Takotsubo Cardiomyopathy

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**What Topic?**

**Understanding Pathophysiology**

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**Long-Term Prognosis**

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Takotsubo Cardiomyopathy

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**What Topic?**

Takotsubo Cardiomyopathy (TTC) first described in Japan in the 1990s, TTC represents a transient loss of left ventricular wall motion.

**Understanding Pathophysiology**

What causes TTC? Despite being a well-established condition, research continues to explore the precise mechanisms behind the disorder. Numerous factors have been implicated, including emotional and physical stressors. However, the exact initiating event remains elusive.

**Why TTC?**

Globally, most differentiates TTC from other cardiac syndromes, disorders. Although TTC presents similar symptoms to other acute coronary events, patients do not have evidence of ischemia on cardiac catheterization. (Sattar et al., 2017)

A recent systematic review and meta-analysis suggests a possible correlation with surgery and TTC. (Agarwal et al., 2017) However, anesthesia practitioners must include TTC in the differential diagnosis of patients presenting acute coronary syndrome-like events in the operating room.

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**TTC often has an identifiable stress-provoking event, physically or emotionally associated with onset. This event stimulates the sympathetic nervous system via the limbic system and causes excessive amount of catecholamine release.**

(Sattar et al., 2017) TTC often follows an emotional or physical trigger which stimulates a massive catecholamine release mediated by the sympathetic nervous system. (Chen & Dilsizian, 2017)

Sattar et al. (2017) describe up to 80% of patients display at least 3 markers of TTC pathogenesis. The first hypothesis is that there is a rapid left myocardial stunning due to a transient vaso-dysfunction as a consequence of sympathetic overdrive, many patients report nausea, vomiting, and others even develop intracranial bleeding. (Chen & Dilsizian, 2017) Neurogenic stunning is thought to be a metabolic adaptation that inhibits oxidative metabolism in cells that are not returning to normal. (Chen & Dilsizian, 2017) These metabolic alterations appear to be most pronounced during the acute phase of TTC and resolve during the recovery phase. (Chen & Dilsizian, 2017)

Chen and Dilsizian (2017) suggest that the first hypothesis is less likely to see ST segment elevation. (Sattar et al., 2017)

Chen & Dilsizian (2017) explain up to 80% patients exhibit pathophysiology and postulate what happens at a cellular level to explain TTC pathophysiology. 

**Signs and Symptoms**

- Chest pain
- Dyspnea
- Angina
- Systolic cardiac morphology in TTC compared to a Takotsubo or Jar

**TTC with Cardiogenic Shock (without left ventricular outflow tract obstruction (LVOTO))**

- Continuous fluid resuscitation
- Inotropic agent trial (dopamine or dobutamine)
- Intra-aortic balloon pump (IABP) for persistent hypotension or signs of end organ damage
- Vasopressors contraindicated in moderate to severe LVOTO

**TTC with Cardiogenic shock and LVOTO**

- Beta-blockers to improve LVOTO
- IABP considered with caution in patients not responsive to fluid resuscitation
- May consider alpha antagonists

**References QR Link**

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**Additional Sources**

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**Conclusion**

Takotsubo Cardiomyopathy is a recently discovered condition that often develops without obvious myocardial damage. The exact etiology remains elusive, but it is believed to be related to emotional or physical stress. As understanding of this condition grows, continued research and clinical trials will be necessary to fully understand the pathophysiology and long-term outcomes of this unique cardiac syndrome.