

# The Fear Factor in Takotsubo Cardiomyopathy: A Retrospective Cohort Study

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## Background

- Takotsubo cardiomyopathy (TCM) is a transient, reversible acute cardiac syndrome that mimics acute MI
- Reportedly frequently precipitated by an emotionally stressful event
- Excessive catecholamine release is a possible pathophysiologic mechanism<sup>1</sup>
- Prevalence of anxiety and mood disorders in TCM patients varies among studies, ranging from 21-40%<sup>2,3</sup>

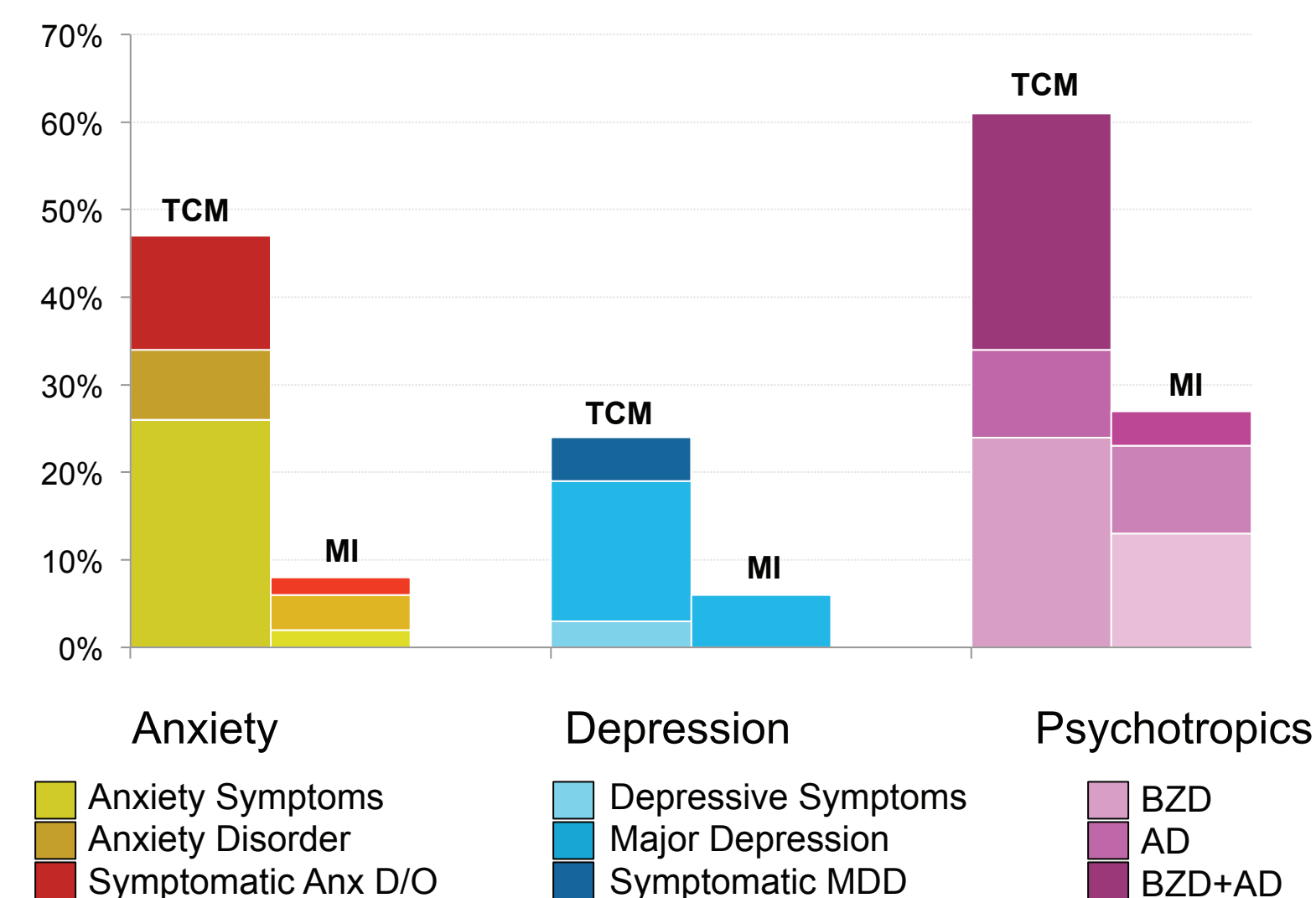
## Hypotheses

- Compared to an acute MI control group, TCM patients have a higher prevalence of:
  - Anxiety
  - Depression
  - Anxiolytic or antidepressant use
  - Exposure to inotropic medication as iatrogenic precipitant (exogenous catecholamine)
  - CNS insult precipitant (releasing endogenous catecholamines)

### Key References

- Abraham J, et al: J Am Coll Cardiol 2009;53:1320-1325
- Vidi V, et al: Am J Cardiol 2009; 104:578-582
