

Background

Takotsubo's cardiomyopathy (TC) is an acute, stress-induced left ventricular dysfunction traditionally associated with physical and emotional stress. We present a case of an individual who developed TC in the setting of neuroleptic malignant syndrome (NMS).

Case

Ms. K is a 64-year-old female with a past psychiatric history of opiate use, borderline personality disorder, bipolar disorder, and a past medical history of hypertension, diastolic heart failure, and hypothyroidism who was admitted for altered mental status, visual hallucinations, and agitation. After receiving numerous psychotropics, she eventually developed signs of catatonia, scoring 30 on the Bush Francis scale. She subsequently developed clinical and laboratory findings most consistent with NMS. Elevated troponins and concomitant echocardiogram showed findings suggestive of TC. During her hospitalization, she underwent ECT with improvement of her symptoms.

Hospital Course

- Hospitalized for hyperactive delirium.
- Treated with courses of antipsychotics (quetiapine, olanzapine, haloperidol) and lorazepam due to concern for catatonia (BF 30).
- Due to concern for catatonia, transferred to Duke Hospital to start ECT.
- Presented with labs concerning for NMS and diagnosed with TC.
- Treated with dantrolene, bromocriptine, and high dose Ativan up to 28 mg/day for NMS.
- Received 14 sessions of ECT, last ending 4/21.
- Transferred to inpatient psychiatry.
- Successfully weaned off Ativan and quetiapine.
- **Discharged.**

1/25 – 3/14/21

3/15 – 3/16

3/16 – 4/29

4/30 – 6/4

Diagnosis of NMS / Malignant Catatonia / TC

- **Diagnosis of NMS:**
 - Exposure to dopamine antagonist or dopamine agonist withdrawal in the past 72 hours.
 - Typical clinical symptoms of NMS (e.g., lead-pipe rigidity, AMS, ↑ CK, autonomic instability).
- **Diagnosis of Catatonia:** Bush-Francis rating scale, > 2 items is diagnostic.
 - Three forms of catatonia:
 - **Retarded:** mutism, inhibited movement, posturing, negativism, staring.
 - **Excited:** excessive motor activity.
 - **Malignant:** life-threatening condition with fever, autonomic instability, delirium, and rigidity.
- **Diagnosis of Takotsubo's Cardiomyopathy:**
 - Echocardiogram, EKG, cardiac biomarkers, and angiographic findings.

Discussion

- **Association between NMS and TC** - common risk factors, pathophysiological mechanisms, and causality.
- **Risk Factors:**
 - **Psychiatric illness** → predisposition to antipsychotic use → NMS
 - **Psychiatric illness** → sympathetic hyperactivity → NMS and TC
- **Causal role:** NMS → sympathetic hyperactivity → TC.
- **Pathophysiological Mechanisms:**
 - **NMS:** central dopaminergic blockade and increased sympathetic activity.
 - **TC:** excess sympathetic stimulation leading to microvascular spasms and myocardial stunning.
- **Distinguishing NMS and malignant catatonia:**
 - **NMS:** diaphoresis, rigor, fever, tremor, laboratory evidence of muscle injury, leukocytosis.
 - **Malignant catatonia:** negativism, posturing, waxy flexibility, stupor, and stereotypy.
- **Pathophysiological mechanisms** underlying malignant catatonia vs. NMS.
 - **NMS** – a *subcortical* “motor syndrome” via D2 blockade.
 - **Catatonia** – a *cortical* “psychomotor syndrome” via GABA dysfunction.

References

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