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

Pathogenesis
• Emotional or physical stress causes catecholamine surge & resulting cardiac dysfunction

Epidemiology
• Postmenopausal women (65-70 yrs)
• Younger women (~60 yrs)

Reported Causes
• Neurological disturbances, surgery, eating disorders, serotonin syndrome, stimulants, TCAs

Selected causes include:
- Co-occurring neuro disorder
- Pulmonary edema
- Cardiogenic shock
- Co-occurring acute psychiatric episode

Associated Outcomes
• Low rates of recurrence & similar survival post-1 year

Management
• Guideline-directed medical therapy (e.g. B-blockers)

Takotsubo vs Reverse Takotsubo Cardiomyopathy

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<thead>
<tr>
<th>“Regular” Takotsubo</th>
<th>Reverse Takotsubo</th>
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<td>Apical Dysfunction</td>
<td>Basal Dysfunction</td>
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Hospital 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