THE REVERSAL THAT HELPED: ROLE OF BEDSIDE ECHOCARDIOGRAPHY IN TAKOTSUBO CARDIOMYOPATHY

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INTRODUCTION

- Takotsubo syndrome (TTS) is characterized by transient regional left ventricular (LV) apical hypo-/akinesis mimicking ST-elevation Myocardial Infarction. Characteristic basal wall hyperkinesis with left ventricular outflow tract obstruction (LVOTO) can lead to frank cardiogenic shock.
- The detrimental effect of catecholamines in such clinical scenarios justifies the importance of ruling out LVOTO in patients with cardiogenic shock.

CASE PRESENTATION

- A 38-year-old athletic male with no past medical history developed profound hypotension during elective rhinoplasty.
- His condition was unresponsive to aggressive fluid resuscitation, and he required several boluses of ephedrine, phenylephrine, and epinephrine. EKG revealed mild ST-segment elevations in leads aVL and I, with significant ST depression in leads V4-V6. His troponin was 0.33. The patient denied any chest pain.
- STAT Echocardiogram showed significant LV systolic dysfunction with an ejection fraction (EF) of 40-45% with akinetic basal mid inferior, basal inferolateral walls, and hyperkinetic apex with normal valvular structures (figure 1).
- Due to the concern for the acute coronary syndrome, urgent cardiac catheterization was performed which revealed patent coronary vasculature with ventriculogram confirming the akinetic segments (figure 2).

DISCUSSION

- Takotsubo cardiomyopathy is caused by catecholamine-induced cardiotoxicity due to physical or emotional stress.
- In classic Takotsubo, basal hyperkinesis can cause left ventricular outflow tract obstruction (LVOTO) which can be worsened by external catecholamines.
- Cathecholamines can cause up to 20% mortality in moderate to severe LVOTO due to their potential to worsen the obstruction3.
- Patient was kept on norepinephrine for the duration of cardiogenic shock. He was then started on guideline-directed medical therapy with a follow-up echocardiogram in 10 weeks showing complete resolution of wall motion abnormalities.

CONCLUSION

- Less common variant with apical hyperkinesis and basal hypokinesis has no LVOTO pathophysiology and may respond to exogenous catecholamines.
- Atypical variants of Takotsubo can have unusual presentations, with cardiogenic shock and predominant ST depression on EKG, as in this healthy young adult with absence of LVOTO.
- Catecholamines may be utilized in cases with absent LVOTO to reverse cardiogenic shock.

REFERENCES