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Neuroleptic Malignant Syndrome

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Intro/Overview
- Identified in France during the 1960’s as Syndrome Malin Des Neuroleptiques (Gall-Ojurongbe, & Williams, 2015).
- NMS is a rare, life-threatening reaction to antipsychotic therapy.
- Associated with 1st and 2nd generation antipsychotics, atypical antipsychotics, and centrally acting antiepileptic agents (Al Danaf, Madara, & Dietsche, 2015).
- Estimated incidence of 0.02% to 3.23% (Wilson, Hayden, & Nordstrom, 2016).
- Mortality rate 4%-30% (Waldorf, 2003).

Pathophysiology
- Hypothesis of Hypodopaminergic Tone: inhibition of dopamine receptor activity in the CNS (Belvederi Murri, Guaglionano, Bugiani, Calcagno, Respino, Serafini, & Amore, 2013).
- Neuroleptic medications gain their therapeutic effect from blocking dopamine receptors.
- Usually develops within the first 2 weeks of treatment, but can develop at any time during the therapy period (Gall-Ojurongbe & Williams, 2015).
- Occurs in all age groups; elderly may be at higher risk due to coexisting medical conditions; men affected = women affected; no genetic link (Waldorf, 2003).

Signs/Symptoms
- Decreased levels of Dopamine are responsible for the tetrad of cardinal features presented in NMS.
- 3. Hyperthermia: ↓ dopamine in hypothalamus and overproduction of heat secondary to extreme muscle rigidity (Gall-Ojurongbe & Williams, 2015).

Significance of Pathophysiology
- There is NO gold standard, diagnostic test available.
- NMS confirmed by clinical presentation, and exclusion of other causes.
- Differential diagnostic considerations: Malignant Hyperthermia, phaeochromocytoma, thyroid storm, serotonin syndrome, lethal catatonia, acute porphyria, tetany, encephalitis, brain lesions and tumors, sepsis, heat stroke, and drug use (Waldorf, 2003).

Nursing Implications
- Number of people taking antipsychotics/neuroleptic medications is on the rise.
- Advanced practice nurses (APNs) may be treating these medications and the one prescribing these medications → imperative to recognize the s/s associated with NMS.
- Important to know how to treat NMS:
  - IMMEDIATELY stop medications
  - Supportive care: control temperature, restore fluid/electrolyte balance, give a muscle relaxant such as Dantrolene, and stimulate dopamine production with Bromocriptine (Waldorf, 2003).
- EDUCATE EDUCATE EDUCATE!

Conclusions
- Although the incidence of NMS is low, it may be fatal if early recognition is delayed!
- Can be difficult to Dx dx multiple factors associated with its presentation.
- Knowledge of pharmacology, a good history of medication use, and quick identification of s/s in mild cases can prevent occurrence and progression to lethal outcomes (Belvederi Murri, et al., 2015).
- Goal = ↓ mortality

References

Additional Sources

Figure 1: Genetic Framework: Dopamine. http://www.naturallivingideas.com/boost-dopamine/

Figure 2: Internal Medicine: A Guide to Clinical Therapeutics, http://accesspharmacy.mhmedical.com/data/books/attr1/attr1_c044f002.png