

HOTLINE UPDATES



CONSULTANTS

Current HLCs (25)

Recently Retired (7)

- Thomas Kozhimmannil
- Gregory McHugh
- Agi Melton
- Henry Rosenberg
- Margaret Weglinski
- Ronald Litman
- Jerry Parness

New Consultants (5)

- **Christopher Edwards** (U Florida) June 2019, Mentor: Sivak
- **Christopher Heine** (MUSC) June 2019 Mentor: Theroux
- **Cheryl Gooden** (Yale) January 2020 Mentor: Watson
- **Sandra Gonzalez** (U Florida) March 2021 Mentor: Sivak
- **Robert Shaw** (U Wisconsin) March 2021 Mentor: Litman

RECENT INITIATIVES

- Caller and Consultant Surveys *Sept 2020*
- Caller Email *May 2020*
- COVID survey and Letter to ASA *June 2020*
- COVID and MH Webinar *Feb 2021*
- Open Anesthesia/SPA “Ask the Expert” Podcast *March 2021*
- Hotline Committee *March 2021*
- Case of the Month Educational Series (Virtual) *May 2021*

CONSULTANT SURVEY

Demographics: Age, weight, Gender (if different from sex assigned at birth)

Diagnosis (likelihood of MH)

Should an AMRA be filed?

Brief synopsis

Flagged for review as Teaching case (typical) or Challenging/Interesting case (atypical)

Personal/family history of MH

Case details: surgery type, anesthetics, intubation/ventilation, vitals (max HR, temp, ETCO₂), metabolic acidosis, MMR, rigidity, arrhythmia

Treatment: Charcoal filters, dantrolene (which type), effect of dantrolene

CONSULTANT SURVEY- RESULTS

Sent : 264

Returned: 102 (38%)

Top Completers

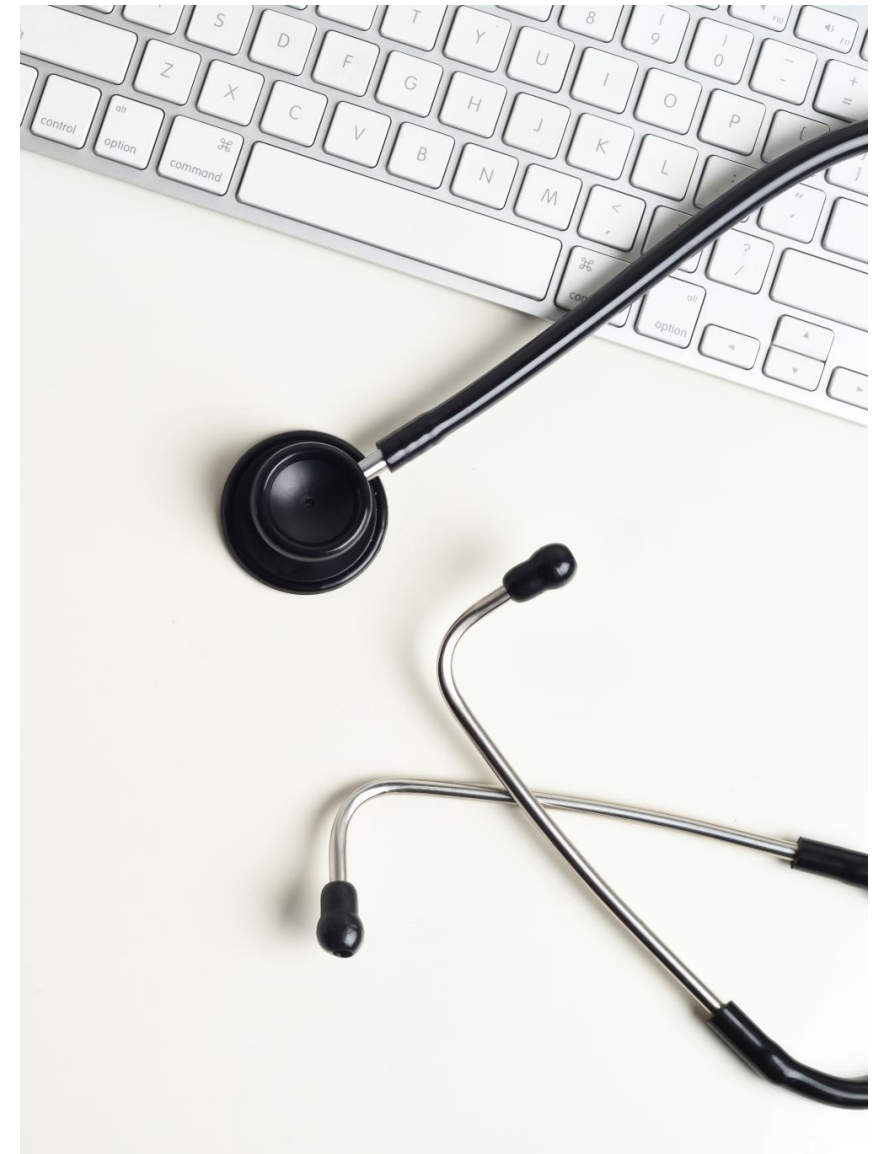
E Sivak (24) !!, A Beilsky (19),

T Pinyavat (16), C Watson (9)

