

Title: Hyperthermia in the Pediatric Intensive Care Unit – Is it Malignant Hyperthermia?

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Introduction: The Malignant Hyperthermia Association of the United States (MHAUS) receives numerous calls from PICU physicians for many different reasons, including concern for malignant hyperthermia (MH), and advice on management of hyperthermia. These hotline calls have not previously been evaluated for ultimate diagnosis or outcomes.

Methods: MHAUS electronic case logs and original hard copies from 1997 to 2005 were examined for all calls concerning pediatric patients (<19 yr) who were in an intensive care unit (ICU) at the time of the call, and whose symptoms started in the ICU. The logs were evaluated for presenting signs and symptoms, the reason for the hotline call, the hotline consultant’s opinion and recommendations, the presumed diagnosis, and outcome, when known.

Results: Sixty-three of 1,883 case logs met the eligibility criteria. Ages ranged from 4 days to 18 years. There were 39 males, 17 females, and 7 unspecified. Presenting signs and symptoms are listed in Table 1, and reasons for the call are listed in Table 2. Eight patients were ultimately diagnosed with definite (5) or probable (3) MH. One of these patients who received isoflurane during cardiac surgery had a previously unknown family history of MH. All patients with definite or probable MH received inhalational anesthetics for a surgical procedure prior to arrival in the ICU. The remaining diagnosis included infectious origin (16), CNS origin (9), and unable to be determined (30). Dantrolene was administered prior to the hotline call in 32 cases. The recommendation to continue or stop dantrolene was not uniform and varied according to clinical situation. The hotline expert recommended continuation of dantrolene in 19 cases, discontinuation of dantrolene in 8 cases, and this recommendation was not recorded in 5 cases. The hotline expert recommended initiation of dantrolene in 6 cases in which it had not been started. In 17 cases, the hotline expert recommended initiation or continuation of dantrolene as a nonspecific antipyretic.

Table 1- Presenting signs/symptoms

Increased temperature	63
Tachycardia	41
Rhabdomyolysis	16
Acidosis	19
Altered mental status	8
Dysrhythmia	8
Seizure	6
Rigidity	7

Table 2- Reasons for the hotline call

Diagnosis question	34
Treatment question	11
Hyperthermia management advice	17
General advice	1

Conclusions: Malignant hyperthermia is a possible etiology of hyperthermia in the PICU, although it was not diagnosed in patients that did not receive triggering agents. Nevertheless, in hyperthermic patients of varied etiologies, dantrolene was recommended as a nonspecific antipyretic.

References:

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