

## Coexistence and outcome of coronary artery disease in Takotsubo syndrome

Eur Heart J. 2020 Jun 2;ehaa210. doi: 10.1093/eurheartj/ehaa210. Online ahead of print.

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PMID: 32484517 DOI: 10.1093/eurheartj/ehaa210

### Abstract

**Aims:** Takotsubo syndrome (TTS) is an acute heart failure syndrome, which shares many features with acute coronary syndrome (ACS). Although TTS was initially described with angiographically normal coronary arteries, smaller studies recently indicated a potential coexistence of coronary artery disease (CAD) in TTS patients. This study aimed to determine the coexistence, features, and prognostic role of CAD in a large cohort of patients with TTS.

**Methods and results:** Coronary anatomy and CAD were studied in patients diagnosed with TTS. Inclusion criteria were compliance with the International Takotsubo Diagnostic Criteria for TTS, and availability of original coronary angiographies with ventriculography performed during the acute phase. Exclusion criteria were missing views, poor quality of angiography loops, and angiography without ventriculography. A total of 1016 TTS patients were studied. Of those, 23.0% had obstructive CAD, 41.2% had non-obstructive CAD, and 35.7% had angiographically normal coronary arteries. A total of 47 patients (4.6%) underwent percutaneous coronary intervention, and 3 patients had acute and 8 had chronic coronary artery occlusion concomitant

with TTS, respectively. The presence of CAD was associated with increased incidence of shock, ventilation, and death from any cause. After adjusting for confounders, the presence of obstructive CAD was associated with mortality at 30 days. Takotsubo syndrome patients with obstructive CAD were at comparable risk for shock and death and nearly at twice the risk for ventilation compared to an age- and sex-matched ACS cohort.

Conclusions: Coronary artery disease frequently coexists in TTS patients, presents with the whole spectrum of coronary pathology including acute coronary occlusion, and is associated with adverse outcome.

Trial registration: ClinicalTrials.gov number: NCT01947621.

Keywords: Cardiac catheterization; Acute coronary syndrome; Coronary artery disease; Myocardial infarction; Outcome; Takotsubo syndrome.

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