



Takotsubo syndrome (TTS)

1. It's also known as broken heart syndrome. Why can a period of intense emotional stress physically weaken the heart muscle?

Both physical and emotional stress release stress hormones known as catecholamines. Catecholamines in excess are thought to be toxic to the heart muscle and weakens its function.

It is important to know that approximately one third of cases of TTS will have a physical trigger, such as intense exercise, acute illness or heat stress. A third have an emotional stressor - these may range from seemingly trivial events to catastrophic events that may be personal or affect populations, such as war and earthquakes etc. A third will not have an immediately identifiable trigger. In many cases there is a history of chronic or cumulative background stress.

Women with TTS do not like the term 'broken heart syndrome' as they feel that some health professionals do not take the condition seriously because of the nomenclature and as noted above, only around a third of people have a clearly associated emotional trigger.

2. TCM differs to a heart attack in that there's no evidence of blocked arteries, so what physical symptoms are there?

They are exactly the same symptoms as heart attack and until it is clear that the cause of the symptoms is not a heart attack, those with TTS will be treated for heart attack.

3. How do lower estrogen levels affect the heart and make older women more susceptible to TTS post-menopause?

There is suspicion that lower oestrogen levels may be a factor in the development of TTS simply because of the population most affected, which is post-menopausal women in 85-90% of cases.

Estrogen protects the female heart against heart attack, but the relationship of estrogen and TTS is not clear. TTS has been reported in men, younger women, children and neonates.



Dr Angela Kucia, senior lecturer in the School of Nursing and Midwifery at the University of South Australia, coordinates the postgraduate Cardiovascular Nursing courses. Her research interest is Takotsubo Syndrome and she is the co-administrator of the Takotsubo Support Group.

www.takotsubo.net



4. After an episode of TCM, the heart is thought to be fully recovered within two months. How does that happen when other heart conditions are chronic?

The catecholamine surge that causes the heart to not function properly passes, and the heart begins to recover. However, during the acute stage of TTS, the heart muscle itself is infiltrated by fluid known as intramyocardial oedema. As the oedema resolves, there is fibrosis and scarring that is different to that which occurs after a heart attack. This can be seen on MRI. The fibrosis affects the motion of contraction of the heart.

It was initially thought that the majority of people with TTS would make a complete recovery within two months. This was based on the measurement of the left ventricular ejection fraction (LVEF). The LVEF is the fraction of blood ejected from the left ventricle, the main pumping chamber of the heart, with each heartbeat. Normal should be above 50-55%. In the acute stage of TTS, the LVEF is significantly lower than 50%, but it tends to return to around 50% within a couple of weeks. LVEF is only a crude measure of cardiac function in a single dimension.

Recent research using other measurements and MRI scanning has found that in fact, heart function does not fully recover in this short time, leaving the person with TTS feeling breathless and exhausted on minimal activity for many months and possibly longer. Unfortunately, a quick recovery is a misconception that many health professionals hold and people with TTS are often made to feel that their symptoms are all in the head.

5. If TTS is a temporary heart condition, are you susceptible to recurrence after the first episode?

There is a recurrence rate for TTS varies in individual studies between 1-11%. Some women have multiple recurrences. Interestingly, the types of triggers may differ, eg. physical one time and emotional the next, and a different part of the heart may be affected each time.

6. Can an episode of TTS trigger other heart conditions?

TTS can trigger acute heart failure in the initial stages and this is a serious problem.

TTS may present with cardiac arrest, particularly in younger women. Some women report arrhythmias, abnormal heart rhythms, usually fast, after TTS.

Stroke affects the brain but may be a precursor to TTS or a consequence. It is not clear in all cases whether the stroke occurred before or after TTS, but there is a strong relationship.

The other condition that should be mentioned is the association of cancer and TTS. This has been noted and researchers are working to find why this is so.