Takotsubo Cardiomyopathy and Catatonia: An Acute Stress Connection?

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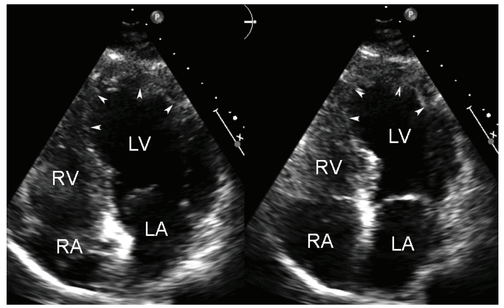
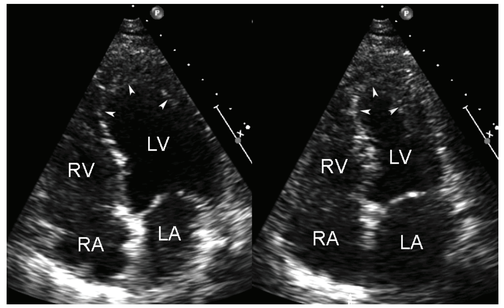
Background

- Takotsubo cardiomyopathy (TCM):
  - transient left ventricular dysfunction
  - ECG changes and symptoms mimicking acute MI
  - often precipitated by emotional stressor
- Catatonia is a psychomotor syndrome most commonly seen in mood disorders
- This is the first known reported case of TCM co-occurring with catatonia in the setting of acute psychological trauma and bereavement



Diastolic (on left) and systolic (on right) demonstrate akinetic ballooned appearance to the LV apex (arrows), with preserved function in basal segments during acute catatonic episode



4 days later, substantial recovery of function in the LV apex.
Patient would demonstrate full recovery of LV function 1 month after discharge

Typical prehospital IO access kit showing drill, needle, and infusion catheter

Patient demonstrating upper and lower extremity posturing upon initial psychiatric examination

Case Report

- Ms. X was a 54 year-old female with progressive bereavement 8 weeks after her son's sudden death
- found by family in the backyard yelling incoherently, slurred speech, and walking in circles
- during helicopter transport, she maintained conscious awareness while she was medically paralyzed, intubated, and pretibial intraosseous (IO) access was unsuccessfully attempted

Presentation on hospital admission
- Alert but unresponsive staring spells
- Episodic posturing with arms and head raised off the bed for more than 30 minutes
- Total body rigidity, waxy flexibility, negativism, ambitendency
- Coarse right arm tremor
- Hoarse speech, increased speech latency, and episodic mutism
- Fully oriented to person, place, time

Labs and Studies
- Brain CT and MRI negative for acute mass, ischemia, or hemorrhage
- EEG was normal
- CBC, CMP, thyroid function, blood and urine cultures unremarkable
- Urine drug screen was positive for cannabinoids
- ECG revealed inverted T waves in all leads

Hospital Day 6
- Psychiatry consulted
- Bush-Francis Catatonia Rating Scale (BFCRS) Score = 36 (severe)
- Lorazepam 1mg IV given
- BFCRS after lorazepam = 7

Hospital Days 7-11
- Fluctuating catatonic symptoms
- Memantine 5mg po given, BFCRS drops from 33 → 9
- Lorazepam titrated to 3mg q6 hours
- Memantine titrated to 5mg BID

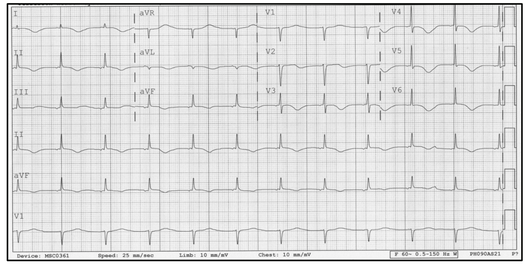
Hospital Day 12
- BFCRS consistently below 9 (catatonic symptoms still present)

Hospital Day 14
- Catatonia improved, but depressive and anxiety symptoms persist
- Patient transferred to inpatient psychiatry
- Paroxetine 10mg started

Hospital Day 25 -- Discharge
- Depression and anxiety improved, patient bright and talkative

Follow-up One Month Later
- Lorazepam and memantine tapered off
- Free of psychiatric symptoms

Patient's electrocardiogram on initial presentation to hospital showing diffuse T wave inversion in all leads



Discussion

- Physiologic mechanisms that may have triggered TCM and catatonia:
  - An excessive surge in serum catecholamines[1]
  - Alterations in cerebral blood flow[2]
  - Glutaminergic excess[3]
  - Decreased GABA-ergic activity[4]
- TCM and catatonia both frequently occur following acutely stressful events[5-6]
- Both conditions have also been associated with elevated levels of serum catecholamines[1,7]
- Catatonic patients who respond to benzodiazepines may have higher levels of catecholamines and anxiety than those who do not respond[8]
- Given the potentially similar etiologies of TCM and catatonia, it would be expected that these syndromes would frequently co-occur
- It is unclear why these two syndromes do not co-occur more frequently
- Further research is needed regarding the role of anxiety, bereavement, and excessive serum catecholamines in patients with catatonia

References

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