- Mudd JO, et al: J Cardiac Fail 2007; 13 (6):S176

**Anxiety, Depression, and Psychotropic Use in TCM Patients Compared to MI Controls**



## Methods

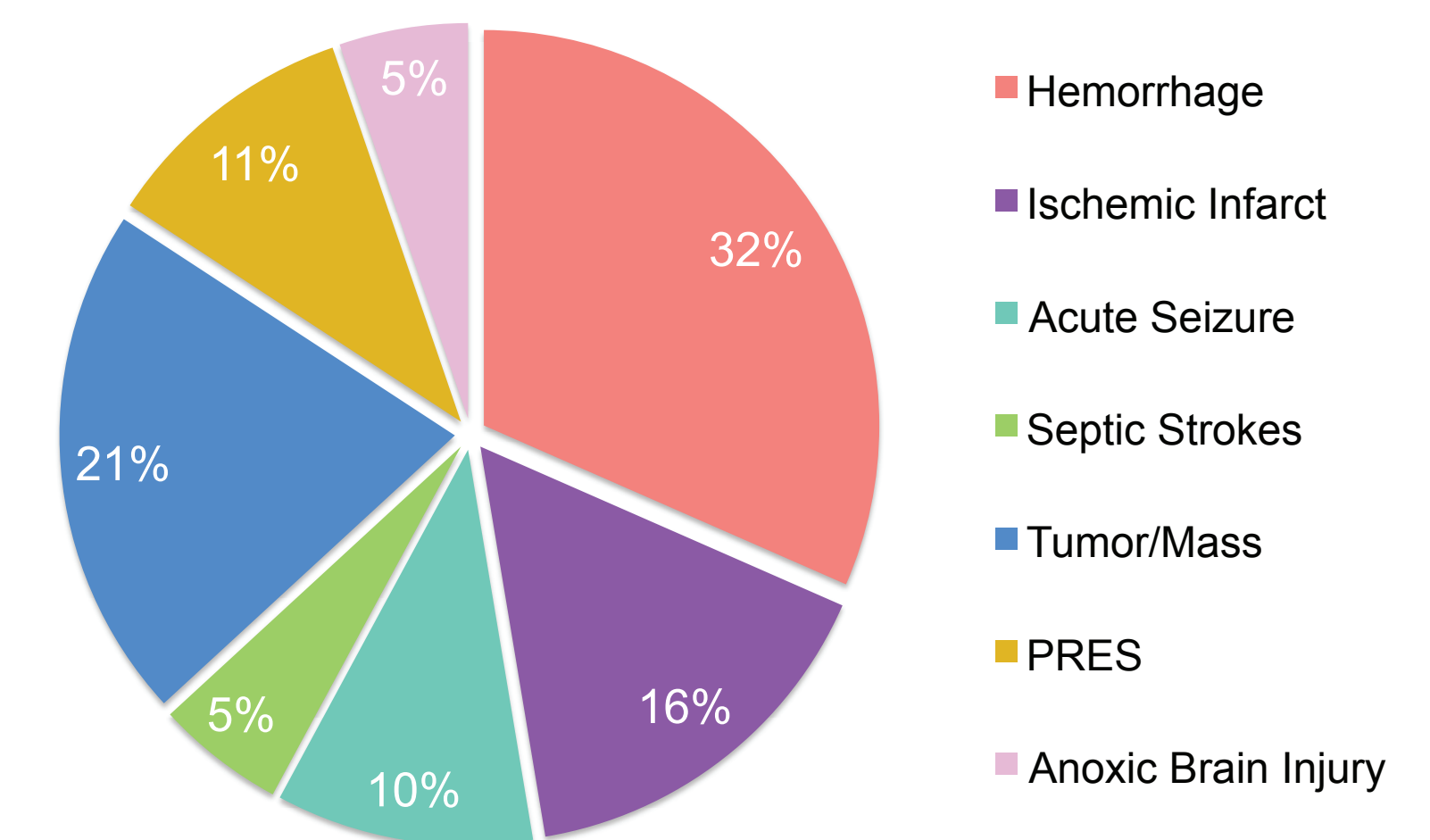
- Setting: tertiary care hospital center: Thomas Jefferson University Hospital (650 medical/surgical acute care beds)
- Retrospective chart review of TCM patients identified on echocardiography from 6/1/07-5/31/12
- TCM diagnosis confirmed by: no obstruction on catheterization, or; normal cardiac perfusion on nuclear medicine myocardial perfusion imaging, or; resolution of TCM on subsequent echocardiography
- 133 possible cases were identified. 21 were excluded due to confirmed infarction or cardiac trauma. 5 were excluded due to presence of active substance abuse. 45 were excluded due to unconfirmed TCM.
- Control group were patients identified on echo with apical akinesis for indication of MI, Chest Pain, Angina Pectoris, or Abnormal EKG. 82 possible cases were identified. MI was ruled out in 34 cases.

