

Conclusion: In our study, about 1 in every 10 patients with TC have atrial fibrillation, which was associated with worse short-term outcomes. AF was associated with higher age, CKD, lower LVEF, a higher rate of in-hospital ventricular tachycardia and complete AV block. Although there was no association with in-hospital mortality, there was a significant correlation between AF and a higher rate of the composite endpoint of CS, malignant arrhythmias and in-hospital mortality. There were no differences on long-term endpoints. Adequate monitoring should be given to AF patients with TC.

P4653

Hospital readmission following takotsubo syndrome

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Background: Takotsubo syndrome (TS) is characterized by transient left ventricular dysfunction with symptoms and ECG changes mimicking acute myocardial infarction (AMI). TS predominantly affects post-menopausal women.

Purpose: To evaluate in-hospital death and hospital readmission after TS compared with AMI using a large United States hospital administrative database.

Methods: Patients diagnosed with TS or AMI from 2010–2014 were identified using the United States Nationwide Readmission Database. TS was defined by ICD-9 diagnosis code 429.83 when coronary angiography was performed at index hospitalization and revascularization was not. AMI was defined by ICD-9 codes 410.x1 in the absence of TS. Patient characteristics, outcomes for the index admission, and 30-day readmission rates and causes were compared between TS and AMI patients.

Results: A total of 61,412 patients with TS and 3,470,011 patients with AMI were identified. Patients with TS were younger, more likely to be women (89% versus 41%), and less likely to have cardiovascular risk factors. Mortality during the index admission was lower in TS than AMI (2.3% vs. 10.2%, $p<0.0001$). Cardiogenic shock occurred at the same frequency (5.7%) in both groups. Among patients with TS, men >50 years old had the highest in-hospital mortality (4.6%), followed by women >50 years old (2.2%), men <50 years old (1.5%), and women <50 years old (1.1%) ($p<0.001$ for all). Independent predictors of mortality after TS included cardiogenic shock (adjusted odds ratio [aOR] 7.23, 95% CI 5.63–9.32), ST-segment elevation (aOR 2.94, 95% CI 2.32–3.72), malignancy (aOR 2.32, 95% CI 1.60–3.36), and congestive heart failure (HF; aOR 2.21, 95% CI 1.64–2.99). Hospital readmission occurred within 30 days in 7,132 TS survivors (11.9%), versus 520,082 AMI survivors (16.7%), $p<0.001$. See Table for the most common reasons for readmission. Mortality during hospital readmission among TS survivors was 3.5%.

Common indications for readmission in TS

CHF	10.6%
Septicemia	5.7%
COPD and bronchiectasis	4.3%
Respiratory failure, insufficiency or arrest	3.6%
Acute and unspecified renal failure	3.6%
Cardiac dysrhythmias	3.6%
Pneumonia	3.4%
Non-specific chest pain	3.4%
Other and ill-defined heart disease	3.4%

Conclusions: TS is associated with substantial morbidity and mortality, although outcomes are more favorable than after AMI. More than 2% of TS patients died during the index admission, nearly 12% of survivors were readmitted within 30 days and mortality during readmission was 3.5%. Careful outpatient follow-up after a diagnosis of TS may be warranted.

P4654

Clinical and prognostic aspects of diabetes mellitus in takotsubo syndrome: results from a multicentre, international registry

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Background: Recent analyses have shown that the prevalence of diabetes mellitus in patients with takotsubo syndrome (TTS) is lower than expected compared to the age-matched general population. A prevalence of DM well below 20% has been reported by most TTS studies, whereas in the general population older than 65 years a prevalence of 26.9% has been described (National Health and Nutrition Examination Survey). Some inconsistent analyses have moreover shown that patients with TTS and DM may have a lower rate of adverse events compared to patients with TTS and without DM. These observations have led to postulate that DM may have a protective effect in TTS, but no adequate data can to date corroborate or deny this hypothesis.

Purpose: To assess the clinical features and the short-term outcomes of TTS patients with and without DM.

Methods: Patients' records from a large international registry were revised to as-

sess the presence of DM, glucose-lowering therapy and complications of DM. Main outcome of the present analysis was the incidence of 30-day major adverse cardiovascular and cerebrovascular events (MACCE, a composite of death, myocardial infarction, TTS recurrence, stroke or transient ischemic attack). Need for in-hospital acute care treatment was moreover investigated.

