

## Introduction

- Neuroleptic malignant syndrome (NMS) is a rare but serious complication of antipsychotic therapy classically presenting with autonomic instability, mental status changes, muscle rigidity, and hyperthermia [1].
- NMS impacts 1-1.5% of individuals on neuroleptic agents.
- The mortality rate for those impacted by NMS is estimated to be between 11-38%. (Jahan, 1992)
- Though rare, a high degree of suspicion must be maintained for the diagnosis with its substantial associated morbidity and mortality as it has multiple more common mimics.

## Case

**HPI:** 34-year-old male patient with a past medical history of seizures, polysubstance abuse, mood disorder on paliperidone, seroquel, and sertraline presenting to our facility's emergency department after being found minimally responsive with depressed mental status (GCS 9) at his residence.

### Physical Exam:

On arrival patient was tachycardic, febrile, hypertensive with bilateral upper extremity as well as lower extremity lead pipe rigidity, nuchal rigidity, and trismus.

**Laboratory Evaluation:** Initial workup in the ER notable for elevated CPK, leukocytosis, transaminitis, elevated creatinine.

**ER Management:** Patient received antibiotics, fluid resuscitation, benzodiazepines, bromocriptine, cooling measures, and required intubation for airway protection, and propofol initiation for control of rigidity.

## Hospital Course

Patient was admitted to intensive care unit where EEG was negative for seizure activity, MRI brain was unremarkable, and MRI spine showed areas of myositis to the posterior paraspinal musculature from L3 through the upper sacrum. Lumbar puncture was notable for high protein, but meningitis encephalitis panel was negative for causative organism. Patient was initiated on cyproheptadine due to concern for serotonin syndrome, and patient was ultimately successfully extubated. Patient continued to improve throughout his hospital course, and dopaminergic agents were held on discharge due to concern for neuroleptic malignant syndrome.

## Discussion

- This case illustrates the difficulty of identifying NMS, even with classic symptoms, as well as the cause when polypharmacy and other medical conditions are involved.
- In this patient there was concurrent concern for conditions including but not limited to serotonin syndrome, meningitis, encephalitis, nonconvulsive status epilepticus, sepsis, and cerebrovascular accident.
- Diagnostic uncertainty was complicated by lack of reliable history, and the patient's comorbidities.
- Here, our patient had all classical features, but it should be noted NMS often presents atypically, and any patient presenting with symptoms and exposure to causative agent should prompt consideration [3].

## References

1. Tse L, Barr AM, Scarapicchia V, Vila-Rodriguez F. Neuroleptic Malignant Syndrome: A Review from a Clinically Oriented Perspective. *Curr Neuropharmacol*. 2015;13(3):395-406. doi: 10.2174/1570159x13999150424113345. PMID: 26411967; PMCID: PMC4812801.
2. Levenson JL. Neuroleptic malignant syndrome. *Am J Psychiatry*. 1985 Oct;142(10):1137-45. doi: 10.1176/ajp.142.10.1137. PMID: 2863986.
3. Picard LS, Lindsay S, Strawn JR, Kaneria RM, Patel NC, Keck PE Jr. Atypical neuroleptic malignant syndrome: diagnostic controversies and considerations. *Pharmacotherapy*. 2008 Apr;28(4):530-5. doi: 10.1592/phco.28.4.530. PMID: 18363536.

Figure 1

### Levenson's Criteria

#### Major Criteria

- Fever
- Rigidity
- Elevated CPK

#### Minor Criteria

- Tachycardia
- Abnormal blood pressure
- Altered level of consciousness
- Diaphoresis
- Leukocytosis

\*Presence of three major or two major and four minor criteria indicates a high likelihood of NMS.