



**Echocardiographic measurements at
Takotsubo cardiomyopathy**
- transient left ventricular dysfunction

av

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Akademisk avhandling

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Abstract

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Takotsubo cardiomyopathy (TTC) is a disease characterized by transient left ventricular (LV) dysfunction and typical wall motion abnormalities in apical parts, without obvious signs of coronary influence. Due to its elusive natural cause and the lack of clarified pathology, further studies are needed. Thirteen patients presented with an episode of TTC, and referred to Örebro University Hospital (USÖ), were prospectively included and investigated by comparisons made at onset (acute phase) against at follow-up three months later (recovery phase). Including echocardiographic measurements, focused on biventricular systolic long-axis function and conventional diastolic function (DF) variables. Systolic improvement was shown, while most DF data were unchanged, suggesting that TTC is mainly a systolic disease affecting both ventricles.

Diagnosis should include multidisciplinary engagement, as TTC associates both with emotional stress and pathological markers of physiological stress. In this thesis, such approach was offered to the aforementioned patients; to see if a common denominator could be found, thus, contributing to better handling. Emotional state was assessed, along with an array of cardiac investigations in addition to echocardiography. Acutely, imbalance in the autonomic cardiac control was shown, as well as a trend toward posttraumatic stress, but specific findings allowing conclusions on differential diagnosis could not be demonstrated.

By adding another 15 TTC patients (i.e. 28 in total), through collaboration with observers from USA, a retrospective echocardiographic analysis could be done to further study DF; concluding that TTC associates with impairment of conventional DF variables which tends to parallel the systolic recovery, in contrary to the initial result but in line with other causes of LV dysfunction.

Magnetic resonance imaging (MRI) is another method of choice at TTC. The USÖ patients had cardiac MRI, thus, a retrospective analysis was done to investigate the effect on LV geometry, both echocardiographic and by MRI; suggesting that TTC is consistently associated with increased LV mass, due to a local impact that seems to follow the change in LV concentric wall motion.

Keywords: Echocardiography, takotsubo, annulus motion, cardiac autonomic function, broken heart, diastolic, ventricular mass, concentric wall motion.

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