during their hospital stay, either because of the presence of a contraindication (e.g., subarachnoid hemorrhage or intracranial hemorrhage) or simply because they are clinically in unstable condition and at higher risk of complications to undergo any invasive procedure.

The effect of such selection methodology was clearly translated into a significant discrepancy in the mortality between the patients who received coronary angiography and those who did not, with an incidence of in-hospital mortality of 3% versus 7% and 1-year incidence of 11.4% versus 24.5%, respectively, for the patients with secondary TTC. Although other reasons, such as misdiagnosis of patients with acute coronary syndrome as TTC, might partially explain such discrepancy, such misdiagnoses are usually an individual random error and cannot explain the large number of patients with secondary TTC who did not receive coronary angiography during their hospital stay (54% of the total secondary TTC population).

On the basis of this limitation in the selection methodology, the mortality incidences presented in the current study probably lean toward more conservative estimates especially for the secondary TTC cohort of patients, who intrinsically have lower chances of receiving a coronary angiography during their hospital stay and higher chances of worse short- and long-term outcomes.

*Ahmed N. Mahmoud, MD
Marwan Saad, MD, PhD
Islam Y. Elgendy, MD

*Department of Medicine
University of Florida
1600 SW Archer Road
Gainesville, Florida, 32610

E-mail: ahmed.mahmoud@medicine.ufl.edu

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