Neuroleptic Malignant Syndrome (NMS)

Neuroleptic Malignant Syndrome (NMS) is a rare, life-threatening reaction to antipsychotic medications, which has an estimated fatality rate as high as 20% (Patel, Lilly, Ajayi, & Melvin, 2018). The risk for developing NMS is most often related to the use of antipsychotic medications prescribed at higher doses. However, it can occur in anyone who is prescribed neuroleptics (the class of medication primarily used to manage psychosis); including the newer antipsychotics medications. NMS can also be caused by other medications which affect dopamine (a chemical messenger found in the brain).

On average, onset of NMS occurs 4-14 days after the start of the neuroleptic medication. Nearly 90% of NMS cases occur within the first ten days. However, NMS can occur without warning after years of using a medication with no problems. Once NMS starts, it usually lasts 24-72 hours (Benzer & Shlamovitz, 2020).

Prompt recognition of the symptoms of NMS can prevent further complications and death.

NMS is a medical emergency, call 9-1-1.

The most common complications associated with NMS are:

- Rhabdomyolysis (the death of muscle fibers and release of their contents into the bloodstream).
- Respiratory failure (when the body has difficulty breathing or stops breathing).
- Sepsis (a massive, whole-body infection, which can be fatal).
- Congestive heart failure (occurs when your heart is not pumping normally) (Modi, Dharaiya, Schultz, & Varelas, 2015).

Treatment is individualized, but may consist of the following:

- Admission to a hospital.
- Stopping the neuroleptic medication.
- Intravenous fluids (Fluids given directly into the blood stream via a needle and tubing.)
- Cooling blankets/ice (often used to treat high body temperatures) (Berman, 2011).

NMS symptoms usually improve within 1-2 weeks (Benzer & Shlamovitz, 2020). NMS can happen again, if a person is restarted on the same neuroleptic medication. It is best to use a different neuroleptic medication, than the one which caused NMS (Berman, 2011).

NMS presents with sudden onset of symptoms:

- Hyperthermia (high fever, temperature over 100.4)
- Mental confusion (Berman, 2011)
- Severe muscle spasms and stiffness
- Problems with the involuntary nervous system, which can cause:
  - A high heart rate (over 100 beats per minute)
  - An unstable or high blood pressure
  - Rapid breathing and/or distressed breathing (31% of cases)
  - Lack of oxygen in the blood (an oxygen reading below 95%)
  - Excessive sweating (Benzer & Shlamovitz, 2020; Patel, Lilly, Ajayi, & Melvin, 2018).
  - Lack of control over urine or stool (Berman, 2011).
- Nervous system signs
  - Uncontrollable movement of the arms, legs, or other body parts.
  - Shaking or twitching of the arms, legs, or other body parts.
  - Muscle spasms (Berman, 2011)
- Abnormal laboratory results
  - Leukocytosis (a high white blood cell count)
  - Elevated CPK (Creatine phosphokinase is an enzyme found in your heart, brain, and skeletal muscles. When muscle tissue is damaged, CPK levels will be high in your blood.)
  - Impaired liver function tests
  - Electrolyte disturbance, which can cause your heart to stop.
  - Kidney (renal) impairment
  - Blood clotting problems (Trollor, Chen, Chitty, & Sachdev, 2012).

App of the Month

The 3D Brain is a free app, rated E for everyone, allows the user to access the touch screen to rotate and zoom around 29 interactive structures. Discover how each brain region functions, what happens when it is injured, and how it is involved in mental illness. Each detailed structure comes with information on functions, disorders, brain damage, case studies, and links to modern research. Created by Vivid Apps and AXS Biomedical Animation Studio for the Cold Spring Harbor Laboratory DNA Learning Center. 3D Brain was produced for the Genes to Cognition (G2C) Online website funded by the Dana Foundation and Hewlett Foundation. (*App of the Month is not endorsed by DBHDS Office of Integrated Health. User accepts full responsibility for utilization of app*).

