**NMSIS April Meeting Report 2021**

**Publications;**

Chapter on NMS- in press, Movement Disorder Emergencies, Third edition.

Amantadine review-published Ann Clin Psychiatry; treatment of NMS/TD. (Sponsor; Osmotica Pharmaceuticals🡪Adamas), published in Ann Clin Psychiatry

Review of differential diagnosis of drug-iniduced hyperthermic syndromes; published Anesthesia Patient Safety Foundation Newsletter and Clin Psychopharmacol Neurosci.

**Projects;**

1. Two scheduled webcasts posted to website and YouTube using powerpoint presentation on TD and NMS sponsored by **$2000** educational grant to NMSIS from Osmotica Pharmaceuticals🡪 Adamas (Osmolex ER- extended relase amantadine);

<https://www.mhaus.org/nmsis/medical-education-programs/neuroleptic-malignant-syndrome-august-2020-webcast/>

<https://www.mhaus.org/nmsis/medical-education-programs/tardive-dyskinesia-presentation-august-2020/>

1. National VA database survey study (2004-2014) of the administration of IV dantrolene (see attached abstract) sponsored by **$10,000** grant from Eagle Pharmaceuticals, may require support from the Shah NMSIS fund;
   1. N=351 IV dantrolene administrations nationwide
   2. By Diagnosis;
      1. NMS 35%
      2. Sepsis 17%
      3. Rhabdomyolysis 15%
      4. Heat illness 7%
      5. Parkinson’s disease 7%
      6. MH 5%
      7. Serotonin 3%
2. RYR1 investigations of NMS, Geisinger Genomic Medicine Institute; (rhabdo secondary analysis?);
   1. 144,000+ exomes to investigate
   2. filter for drug list of neuroleptics provided
   3. filter for ICD-10-CM = G21.0 (ICD-9-CM = 333.92) codes for NMS
   4. filter for RYR1 variants

**Misc;** Several possible corporate sponsors for NMSIS could be contacted

Website updates ongoing- need for updated contact info, references

Support of office staff, Board and PAC for NMS-related calls and emails

**Section 14: Abstract**

1. **Objectives(s):** *Objectives are 1)* *Determine the frequency of administration of intravenous dantrolene in VA facilities nationwide over a ten year period (2004-2014); 2* *Ascertain the indications for use of intravenous dantrolene; 3)* *Explore the demographic and clinical characteristics of patients receiving intravenous dantrolene; and 4) Assess the outcomes of treatment with intravenous dantrolene.*
2. **Research Design:** *This is a retrospective, ten-year, real-world, descriptive survey and analysis based on the national administrative database of veterans who received treatment with intravenous dantrolene.*
3. **Methodology:** *We plan to search the database covering the ten year period to identify patients who received treatment with intravenous dantrolene and patients with diagnoses during any admission that have been associated in past studies with dantrolene treatment Data will be recorded and reported descriptively as to the frequency of use of dantrolene and the indications compared to the prevalence of patients with diagnoses who might have benefitted from treatment especially with MH, the approved indication for the drug. Data from patients who did receive the drug will be examined as to demographic, clinical and treatment parameters as well as treatment outcomes and any adverse effects.*
4. **Clinical relationships:** *Human study*
5. **Impact/Significance:** *Dantrolene is the first-line treatment for MH, and its availability and rapidity of administration are considered essential and life-saving by accreditation agencies. Thus, study of its use in VHA is important for the quality of care for veterans who may be at risk during procedures involving potential MH triggering agents. We plan to determine the extent and appropriateness of the use of dantrolene within VHA. Recent advances in the genetics of MH implicating mutations in the RYR1 calcium channel receptor, imply that susceptibility to MH during anesthesia may also extend to susceptibility for hyperthermic reactions to other physical or drug-related triggers. Accordingly, dantrolene has also been proposed as a non-specific treatment for other states of extreme hyperthermia, such that the large VHA database offers a unique opportunity to survey whether it is being used for other conditions which could generate unique safety and efficacy data. Finally, the study is also designed to determine the baseline prevalence of MH and related hyperthermic syndromes and the consequent need for dantrolene availability and treatment. Understanding the state of awareness and appropriate use of dantrolene and the diagnoses for which it is intended through this analysis is important in developing rationale guidelines for evidence-based and veteran-centric treatment for veterans who are treated with potential MH and other triggering drugs. In addition, apart from specific pharmacologic treatment implications, findings from this line of study could inform policy, cost and resource allocation strategies to address areas of need to improve overall health and outcomes. Dantrolene is a relatively expensive drug to stock for emergencies so data on cost-effectiveness in VHA would be informative. This is particularly relevant to Veterans healthcare considering the unique challenges faced by veterans and VHA*