

## DIAGNOSIS AND MANAGEMENT OF TAKOSUBO SYNDROME (TTS)

A hallmark of TTS is its association with a preceding stressful event, either physical or emotional or both. Although affects any gender at any age, it is more common in postmenopausal women.

TTS presents with clinical symptoms, ECG abnormalities and elevation of troponin indistinguishable from acute MI:

- Clinical symptoms: chest pain, dyspnea, or syncope
- EKG changes: ischemic ST-segment elevation, T-wave inversion, or both
- Echocardiography: regional wall motion abnormalities

Coronary angiography with left ventriculography is considered the gold standard diagnostic tool to exclude or confirm TTS. It must be performed to exclude treatable ACS-coronary artery thrombosis.

Four major types can be differentiated based on the distribution of regional wall motion abnormalities:

- Apical ballooning, the most common by far
- Midventricular
- Basal
- Focal wall motion pattern

In patients with TTS is important to determine the presence or not of complications such as **left ventricular outflow tract obstruction (LVOTO) to guide the treatment**. It occurs in about 20% of cases in the classic apical variant when the base of the heart contracts vigorously, causing the turbulent flow of blood in the aortic outflow tract to pull the anterior leaflet of the mitral valve anteriorly causing mitral regurgitation.

### Mild TTS without heart failure

- Betablockers
- ACE-I
- Avoid Inotropes: epinephrine, norepinephrine, dobutamine, dopamine, milrinone

### TTS with heart failure-pulmonary edema but no hypotension/shock

#### Without LVOTO

- Betablockers
- ACE-I
- Diuretics
- Nitroglycerine
- O2 to keep O2Sat 90 – 96%
- Consider non-invasive or invasive mechanical ventilatory support

#### With LVOTO

- Betablockers

- ACE-I (afterload reduction is contraindicated)
- O<sub>2</sub> to keep O<sub>2</sub>Sat 90 – 96%
- Consider non-invasive or invasive mechanical ventilatory support

#### TTS with hypotension - shock

##### Due to pump failure without LVOTO

- LV device - Impella
- Milrinone or Dobutamine as a temporary measure
- If pulmonary edema, O<sub>2</sub> to keep O<sub>2</sub>Sat 90 – 96% and consider non-invasive or invasive mechanical ventilatory support

##### Due to LVOTO

- LV device – Impella
- Phenylephrine as a temporary measure which may reduce the gradient by increasing afterload, thereby improving overall hemodynamics
- Consider cautious use of short acting betablockers which can improve hemodynamics by causing resolution of the obstruction. However, contraindicated in acute severe heart failure with low LVEF, and in those with bradycardia and QTc >500ms
- IV fluids if no pulmonary edema and avoid diuretics
- If pulmonary edema, O<sub>2</sub> to keep O<sub>2</sub>Sat 90 – 96% and consider non-invasive or invasive mechanical ventilatory support

Consider anticoagulation if LV function <30%.

QT-interval prolonging drugs should be used cautiously in the acute phase because of the risk to induce torsades de pointes or ventricular tachycardia and fibrillation.