

Clinical profile and in-hospital course of patients with primary and secondary takotsubo syndrome: single center experience

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Background: Takotsubo syndrome (TTS) is an acute cardiac disease increasingly recognized in a variety of clinical scenarios. Heart Failure Association of the ESC classified TTS in primary (occurring in the setting of psychological or emotional trigger or without clear identifiable stressors) and secondary (triggered by physical stressors or other critical illnesses). However, the clinical profile and outcome of these different subtypes is still controversial.

Aim of the study: To compare baseline features, clinical presentation and in-hospital outcomes in patients with primary or secondary TTS in a single referral center.

Methods: Overall study population included 210 patients (mean age 66.1±12.2 years, 14 male); 165 and 45 with primary and secondary TTS, respectively; consecutively enrolled from 2012 to 2019 in our center. Clinical, instrumental and laboratory data and in-hospital events were also recorded in both groups.

Results: Compared to patients with primary TTS, patients with secondary form were older (70.6±14.6 vs 64.9±11.2 years; p=0.006) and more frequently man (13.3% vs 4.8%; p=0.043). Several comorbidities such as diabetes (23.8% vs 8.9%; p=0.008); pulmonary (45.2% vs 12.9%; p<0.001); neurologic (23.8% vs 9.7%; p=0.015); nephro-urologic (31% vs 13.5%; p=0.008); psychiatric (42.9% vs 26.5%; p=0.039) and orthopedic (28.6% vs 13.5%; p=0.020) diseases were prevalent in secondary TTS patients.

Atypical presentation with higher incidence of dyspnea was significantly prevalent (42.2% vs 19.4%; p=0.002) in secondary group. The number of patients with ST-T elevation on admission was similar (80% vs 77%; p=0.5) in both groups. Prolonged QT interval in a majority of secondary TTS patients (46.3% vs 28.4%; p=0.029) was detected. Peak levels of troponin, creatine-kinase and myoglobin did not differ between the two groups. Echocardiography revealed larger left ventricular end-diastolic and end-systolic volumes (62.7±25.3 vs 50.6±14.3 ml/mq; p=0.024 and 35.1±14.5 vs 28.7±9 ml/mq; p=0.048) at presentation in secondary TTS, however no differences in baseline left ventricular ejection fraction were detected. Furthermore, the prevalence of apical ballooning was similar between the two groups. Of note, secondary TTS patients experienced more frequently acute heart failure (40.5% vs 23.1%; p=0.024), hyperkinetic arrhythmia (9.1% vs 1.9%; p=0.022), cardiogenic shock (15.9% vs 3.2%; p=0.002), and mechanical ventilation use (9.3% vs 1.3%; p=0.006) during the acute phase. In-hospital stay (10.8±6.9 vs 7.4±6.2 days, p=0.004) was longer in this cohort.

Conclusion: Our results demonstrate that to classify TTS patients in primary or secondary form is clinically relevant. Secondary form generally is associated to higher rate of comorbidities and to atypical presentation. Owing to the worse in-hospital outcome of the secondary TTS patients a tailored and more intensive treatment should be adopted in this cohort.