

ORIGINAL ARTICLE Differentiating Typical Tako-Tsubo Syndrome from extensive anterior STEMI: look behind the anterior wall

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Abstract

Background: Tako-tsubo syndrome (TTS) in its most typical form shares common features with anterior ST segment elevation myocardial infarction (AMI) during acute presentation. Differential diagnosis between the two conditions is often challenging especially if ST segment elevation is associated with extensive apical akinesis. *Methods:* we sought to systematically analyze ECG and echocardiographic parameters including LV longitudinal strain and two new indexes: the inferior-apex ratio (IAR) and the inferior-lateral-apex ratio (ILAR), to assess if ventricular involvement may be different in TTS and AMI. *Results:* A retrospective cohort study was conducted with 2 groups: patients with TTS (n=22) and patients with extensive anterior STEMI (n=22). Lack of ST elevation in V1 was associated with TTS with sensitivity and specificity of 86%, positive and negative predictive value of 86%. Longitudinal strain in mid inferior and mid inferior-lateral segments were more compromised in TTS: $-4.3 \pm 6.4\%$ and $-5.4 \pm 5.4\%$ in TTS vs $-10.2 \pm 5.5\%$ and $-9.9 \pm 4.9\%$ in AMI, respectively ($P < 0.01$ for all). By multivariate analysis, both longitudinal strain values, inferior-apical ratio (IAR) < 1 and inferior-lateral-apical ratio (ILAR) < 1 were independently associated with diagnosis of TTS during acute phase. *Conclusions:* our results suggest that impaired contractility extending beyond apex to mid inferior and inferior-lateral walls can be easily assessed by IAR and ILAR, and these indexes facilitate non-invasive differentiation of TTS from extensive anterior STEMI.

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