Diagnosis:

11 Possibly MH, 3 Strongly Suspect MH

16 AMRA should be filed



A white computer keyboard is visible in the upper right corner, partially obscured by the text. A black stethoscope is positioned diagonally across the right side of the page, with its chest piece resting on the keyboard and its earpieces extending towards the bottom right. The background is a plain, light-colored surface.

CONSULTANT SURVEY

46 yo female for robotic hysterectomy (PMH hypothyroid, anxiety, renal tubular acidosis, GERD, kidney stones, Asthma and IGA deficiency) induced with versed, fentanyl, propofol and rocuonium then added sevo. Within minutes of induction temp up to 38.8 and then 39.4 - all prior to any incision or prep of the patient. Surgery was cancelled. Dantrolene given. ABG 7.29/30.4/147/14.2 BD -10.9 K 3.8. ...Plan was to go to ICU. While the very rapid rise of temperature is very concerning for MH, without more history about RTA unclear what her normal bicarb level is. Certainly had no elevation of CO₂, but very low bicarb and significant BD.

E Sivak

CALLER SURVEY CONTENT

Reason for call

Was your question answered?

How long did it take to connect to a consultant?

Did consultant aid in differential diagnosis?

How helpful was the HLC?

Did the HLC make you feel more confident/comfortable with your management and diagnosis?

What is the current working diagnosis? Other information since call?

Referral for biopsy or genetic testing ?

CALLER SURVEY - RESULTS

Sent: 269

Returned: 46 (17%)

Answers all the way back to 2013

Timeliness:

5 min or less (71%),

5-10min (26%)

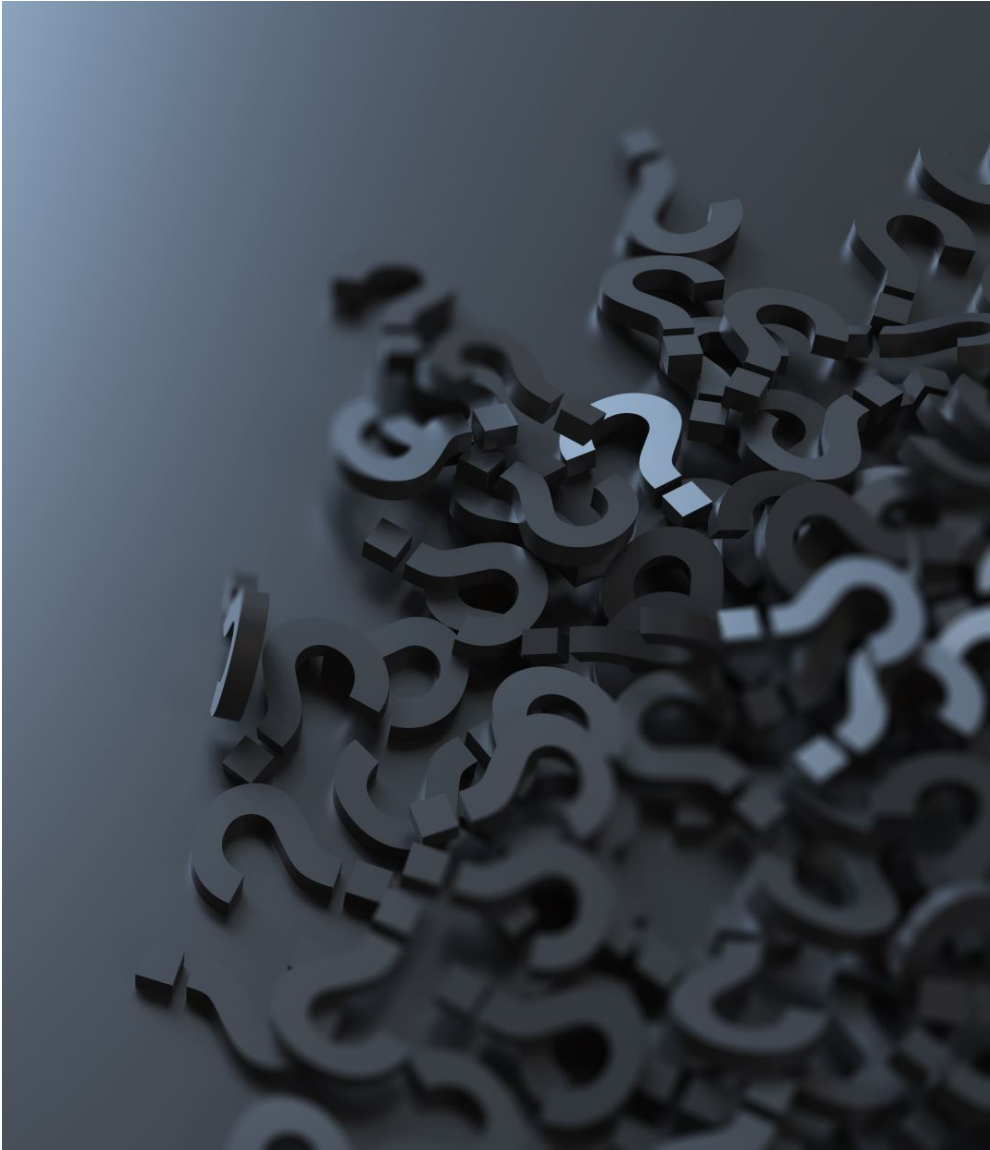
> 10min (<1%)

