Left ventricular systolic dysfunction in tako-tsubo cardiomyopathy: is it transmural and really regional and reversible? a two-dimensional speckle tracking echocardiographic study

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OBJECTIVE

Typical tako-tsubo cardiomyopathy (TT) is characterized by a transient mid-apical left ventricular (LV) systolic dysfunction assessed by the wall motion score (WMS) and LV ejection fraction (EF). Two-dimensional strain by speckle tracking echocardiography (2DS) is a more sensitive marker of regional and global LV systolic function. Therefore, our aim was to assess systolic LV mechanics in all myocardial directions by 2DS, in patients (pts) with TT.

METHODS

2DS was performed in 15 consecutive pts with TT (78 ± 8 years, 93% women) at the acute phase (within 24 h after symptom onset) and after recovery (one month later). Ten control (C) pts matched for age and sex were compared to TT pts. From the apical long-axis, 4- and 2-chamber views, global longitudinal strain (LS) and strain-rate (LSR), post-systolic shortening index (PSS), and from the parasternal basal, mid and apical short-axis planes, global circumferential strain (CS), and strain-rate (CSR), and radial strain (RS), were obtained. Regional evaluation was also performed for each parameter. LV twist was defined as the net difference in degrees of apical (Ar) and basal rotation.

RESULTS

CONCLUSION: There is a transmural extent of myocardial impairment in TT, which is correlated to LV wall stress, and is entirely reversible. In addition, LV twist and CSR are inversely linked to myocardial injury. Furthermore, there are transient subtle abnormalities at the basal level, challenging the notion that LV systolic dysfunction in TT is wholly regional.