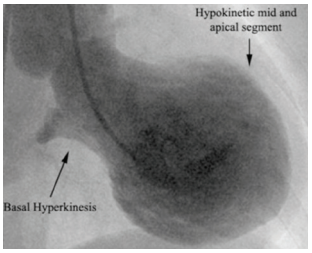
Takotsubo Cardiomyopathy

A Case Study by Dr David Tong

A 72 year old lady presented with acute onset of central chest pain, palpitations and diaphoresis. ECG showed anterolateral ST elevation. Background history of hypertension, T2DM and dyslipidaemia. Cath lab was activated for urgent coronary angiogram, which demonstrated no significant coronary artery disease. LV gram showed severe antero-apical hypokinesis, consistent with Takotsubo cardiomyopathy. Patient was under significant amount of stress during COVID lockdown and socially isolated. Her mother recently passed away and she was unable to attend her funeral.

What is Takotsubo cardiomyopathy?

Takotsubo cardiomyopathy (aka apical ballooning syndrome, broken heart syndrome or stress-induced cardiomyopathy) is a syndrome characterised by transient regional systolic LV dysfunction, mimicking myocardial infarction but without angiographic evidence of obstructive coronary artery disease or acute plaque rupture. The term "Takotsubo" is taken from the Japanese name for an octopus trap, which has a shape similar to the systolic apical ballooning appearance of the LV in the most common and typical form of this disorder.



How common is it?

It occurs in approximately 1-2% of patients presenting with troponin positive suspected acute coronary syndrome or suspected STEMI. It is much more common in women (>90%) than men, and occurs predominantly in older adults (mean age of 66 years in the International Takotsubo Registry). The pathogenesis is not well understood but postulated pathogenic mechanisms include catecholamine excess, microvascular dysfunction and coronary artery spasm.

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Heart Foundation

Heart Week

May 3 - 9, 2021

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What are the potential triggers?

Limited data are available on predisposing factors. However, reports of familial cases raise the possibility of a genetic predisposition. In addition, patients with psychiatric (affective or anxiety disorder) or neurologic disorders (seizure or headache disorder) may be predisposed to the condition.

The onset of stress cardiomyopathy is often but not always triggered by intense emotional or physical stress (eg. sudden death of relatives, intense altercation, financial/employment problem, domestic abuse, natural disasters, acute medical illness).

What is the common clinical presentation?

The most common symptom is acute onset of chest pain. Other symptoms include dyspnoea, palpitations (due to arrhythmias) and syncope (cardiac arrest). ST segment elevation on ECG occurs in ~50% of patients. Serum cardiac troponin levels are elevated in most patients whilst CK levels are generally normal or mildly elevated.

Mayo Clinic Diagnostic Criteria (all 4 are required for the diagnosis):

- Transient LV systolic dysfunction with regional wall motion abnormalities typically extend beyond a single coronary distribution
- Absence of angiographic evidence of obstructive coronary disease or acute plaque rupture
- New ECG abnormalities or elevated cardiac troponin levels
- Exclusion of pheochromocytoma or myocarditis

Management and prognosis:

- Supportive therapy and resolution of physical or emotional stress. About 10% of patients develop acute heart failure and cardiogenic shock, requiring intensive therapy.
- Heart failure management during acute presentation and following stabilisation according to standard guidelines. Particular care is taken to avoid volume depletion and vasodilator therapy in patients with left ventricular outflow tract (LVOT) obstruction.
- Stress cardiomyopathy is a transient disorder and appropriate duration of medical therapy is not known given lack of clinical trial data. Continue standard heart failure medical regimen until recovery of LV systolic function, which occurs in 1-4 weeks in most cases.
- In hospital mortality is approximately 3-4%.

Is it going to happen again?

~2% per year risk of recurrence. The efficacy of long-term beta blocker or ACE inhibitor in reducing the risk of recurrence is unknown.

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