

Electrocardiographic characteristics and associated outcomes in patients with Takotsubo syndrome. Insights from the RETAKO registry

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Background: Our aim was to describe the prevalence and prognostic significance of electrocardiographic features in patients with Takotsubo syndrome (TTS).

Methods: Our data come from the Spanish Multicenter REgistry of TAKotsubo syndrome (RETAKO). All patients with complete electrocardiogram were included.

Results: 246 patients were studied, mean age was 71.3±11.5 and 215 (87.4%) were women. ST-segment elevation was seen in 143 patients (59.1%) and was present in ≥2 wall leads in 97 (39.8%). Exclusive elevation in inferior leads was infrequent (5 - 2.0%). After 48 hours, 198 patients (88.0%) developed negative T-waves in a median of 8 leads with a mean amplitude of 0.7±0.5 mV. Mean corrected QT interval was 520±72

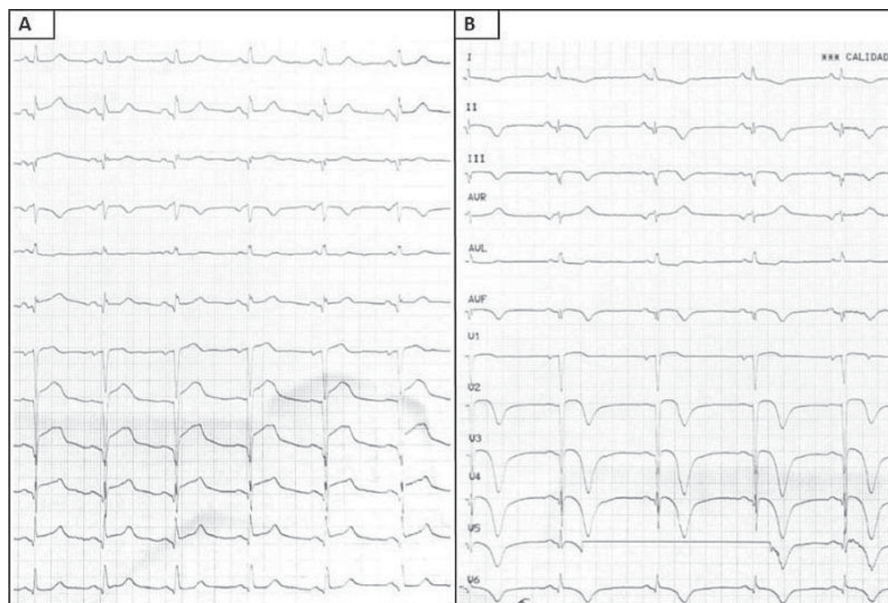
ms and it was independently associated with the primary endpoint of all-cause death and nonfatal cardiovascular events (p=0.002) and all-cause death (p=0.008). A higher heart rate at admission was also an independent predictor of the primary endpoint (p=0.001) and of developing acute pulmonary edema (p=0.04). ST-segment elevation with reciprocal depression was an independent predictor of all-cause death (p=0.04). Absence of ST-segment deviation was a protective factor (p=0.005) for the primary endpoint. Arrhythmias were independently associated with cardiogenic shock (p<0.001).

Conclusion: Prolonged corrected QT interval, arrhythmia, heart rate at admission and broader repolarization alterations are associated with a poor outcome in TTS.

Independent predictors of outcomes

	OR (95% CI)	P
Primary endpoint		
Heart rate*	1.1 (1.02–1.1)	0.001
Negative T-wave aVR†	0.2 (0.1–0.7)	0.007
Corrected QT*	1.0 (1.00–1.02)	0.002
Normal ST-segment*	0.06 (0.01–0.4)	0.005
Cardiogenic shock		
Arrhythmia development	7.4 (2.8–19.5)	<0.001
Acute pulmonary edema		
Smoker	2.9 (1.1–7.6)	0.03
Heart rate*	1.0 (1.00–1.1)	0.04
Sinus rhythm	0.1 (0.01–1.4)	0.09
All-cause death		
Corrected QT*	1.02 (1.01–1.03)	0.008
ST-segment elevation and reciprocal depression*	11.8 (1.2–123.0)	0.04

OR: odds ratio; CI: confidence interval. *At admission; † after 48h.



Typical ECG at admission and after 48h.