Neuroleptic Malignant Syndrome: A Cautionary Tale to Treating Delirium and Agitation

Maureen T. Smith MSN, RN, CNRN
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Maureen T. Smith, MSN, RN, CNRN
Lehigh Valley Health Network, Allentown, Pa.

Abstract
The number of patients experiencing agitation, delirium, or opiate withdrawal symptoms is increasing exponentially. Geriatric delirium is a condition that can be difficult to treat. The epidemic of opiate use, and subsequent withdrawal sequela, presents as psychosis, agitation, combativeness. Treatment of these symptoms using antipsychotic drugs is not without complications. One possible medication side effect, Neuroleptic Malignant Syndrome (NMS), is characterized as a life-threatening emergency whose presenting symptoms include a decreased level of consciousness, muscle rigidity, neuromuscular malignant hyperthermia and autonomic dysfunction. Identification of NMS is often overlooked in lieu of more routine conditions such as seizure, sepsis, delirium and withdrawal agitation. Delay in the identification and definitive treatment of NMS can be life-threatening. This offering will present two case studies which highlight the pathophysiology of NMS, discuss the medications implicated in its development, review signs and symptoms, and outline available treatment options. Information gained during this presentation can be incorporated within a wide variety of settings to safely care for the neuroscience patient.

Objectives
1. Review the pathophysiology of neuroleptic malignant syndrome (NMS) in the neuroscience patient with severe illness.
2. Discuss the medications that can cause of NMS and associated signs and symptoms.
3. Outline the treatment interventions for NMS.
4. Detail two case studies that illustrate the difficulty of definitive diagnosis of NMS and the devastating consequences.

Background and Pathophysiology

1. Epidemiology
a. Incidence rate 0.02 to 3% among patients taking antipsychotic medications
b. Mortality is estimated to be 10-20%

2. Pathophysiology
a. Dopamine receptor blockade due to medication administration
  • Hypothalamic disruption causing hyperthermia, muscle tremor, muscle rigidity
b. Genetic defect of dopamine receptors
  • Deficit in the sympathetic nervous system
  • Hyperexcited state can lead to hyperthermia
c. Stacked doses of antipsychotic drugs to lessen symptoms of agitation, combativeness, delirium
  • Missed early signs due to diagnosis bias
  • Differential diagnoses

Medications that may cause neuroleptic malignant syndrome

- Antipsychotics: Haloperidol, Risperidone, Seroquel, Zyprexa
- Antidepressants: Wellbutrin, Amoxapine, Desipramine
- Benzodiazepines: Valium, Midazolam, Ativan
- Antihistamines: Methylphenidate, Ondansetron

Signs and symptoms of neuroleptic malignant syndrome

- Decreased level of consciousness
- Body temperature > 38°C

Treatment interventions for neuroleptic malignant syndrome

- Aggressive treatment of hyperthermia
- Iced gastric lavage
- Supportive care for hemodynamic/respiratory compromise
  • Intubation with mechanical ventilation
  • Vasaactive medications to maintain MAP-60-80
- Dantrolene
e. Bromocriptine
f. Intubation with mechanical ventilation

REFERENCES


There are no relevant conflicts of interest to disclose.