References

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Berman, B. D. (2011). Neuroleptic Malignant Syndrome. The Neurohospitalist, 1(1), 41-47. doi: 10.1177/1941875210386491

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COVID-19 Vaccine Information

DBHDS Provider Questions about COVID-19 Vaccine, please email: rr-eoc_providers@dbhds.virginia.gov

Pharmacy Partnership for Long-Term Care Program for COVID-19 Vaccination Frequently Asked Questions List:
http://www.leadingageny.org/?LinkServID=C9D6AABC-A70E-C2A0-68C1C2C28F268F9B

CDC COVID-19 Vaccination FAQs: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/faq.html
CDC's COVID-19 Vaccination Communication Toolkit: https://www.cdc.gov/vaccines/covid-19/health-systems-communication-toolkit.html

ABA Snippets

Behavioral Skills Training Improves Behavior Support Plan Implementation

Behavioral skills training (BST) is an evidence-based training approach, which consists of instructions, modeling, rehearsal, and positive or corrective feedback provided to the trainee(s) until a new skill is mastered (Miles & Wilder, 2009; Ward-Horner & Sturmey, 2012). BST is used to teach "performance skills", in which a trainee learns to complete duties that could not be performed prior to training. BST differs from trainings aimed at teaching "verbal skills", which are focused on acquiring new knowledge to enable a trainee to answer specific questions (Parsons, Rollyson, & Reid, 2012). Trainings incorporating BST are effective at increasing a staff member's ability to implement complex behavior intervention plans and/or behavioral techniques (Madzharova, Sturmey, & Yoo, 2018; Sarokoff & Sturmey, 2004; Hine, 2004; Hogan, Knez, & Kahng, 2015).

In the context of staff or families implementing behavior support plans with consistency, acquisition of "performance skills" is critical. For both behaviorists delivering training on a behavior plan and caregivers/families receiving training, a training sequence that is the most effective and efficient is likely the most desirable for all involved. Many practitioners and consumers have familiarity and comfort with didactic trainings (e.g. discussion/verbal review of the behavior plan with the behaviorist). However, learning about and incorporating BST into behavior plan training, may yield better implementation results than typical "verbal skills" training approaches.

References
Hine, K. M. (2014). Effects of behavioral skills training with directed data collection on the acquisition of behavioral practices by workers in a private, not-for-profit child care center. Journal of Organizational Behavior Management, 34, 223–232.
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Miles, N. I., & Wilder, D. A. (2009). The effects of behavioral skills training on caregiver implementation of guided compliance. Journal of Applied Behavior Analysis, 42, 405–410.
Parson, M.B., Rollyson, J.H, & Reid, D.H. (2012). Evidence-based staff training: a guide for practitioners. Behavior Analysis in Practice, 5(2), 2-11.
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Ward-Horner, J., & Sturmey, S. (2012). Component analysis of behavior skills training in functional analysis. Behavioral Interventions, 27, 75–92.

OIH Training Sessions

Skin Integrity Caregiver Training - **Tuesday February 9, 2021 between 10:00 p.m. – 12:00 p.m.**
Everything you need to know about Skin Integrity and Pressure Injury
Register in advance for this training: **https://dbhds.zoomgov.com/meeting/register/vJltfu-rrDwsHe-6VUR0RXMq66oWY0y9CDk**

Mobile Rehab Engineering Team Services, Durable Medical Equipment and Assistive Technology
How to Request MRE Team Services - The Process for New DME & AT - Emergency Evacuations for Non-Ambulatory Individuals
Thursday February 18, 2021 between 1:00 a.m. – 3:00 p.m.
Register in advance for this meeting: **https://dbhds.zoomgov.com/meeting/register/vJlsduuspzguG7zaKsudSDRtQ7Q9Os0NLGw**

The Fatal Seven Caregiver Training - **Thursday March 11, 2021 between 10:00 a.m. – 12:30 p.m.**
Everything you need to know about the TOP High Risk Health Conditions
Register in advance for this training session: **https://dbhds.zoomgov.com/meeting/register/vJlsce2urDwoEhhLJZj54IPuXuMCYKwrvxI**

VDH Special Needs Oral Health Caregiver Training - **Thursday March 23, 2021 between 10:00 a.m. – 12:30 p.m.**
Everything you need to know about the TOP High Risk Health Conditions
Register in advance for this training at: **https://zoom.us/meeting/register/tJclc-uqpjMsGtae_Qru2SW1tIdhqHlFmiFr**

After you register and are approved to attend, you will receive a confirmation email with a link to join the training on the day of the course. If the course capacity has been met, you will receive an email with an alternate course date. So register early!