## Results

- Acute emotional stressor was identified in only 5 TCM patients
- 3 TCM patients exhibited catatonic features
- Psychiatric consultation was requested for 5 TCM patients and 1 control.
- Presence of anxiety, depression, anxiolytic, or antidepressant medications was significantly associated with TCM ( $p < 0.001$ )
- Presence of an acute CNS insult was also significantly associated with TCM ( $p = 0.012$ )
- Exposure to inotrope was prevalent but not significantly associated with TCM ( $p = 0.094$ )
- Anxiety/depression/psychotropic use ( $OR = 5.0$ ), and acute CNS insult ( $OR = 5.2$ ) were independent predictors of TCM
- The presence of anxiety, depression or use of anxiolytic or antidepressant increased the likelihood of TCM by factor of 5
- The presence of an acute CNS insult increased the likelihood of TCM by factor of 5.2

	TCM	MI Control
N	62	48
Average age	63.4 ± 14.4	67.0 ± 16.6
%Female	73%	50%
Anxiety Symptoms or Disorder	47%	2%
Depressive Symptoms or Disorder	21%	6%
Anxiolytic or Antidepressant Use	61%	27%
Acute CNS insult	24%	8%
Exposure to Inotropes	23%	10%

**Neurologic Insults present in patients at time of TCM Diagnosis**



## Discussion

- CNS insult and presence of anxiety/depression/med are strong independent predictors of TCM
- These findings may warrant routine psychiatric screening and consultation for patients with TCM
- Do patients with anxiety/depression have a physiologic predisposition (excessive catecholamine release) to develop TCM?
- 2 patients with TCM had catatonic features, 1 had NMS: is there an anxiety/catecholamine connection?
- Further research is needed to determine if prompt psychiatric treatment of mood and anxiety symptoms in acute TCM patients improves clinical outcome