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## Dissecting the pathophysiology of complete heart block in takotsubo syndrome



To the Editor,

I much enjoyed the paper by Rathore et al., about the 78-year-old woman who suffered takotsubo syndrome (TTS), one week after presenting with complete AV block (CHB), which persisted one year later in spite of the timely reversal of the wall motion abnormalities consequent to TTS [1]. The authors did a marvelous job in discussing the “chicken and the egg” causality dilemma of the common appearance of CHB and TTS, citing the relevant literature [2–4], and the vagaries of deciding whether one needs to forgo a permanent pacemaker implantation (PPMI), or delay such intervention, and for how long. Of course the need for a PPMI and whether CHB was caused by TTS in the present case [1] were not difficult issues to discern, although often this is not the case, when a patient presents with TTS and a seemingly new CHB. Of note is that TTS occasionally is precipitated by PPMI, which acts as the emotional/physical trigger for TTS. The authors provide a comprehensive treatment of the complex interrelations of CHB and TTS, with reference to the intermittent CHB early in its natural history, the counterintuitive occurrence of CHB, particularly the one associated with a narrow QRS complex, in the presence of a heightened autonomic sympathetic activity (HASA), and the anatomical distance between the site of the conduction system and the affected by TTS myocardial territories [1]. In regards to a reference made about “a secondary increase in vagal tone” “as the cause of reversible conduction abnormality” [4,] it is of interest that TTS, particularly in the subacute phase is associated with an increase in vagal activity [5]. The authors referred to the “acceleration of junctional escape rate” from 38 to 55, and 54 beats/min in their patient, and attributed it to HASA [1]. One wonders whether in patients with TTS and CHB it will be of value to check for elevated catecholamine blood levels, and implement direct monitoring of HASA; a currently available technology pioneered by the electrophysiology group of Dr. Chen at Indiana University, and described in Ref. [6], in which thoracic skin nerve activity, as a surrogate of the stellate ganglia's HASA input to the heart, could be considered.

### Conflicts of interest

None.

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