

A869

TITLE: PRESENTATIONS OF MH IN THE COMMUNITY—THE MH HOTLINE 1990
AUTHORS: C. Greenberg, M.D., H. Rosenberg, M.D.
AFFILIATION: Department of Anesthesiology, College of Physicians & Surgeons, Columbia University, New York, NY 10032 and Hahnemann University, Philadelphia, PA 19102

The Malignant Hyperthermia Association of the United States (MHAUS), a non-profit education and patient care organization, operates a "hotline." In 1990, over 534 calls were handled by 21 consultant experts. (Data from many other calls were not available for review.) Analysis of the calls from a data base created by one of the consultants provides information about the current state of awareness of malignant hyperthermia (MH) and its presentation. Calls originated from 44 states, most from private or community hospitals. 73% of the calls were from anesthesiologists or CRNA's.

Of the 335 calls requesting information about MH, 60% concerned preoperative evaluation or perioperative management of known MH susceptibles or those with a family history of MH. 30% were inquiries about the safety of specific medications (e.g. propofol, ketamine) and 10% were requests for biopsy referral or support following an episode.

196 calls were requests for assistance with case management: 71 concerned masseter muscle rigidity (MMR) after succinylcholine and 65 were inquiries about acute or suspect MH. The incidence of MMR was higher in young patients, while over 50% of acute or suspect MH occurred in those over the age of ten (Table). Both respiratory and metabolic acidosis occurred more often in cases of acute MH than after MMR (Table). Frequency of temperature elevation and rise in CPK were also greater with MH than with MMR (Table). Myoglobinuria occurred more often in cases of acute MH than after MMR (33% vs. 13%). 95% of MMR episodes occurred on induction, while 50% of acute MH occurred after induction. 62% of MMR cases were associated with ENT procedures. 12 cases of MMR progressed to clinical MH.

Although 4 cardiac arrests were reported, there were no deaths from MH. Dantrolene was used for treatment in 9/71 cases of MMR, 33/50 cases of suspect MH, and 13/15 cases of acute MH.

52 cases were felt not to be MH. Infection (40%), postoperative fever (19%), overwarming in the OR (8%), and drug reactions (6%) were sometimes confused with MH.

Questions about MH are encountered regularly by anesthesiologists. Often the clinical presentation of MH needs to be differentiated from conditions resembling MH. The MHAUS hotline consultants serve a valuable information and patient care function for the medical community.

TABLE: PRESENTATIONS OF MMR AND MH

	MMR	Suspect MH	Acute MH
Age 0-10 yrs	83%	38%	50%
11-20	7%	26%	7%
> 21	10%	36%	43%
Respiratory acidosis	13%	54%	73%
Metabolic acidosis	3%	22%	80%
Elevated CPK	49%	40%	67%
Temperature elevation	24%	74%	53%

A870

TITLE: PERIOPERATIVE COURSE OF CHILDREN LABELLED AS "MALIGNANT HYPERTHERMIA SUSCEPTIBLE"
AUTHORS: S. Yentis FCAnaes, E. Hartley FRCPC.
AFFILIATION: Department of Anaesthesia, The Hospital for Sick Children; University of Toronto, Toronto, Ontario, Canada M5G 1X8.

Introduction: Diagnosis of malignant hyperthermia (MH) susceptibility is confirmed by +ve muscle biopsy (Bx). However, many patients are labelled as malignant hyperthermia susceptible (MHS) because of a positive family history or a previous MH reaction, without muscle Bx. Following "trigger-free" anesthesia, we presently observe MHS children for pyrexia, hemodynamic instability and other complications. We reviewed the incidence of features of MH in children labelled as MHS who presented for surgery within a ten year period.

Methods: There were 331 patients labelled as MHS presenting for surgery from Jan. 1981 to Dec. 1990, identified from operating room, anesthetic, surgical and dental registers, and medical record dept. database. Of these, 268 charts were available for review. Patient details, type and duration of surgery, use of dantrolene and complications were recorded for each patient.

Results: The 268 children (aged 1 day-19 years) underwent 365 general anesthetics (GAs). The number of GAs administered to Bx +ve patients, prophylactic use of dantrolene (routine before 1986) and incidence of postoperative pyrexia $\geq 38.5^{\circ}\text{C}$ within 3 days of surgery are shown in Table 1. Further details of the pyrexial patients appear in Table 2. None of these patients had other features suggestive of MH, or had muscle Bx results available at time of surgery. No cases of intraoperative pyrexia occurred, nor any other intra- or postoperative features of MH.

Discussion: The label "MHS" is overused relative to true MH susceptibility, but it is this label which we usually encounter in clinical practice. Mild postoperative pyrexia ($\geq 38.0^{\circ}\text{C}$) occurs in 28.5-41% children not labelled as MHS,^{1,2} and pyrexia exceeds 39.0°C in 7.4%.¹ In addition, pyrexia has poor predictive value for MH.³ Only 5 children had postoperative pyrexia $\geq 38.5^{\circ}\text{C}$ unexplained by other diagnoses, and none of these patients had other features suggestive of a MH reaction. We conclude that intra- and postoperative pyrexia and complications related to MH are rare in children labelled as MHS undergoing trigger-free anesthesia.

References: 1. J Pediatr Surg 17: 347-349, 1982. 2. J Pediatr Orth 6: 139-142, 1986. 3. Anesthesiology 66: 547-550, 1987.

Table 1

No. of GAs	No. Bx +ve	No. receiving prophylactic dantrolene	No. pyrexial post-op.
365	20 (5.5%)	103 (28.2%)	12 (3.3%)

Table 2

Age	Surgery (mins)	Max. temp. ($^{\circ}\text{C}$)	Presumed cause
5 m	club foot (170)	39.0 at 13 hrs	?
1 y	PDA ligation (90)	38.7 at 7 hrs *	throat infection
3 y	nephrectomy (240)	39.5 at 2.5 hrs	atelectasis
5 y	orchidopexy (65)	40.5 at 8 hrs	?
5 y	tonsillectomy (30)	39.0 at 5 hrs	?
6 y	dental (210)	38.9 at 6 hrs	otitis media
6 y	bronchoscopy (60)	38.8 at 4 hrs **	atelectasis
8 y	leg trauma (70)	38.5 at 12 hrs	infected wound
8 y	exc. wound (150)	38.6 at 4 hrs	infected wound
9 y	spinal fusion (205)	38.7 at 19 hrs **	?
13 y	cardiac cath. (300)	38.8 at 24 hrs	?
14 y	spinal fusion (360)	39.0 at 36 hrs **	atelectasis

*subsequently found to be Bx -ve

**prophylactic dantrolene given