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Malignant Hyperthermia and Sleep Apnea

To the Editor:—The types of surgical procedures most likely to be associated with masseter muscle rigidity (MMR) and/or malignant hyperthermia (MH) remain an unanswered question. It has, however, been reported that MH patients often demonstrate localized areas of muscle weakness or musculoskeletal abnormalities that may present as strabismus, hypermobile joints, spinal deformities, ptosis, club foot, and hernias.[1-3]

We were recently involved in the anesthetic management of a 7-yr-old, 30-kg girl with a clinical diagnosis of obstructive sleep apnea (OSA) who presented for tonsillectomy and adenoidectomy on an ambulatory basis. There was no known family history of MH and the temporomandibular joints were normal. Anesthesia was induced with N_2O/O_2 and halothane by facemask and, once she was unconscious, succinylcholine, 1.5 mg/kg iv, was administered. Some 30 s later, MMR was noted. The patient was hyperventilated with 100% O_2 by mask using a new Jackson Rees Circuit connected to an oxygen tank. Heart rate increased from 115 to 205 bpm and axillary temperature rose from 35.7 to 36.7° C over 10 min. pH_a was 7.18, Pa_{CO_2} 53 mmHg, Pa_{O_2} 99 mmHg, and base excess −9.0 mEq/l. The patient was cooled, hyperventilated with 100% oxygen, and an iv bolus of dantrolene was administered. The patient went on to develop hemoglobinuria and myoglobinuria during the recovery period. Her CPK rose from 30,000 U/l (normal range 145 U/l) on the first postoperative day to a peak of 89,000 U/l on the following day and she complained of severe myalgias. She made an uneventful recovery and was discharged from the hospital 4 days later with a clinical diagnosis of MH.

The obstructive element in the OSA syndrome may be due to an imbalance between airway constricting and airway dilating pharyngeal muscle forces.[4,5] This situation is perhaps analogous to those producing strabismus, scoliosis, etc.[1,2] The occurrence of both OSA and MH in our patient raises the possibility of an association between MH susceptibility and OSA. While "one swallow doesn't make a summer," and a chance association between the two conditions may be the most likely explanation, closer observation of OSA patients in the future may disclose the strength of any association of MH with OSA. We would be interested in hearing from any other anesthesiologists who might have encountered a similar concurrence of conditions.

NATHAN SCHWARTZ, M.D.
Assistant Professor of Anesthesiology and Pediatrics

JAMES B. EISENKRAFT, M.D.
Associate Professor of Anesthesiology

Department of Anesthesiology
Mount Sinai School of Medicine
One Gustave L. Levy Place
New York, New York 10029-6574

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Hypoglycemia Associated with Supraventricular Tachycardia in an Infant

To the Editor:—In pediatric patients, if dextrose-containing solution is the only intraoperative fluid infused iv, the amount necessary to maintain cardiovascular stability during use of a potent inhalational anesthetic invariably results in hyperglycemia.[1] On the other hand, withholding glucose intraoperatively could result in hypoglycemia.*

Our solution is to infuse 5% dextrose in lactated Ringer's (D_5LR) iv at a maintenance rate providing 6 mg/kg/min of glucose.[2] Then, we use bolus LR to maintain blood pressure and replace deficits and intraoperative losses.

The technique we use does not require two infusions for each patient. A Pharmaseal® K-52 Novex three-way stopcock and tubing are inserted directly into a bag of LR (fig. 1). Boluses can be withdrawn quickly and easily. The same bag can be used for subsequent patients without cross-contamination.

* White SE, Brown SE, Frison LM: Hypoglycemia associated with supraventricular tachycardia in an infant. ANESTHESIOLOGY, in press