

Before Attributing Takotsubo to the Sudden Death of an Unrelated Person, Alternative Triggers Must Be Ruled Out

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LETTER TO THE EDITOR

We read with interest Aweimer, *et al.*'s report about an 80 year-old man who showed symptoms of Takotsubo syndrome (TTS) five days after implantation of a double-chamber pacemaker for severe bradycardia and complete atrio-ventricular block and four days after the sudden death of his roommate in the hospital [Aweimer, A. A. *et al.*, 2023]. TTS disappeared completely without treatment a few days after onset [Aweimer, A. A. *et al.*, 2023]. The case is impressive but requires discussion.

The major limitation is that alternative triggers to the stress caused by someone's death of TTS have not been adequately considered and excluded [Aweimer, A. A. *et al.*, 2023]. The first trigger not taken into account is paroxysmal atrial fibrillation, the prevalence of which increases with age and the number of cardiovascular risk factors such as those suffered by the index patient (arterial hypertension, diabetes) [Pires, C. M. *et al.*, 2021]. Atrial fibrillation is common in TTS and is either the trigger or complication of TTS [Stiermaier, T. *et al.*, 2017]. We should know whether the patient complained of palpitations, presyncope, or syncope and whether telemetry or Holter-monitoring recorded paroxysmal atrial fibrillation.

A second trigger that was not taken into account is malignant ventricular arrhythmias (MVSs). We should know whether there was evidence of MVAs in telemetry during hospitalisation or in Holter ECG recordings at follow-up. As with atrial fibrillation, MVS can be the cause or consequence of TTS [Pena Escobar, J. A. *et al.*, 2020].

A third unconsidered trigger for TTS is pacemaker dysfunction. We should know whether there was any evidence of pacemaker dysfunction or lead dislocation when reading the pacemaker during the second admission for TTS. Did the patient record presyncope or syncope before or after pacemaker implantation?

A fourth trigger that needs to be ruled out is epilepsy. Because the patient suffered from neurodegeneration (Parkinson's disease) and had multiple cerebrovascular risk factors [Aweimer, A. A. *et al.*, 2023], it is imperative to rule out a central nervous system cause for TTS. Seizures are the second most common cause of TTS after subarachnoid bleeding [Finsterer, J. *et al.*, 2014], making cerebral imaging and electroencephalography mandatory. Was creatine-kinase elevated on the second admission? It is also imperative to rule out subclinical intracerebral bleeding or ischemic stroke as a possible trigger of TTS.

A fifth unconsidered trigger of TTS is hypo- or hyperglycemia. Since the patient suffered from diabetes, it is imperative to know the current antidiabetic medication, fasting blood glucose values during hospitalisation and the HbA1c levels upon admission. We should also know whether the history was positive for hypo- or hyperglycemia in the weeks before admission or whether the antidiabetic regimen was changed before the first admission. It is known that hypoglycemia in particular can trigger TTS [Xia, P. *et al.*, 2022].

A sixth trigger that was not taken into account is stress caused by pacemaker implantation. Was the patient anxious or tense before the operation?

In summary, we disagree that the TTS was triggered by the death of the roommate and therefore TTS was in-hospital [Aweimer, A. A. *et al.*, 2023]. He did not experience TTS symptoms until after discharge. An asymptomatic TTS lasting four days is rather unlikely. Before TTS can be attributed to the sudden death of an unrelated person, alternative triggers must be thoroughly ruled out.

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Statement of Ethics: The study was approved by the institutional review board.

Compliance with Ethics Guidelines: This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

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