LETTER TO THE EDITOR

Mortality in Takotsubo cardiomyopathy should also be accounted based on predisposing etiology

Prasitlumkum et al. presented an excellent metanalysis which demonstrated that the presence of atrial fibrillation (AF) increased the all-cause mortality by twice among patients with Takotsubo cardiomyopathy (TC), compared to those without AF. The findings are of great interest (Prasitlumkum et al., 2019).

In addition to the comparison of mortality from AF standpoint alone, it would be of great value to analyze the mortality comparison between the patients of primary versus secondary forms of TC. Primary TC occurs in the setting of either psychic or emotional stimuli or no clear identifiable triggers (idiopathic), whereas secondary TC is triggered by physical stressors such as intracranial hemorrhage or cerebrovascular accident, trauma, sepsis, surgery, or other critical illnesses (Gowdar & Chhabra, 2016; Khalid, Ahmad, Shlofmitz, Umar, & Chhabra, 2019; Kim et al., 2018; Núñez-Gil et al., 2016). It is now well known that secondary forms of TC are usually associated with much worse short- and long-term prognoses (Gowdar & Chhabra, 2016; Khalid et al., 2019; Núñez-Gil et al., 2016). Primary TC, in comparison, generally has a relatively benign spectrum and a good overall prognosis, unless complicated by cardiogenic shock. Analysis of the previous registries such as RETAKO (Spanish National REgistry for TAKOtsubo cardiomyopathy) has demonstrated a significantly higher rate of morbidity and mortality in patients with secondary TC compared to primary forms, who otherwise had a comparable demographic, functional, and cardiovascular risk profiles (hazard ratio = 3.41; 95% confidence interval: 1.14 to 10.16; $p = 0.02$) (Núñez-Gil et al., 2016). Similarly, secondary form TC patients had higher rates of cardiogenic shock, peak cardiac enzymes, increased use of inotropes, mechanical ventilator requirement, increased future recurrence, and also higher readmission rates due to cardiovascular events (Gowdar & Chhabra, 2016; Núñez-Gil et al., 2016). Another recent study using the prospective observational registry database from Mayo Clinic demonstrated that the primary drivers for a high mortality rate in TC patients are the underlying precipitating physical triggers (secondary forms of TC) and noncardiac comorbidities such as cancer (Kim et al., 2018). Additional determinants included increased age and psychiatric impairment. However, a direct correlation of mortality with atrial arrhythmias was not obtained.

It would not be surprising to find higher rates of atrial arrhythmias in secondary forms of TC due to an associated higher comorbidity potential. If the investigators could subanalyze the data from the studies providing information on the etiology of TC (primary vs. secondary forms), it would be significantly valuable for the cardiology community and provide an additional understanding of the key players and clinical factors driving the morbidity and mortality.

CONFLICT OF INTEREST

None declared.

Lovely Chhabra¹

Pooja Sareen²

Victor Mwansa¹

Nauman Khalid³

¹Heartland Regional Medical Center, Marion, Illinois

²Harrisburg Medical Center, Harrisburg, Illinois

³Section of Interventional Cardiology, MedStar Washington Hospital Center, Washington, District of Columbia

Correspondence

Nauman Khalid, MedStar Washington Hospital Center, 110 Irving St., NW, Suite 4B-1X, Washington, DC 20010.
Email: nauman.khalid@medstar.net

ORCID

Nauman Khalid <https://orcid.org/0000-0003-4159-555X>

REFERENCES

- Gowdar, S., & Chhabra, L. (2016). Takotsubo cardiomyopathy outcomes should be stratified based on the triggering etiology. *Journal of the American College of Cardiology*, 11(68), 1708–1709. <https://doi.org/10.1016/j.jacc.2016.06.069>
- Khalid, N., Ahmad, S. A., Shlofmitz, E., Umar, A., & Chhabra, L. (2019). Takotsubo cardiomyopathy: Prognostication is affected by the underlying trigger. *Journal of Cardiovascular Medicine*, 20(6), 409–410.
- Kim, H., Senecal, C., Lewis, B., Prasad, A., Rajiv, G., Lerman, L. O., & Lerman, A. (2018). Natural history and predictors of mortality of patients with Takotsubo syndrome. *International Journal of Cardiology*, 267, 22–27. <https://doi.org/10.1016/j.ijcard.2018.04.139>
- Núñez-Gil, I. J., Almendro-Delia, M., Andrés, M., Sionis, A., Martin, A., Bastante, T., ... Barrabés, J. (2016). Secondary forms of Takotsubo cardiomyopathy: A whole different prognosis. *European Heart Journal: Acute Cardiovascular Care*, 5, 308–316. <https://doi.org/10.1177/2048872615589512>
- Prasitlumkum, N., Kittipibul, V., Limprutthidham, N., Rattanawong, P., Chongsathidkiet, P., & Boondarikpornpant, T. (2019). The presence of atrial fibrillation in Takotsubo cardiomyopathy is predictive of mortality: Systematic review and meta-analysis. *Annals of Noninvasive Electrocardiology*, 24, e12566. <https://doi.org/10.1111/anec.12566>