Results: Out of 2066 patients with known status regarding DM, 316 (15.3%) presented DM. Of them, only 5 had DM type 1. Patients with DM were older (68.9 vs. 66.6 years, $P=0.013$) and less frequently of female gender (85.1% vs. 91.3%, $P<0.001$). They had a higher burden of comorbidities (hypertension, hypercholesterolemia, chronic kidney disease, coronary artery disease). Physical triggers were more frequent among diabetic patients (43.0% vs. 34.8%, $P=0.005$), whereas the opposite was observed for emotional triggers (24.7% vs. 31.0, $P=0.023$). On admission, they had lower left ventricular ejection fraction (LVEF, 38.6% vs. 41.1%, $P<0.001$), more frequently atrial fibrillation (10.9% vs. 6.5%, $P=0.009$), and higher BNP, C-reactive protein and leucocytes values. During the index hospitalization, patients with DM required more frequently invasive or non-invasive ventilation (21.9% vs. 15.3%, $P=0.003$), whereas frequency of inotropic administration was similar to the control group (14.9% vs. 11.1%, $P=0.091$). Thirty-day MACCE rate was similar between patients with and without DM (7.9% vs. 6.3%, $P=0.366$).

Conclusions: DM has a lower prevalence in TTS patients compared to general population. Despite the higher burden of comorbidities, the more unfavourable clinical presentation (lower LVEF, higher values of BNP and inflammatory markers) and the more frequent need for assisted ventilation, patients with DM did not report higher rate of short-term MACCE.

P4655

Differences in clinical profile and prognosis between takotsubo syndrome and the rest of myocardial infarction with non-obstructive coronary arteries

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Background: There is controversy to whether Takotsubo Syndrome (TTS) should be classified as a Myocardial Infarction with Non-Obstructive Coronary Arteries (MINOCA). The aim of this study is to compare the clinical profile and prognosis of TTS and non-TTS MINOCA patients.

Methods: Analytical and observational study developed in a University Hospital, which covers 220.000 individual. We analyzed the clinical data of all consecutive MINOCA patients admitted to our center during a 3 years period. We used the definitions and the clinical management of 2016 ESC Working group position paper on MINOCA, which considers TTS as a MINOCA.

Results: Thirty-three of 118 patients (28%) classified as MINOCA where TTS. Patients with TTS were older (70.0 ± 13.5 vs 58.5 ± 15.5 years, $p<0.01$) and female proportion was higher (72.7% vs 42.4%, $p<0.01$) than in the non-TTS MINOCA group. Regarding cardiovascular risk factors, there was no significant difference between both groups: Hypertension (66.7 vs 52.9%), Dyslipidemia (48.5 vs 39.3%) smoking rate (45.8 vs 43.8%, with only a trend to more Diabetes (15.3 vs 27.3%, $p=0.1$). TTS patients presented at admission ST elevation more frequently (46.9 vs 22.4%, $p=0.01$), in most cases with Killip class worse than II (21.9 vs 0.0%, $p<0.01$) and with more systolic dysfunction (84.8 vs 13.1%, $p<0.01$). There was no significant difference in the peak of troponin (7.3 ± 16 vs 5.8 ± 10) neither creatine-kinase (705 ± 2083 vs 387 ± 503). Levels of hemoglobin at the admission were lower in the TTS group (13.1 ± 2.2 vs 14.1 ± 1.9 , $p=0.015$).

The proportion of in-hospital complications (recovered cardiac arrest, shock, pulmonary oedema, ictus, re-infarction) were higher in the TTS group (34.4 vs 7.1%, $p<0.01$). The rate of acute emotional stress was higher in the TTS group (44.4 vs 15.3%, $p<0.01$), with no differences in the proportion of psychiatric illnesses and other psycho-social disorders. Proinflammatory conditions (autoimmune pathology, connective tissue disease, active cancer or the fact that the infarction was an intercurrent complication during admission for a non-cardiovascular pathology) were higher in TTS patients (57.6 vs 30.6%, $p=0.01$).

During a one-year follow-up there were no differences in the prognosis between TTS and non-TTS MINOCA, with no significative differences in total mortality (7.1 vs 4.5%) neither cardiovascular mortality (3.6 vs 3.0%), nor in the rate of MACE (17.6 vs 8.9%). Dyspnea worse than NYHA II was similar in both groups (11.1 vs 11.9%) and also angina worse than CCS II (13.7 vs 4.5%). We only found a tendency in TTS patients to more re-hospitalization (55.5 vs 33.3%, $p=0.1$).

Conclusion: There are differences in the clinical profile and in-hospital evolution of TTS patients compared to the rest of non-TTS MINOCA, whereas the mid-term prognosis was similar. Regardless of this, we still consider it appropriate to include TTS in the working diagnosis of MINOCA.