It's All About the Base: A Case of Reverse Takotsubo Cardiomyopathy

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Learning Objectives

- Distinguish between Takotsubo cardiomyopathy and its rare "reverse" variant
- Discuss management of stress cardiomyopathy

Case Presentation

A 43-year-old-female with a previous history of lupus and alcohol use disorder presented with sudden onset of encephalopathy requiring intubation for hypoxemic respiratory failure. Chest X-ray demonstrated pulmonary edema with consolidations concerning for pneumonia.

Hospital Course

Notable Initial Labs

- CMP: elevated LFTs, CPK ~19k
- CBC: anemia, leukocytosis
- Initial troponin negative (<0.10 ng/mL)
- Multiple substances detected on UDS:
  - **NM-2AI (a synthetic amphetamine)**
  - Methylphenidate metabolite
  - Lorazepam metabolite
  - Atomoxetine
  - Caffeine
  - Fexofenadine
  - Nicotine metabolite
  - Outpatient meds: cyclobenzaprine, fluoxetine, lamotrigine, hydroxychloroquine

Takotsubo vs Reverse Takotsubo Cardiomyopathy

	"Regular" Takotsubo	Reverse Takotsubo
Echo Findings	**Apical Dysfunction** Diastole / Systole	**Basal Dysfunction**
Pathogenesis	Emotional or physical stress causes catecholamine surge & resulting cardiac dysfunction	
Epidemiology	Postmenopausal women (65-70 yrs)	Younger women (~60 yrs)
Reported Causes	**Selected causes include:** neurological disturbances, surgery, eating disorders, serotonin syndrome, stimulants, TCAs)	
Associations	-Co-occurring neuro disorder -Pulmonary edema -Cardiogenic shock	-Co-occurring acute psychiatric episode
Outcomes	Low rates of recurrence & similar survival post-1 year	
Management	Guideline-directed medical therapy (e.g. B-blockers)	

Takotsubo cardiomyopathy and its reverse pattern counterpart share similarities yet have important differences

Hospital Course

Initial Imaging

- Spot EEG: no epileptiform activity detected
- CXR: pulmonary edema with asymmetric consolidations concerning for multifocal pneumonia
- AXR: Unremarkable

Further Workup

- Remaining workup (autoimmune, viral, toxic) unremarkable
- Dyspneic with new LE edema & elevated BNP (~1300) on transfer out of ICU 2 days later
- TTE demonstrated LVEF 25% & severe LV basal hypokinesis with preserved apical motion

Outcome

- Dyspnea and edema improved with diuretics and patient was discharged after GDMT (metoprolol) initiation

Conclusions

- Reverse Takotsubo cardiomyopathy is a rare variant associated with younger age and can be seen after amphetamine use.
- Clinicians should consider stress cardiomyopathy among patients with acute onset dyspnea after toxic ingestion/overdose.
- Outcomes and management of regular Takotsubo and its reverse pattern counterpart are similar.

References

1. Awad HH, McNeal AR, Goyal H. Reverse Takotsubo cardiomyopathy: a comprehensive review. Ann Transl Med. 20. 18;6(23):460.
2. Ghadri JR, Cammann VL, Napp LC, et al; International Takotsubo (InterTAK) Registry. Differences in the Clinical Profile and Outcomes of Typical and Atypical Takotsubo Syndrome: Data From the International Takotsubo Registry. JAMA Cardiol. 2016 Jun 1;1(3):335-40.