Service:

Extremely helpful (71%)

Very helpful (24%)

Somewhat and Not (<1%)



CALLER SURVEY

- "We used the MH App for i phone to manage a pediatric cases with a suspected crisis that resulted no MH. Dr. Litman was the Hot Line consultant. He was extremely helpful and friendly guiding us with the differentials."
- "Appreciate consultation. Dantrolene avoided after reviewing ABG and mixed picture."
- "This is my second time calling the hotline in residency and it has been a pleasant, informative experience that has helped me better care for critically ill patients both times. Thank you kindly"



CALLER SURVEY

A valuable service that is always helpful. This is the second time I have called during a 20 yr Career

Dr. Watson was excellent. He made the correct diagnosis of hypermetabolic syndrome due to patient taking anabolic steroids. Many, but not all signs, were similar to MH. Also, he was not on call, but the back up call person when they could not reach the call person. Please don't let him retire! What a resource for the ASA.

Surgeons were concerned pt had MH due to high temperature and wanted to give danteolene just in case. We (anesthesiology) thought it was likely iatrogenic +/- inflammatory given normocarbia. It was helpful to get a third opinion from the MH hotline who reassured us that it was unlikely MH.



REGISTRY CONNECTION

Kristee identified 19 calls since Aug 2020 to be added to registry

- 2/19 of the calls made it to the registry
- 13/19 calls we have been unable to get in touch with the caller
- 4/19 we have emails out to with no response yet



HOTLINE CALLS AND COVID-19

- Volume of calls paralleled COVID peaks
- Typical scenario:
 - "50-70y M, COVID Pneumonia, received succinylcholine 2 days to 1 week ago, high fever, how to dose dantrolene"
- Male, Obesity, Diabetes Type2, Renal failure



MALIGNANT HYPERTHERMIA ASSOCIATION OF THE U.S.



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May 13, 2020

Dear Dr. Mary Dale Peterson:

I am writing to you in my capacity as the Medical Director of the MHAUS MH Hotline. As you know, MHAUS is a non-profit patient advocacy organization that operates with the mission of promoting optimum care and scientific understanding of MH and heat-related disorders. One of the most important services provided by MHAUS is the availability of a telephone hotline (800-MH-HYPER) continuously staffed by anesthesiologists with expertise in managing patients with MH. The hotline is in a unique position to receive up-to-date clinical information, especially from clinicians treating peri-operative hyperthermia. In fact, we receive roughly 165 calls per year, thirty percent of our call volume, from physicians in the intensive care unit managing high fever.

The purpose of this letter is to inform the ASA of a clinical phenomenon noted by our hotline consultants during the COVID-19 pandemic. Beginning March 23, 2020, we started to receive calls from anesthesiologists and intensivists managing intubated COVID-19 positive patients who have high fever resistant to acetaminophen and external cooling measures. Many of the callers, although acknowledging that malignant hyperthermia is not at the top of the differential diagnosis, inquire about the use of dantrolene in the management of the high temperatures (generally above 106° F) related to COVID-19. Our consultants do not have the data to recommend for or against the use of dantrolene for the purposes of treating fever outside of the context of MH. A few reports in the literature and anecdotal evidence suggest that dantrolene will reduce marked temperature elevation regardless of the cause. As consultants, we can only advise the clinician of the need to balance risk and benefit when using dantrolene as a non-specific antipyretic. We inform them of proper dosing of dantrolene as we would use it to treat an MH crisis (2.5mg/kg IV bolus repeated every 5 minutes as needed followed by maintenance dosing of 1mg/kg every 6 hours), but do not have the data to support these doses in COVID-19 cases. To our knowledge, about 11 patients have been treated with dantrolene for COVID-19 related fever, but we do not have information on the outcomes of these patients. When consulting on cases of hyperthermia due to sepsis in the past, we have noted that dantrolene seems to mitigate high temperatures when other measures have not been successful. This also appears to be the case for COVID-19 patients.

We have reported the use of dantrolene in the treatment of hyperthermia related to COVID-19 to the manufacturers of dantrolene (Eagle Pharmaceuticals, Par Pharmaceuticals, and US WorldMeds) who have not received similar inquiries, and would also like to make the anesthesia community aware of this observation.

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The mission of MHAUS is to promote optimum care and scientific understanding of MH and related disorders.

HOTLINE CALLS AND COVID-19

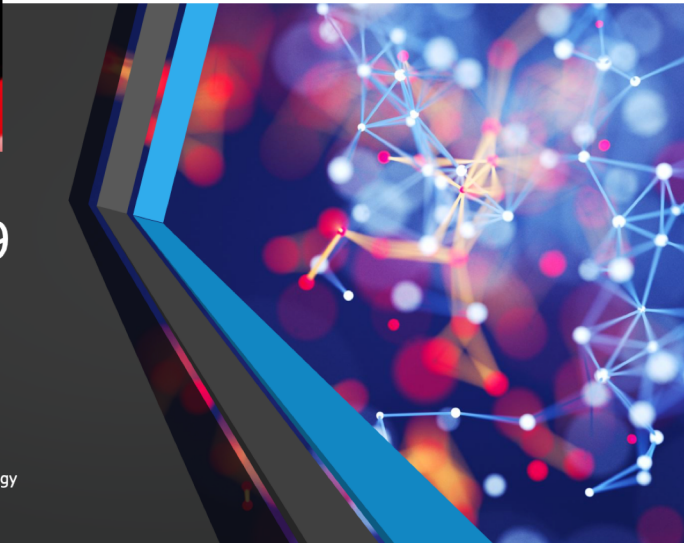
- First 10 cases surveyed by consultants and reported in letter to ASA President
 - Calls asked about dosing Dantrolene
 - Advice: Non-specific antipyretic: it *can* bring temperature down regardless of cause of fever, but has many potential downsides/side effects
 - Outcome of cases unknown

WEBINAR and PODCAST



COVID -19 and MH

Dr. Teeda Pinyavat
MHAUS MH Hotline Director
Assistant Professor of Anesthesiology
Columbia University



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OA/SPA Ask the Expert Podcast

Malignant Hyperthermia and the MH Hotline

March 2021: Dr. Teeda Pinyavat and OpenAnesthesia Editor Dr. Aditee Ambardekar discuss malignant hyperthermia and the MH Hotline.



HOTLINE COMMITTEE

Chair: Teeda Pinyavat

Members:

Charles Watson

Ryan Hamlin

Mohanad Shukrey

Richard Kaplan

Harvey Rosenbaum

Dorothea Hall

Erica Sivak

Christopher Edwards

Mission:

- Support current consultants
- Creation of educational materials for consultants
- Bi-annual HLC/PAC meeting planning
- Quality control and standardization of consultations

Consultant Concerns/Ideas

Data collection– Easier and more accurate ways to gather data?

Few questions asked by medic alert at the end of call?

What data are we looking at? What questions do we want to answer?

Post episode Outcomes and Follow-up

Better ways to get follow-up/outcomes data after calls?

Les Beisecker study on variants and genetic testing via Registry

Neurology referral base– Who to consult post acute rhabdo? Not many available.

Consultant Concerns/Ideas

Quality Assurance

Standardized messages - “E-statements” sent to callers as triggered by HLCs, recommended blurbs vetted by advisory committee (dantrolene dosing, lab testing, rhabdo diagnosis, neurology workup, how to file AMRA) – sent in real time during or immediately after the call via text or email, hot button on website?

Communication and Education

Revive “Case of the Month”

Periodic hotline reports in Communicator

Bi-Annual Meeting

Still not permitted to travel, postpone until 2022.

Replace with more frequent zoom Education/QA meetings