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Should Malignant Hyperthermia-susceptible Patients Undergo Muscle Biopsy?

To the Editor:—In a recent editorial, Larach[1] discusses the use of diagnostic tests in patients suspected of being susceptible to malignant hyperthermia (MH).

In the article by Isaacs and Badenhorst[2] that serves as the substance for Larach's editorial, 4 of 171 patients (2.3%) who were clinically suspected of being susceptible to MH tested negative on caffeine halothane contracture testing—the gold standard! If you are the anesthesiologist responsible for these patients, how do you counsel them? Having been through the period when calcium uptake by the sarcoplasmic reticulum was a popular method of diagnosing MH,[3] I am often reminded of the futility of that diagnostic test by patients who show me their scars over their vastus lateralis muscle. Because my medical center relies on referrals for MH testing, frequently at added expense to my patients and with the requirement that they travel, I now believe it is in my patients' best interest to make an MH-susceptibility diagnosis on clinical grounds. (This typically results just in more attention to anesthetic care!)

Larach pooh-poohs such an approach because of the risks of anesthesia for patients considered MH-susceptible. I would like to offer suggestions with regard to her concerns about MH-susceptible patients presenting for medical care. For patients with acute epiglottitis (awake intubation during or after Dantrolene administration), those at risk for aspiration (high-dose nondepolarizer with or without Dantrolene), and those with asthma (many alternatives, including Dantrolene followed by ketamine), and for MH-susceptible patients with tetralogy of Fallot, refer to Larach, because the chance of these two rare disorders coexisting must be infinitesimal. In addition, I have instructed my rural dentists that both amides and esters are safe in MH-susceptible patients.[4]

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In Reply:—I refer Hinkle to my recent ANESTHESIOLOGY editorial[1] for a detailed discussion of why I believe the caffeine halothane contracture test should continue to be used to diagnose patients in whom malignant hyperthermia (MH) susceptibility is suspected, even though Isaacs and Badenhorst report a 2.3% false-negative rate from their single laboratory.[2] To reiterate: no single clinical test for any disease will diagnose successfully all human subjects. If a diagnostic test has adequate specificity, it is not usually possible to achieve 100% sensitivity (zero false-negative responses).

I agree with Hinkle that responsible anesthesiologists should carefully evaluate the diagnostic tests they choose for their patients. All clinicians should determine whether proposed diagnostic tests have been described in at least one full-length research article in a peer-reviewed journal; successfully duplicated in multiple research institutions; and evaluated for sensitivity and specificity. The caffeine halothane contracture test does meet these criteria, unlike other putative diagnostic tests of MH. That clinicians have referred patients for investigational MH tests found subsequently to be of no diagnostic benefit[3] reflects the need for clinicians to educate themselves thoroughly about the predictive utility of tests they order, and should not be used as an excuse to cease efforts to develop better diagnostic modalities. It should be obvious that making inaccurate diagnoses can scar our patients emotionally, physically, and financially, but the decision to perform a test should be made only with prior knowledge of that test's limitations.

Hinkle advocates diagnosing MH on purely clinical grounds. However, I believe that, whenever practical, patients experiencing possible MH events should be referred for caffeine halothane contracture

testing. If tests results are negative, then the subsequent anesthetic management of the patient and his or her entire family will be simplified. Instead of exposing toddlers to the psychological trauma of an awake intubation, we can anesthetize them gently with a halothane inhalational induction. Instead of committing ourselves to prolonged neuromuscular blockade in patients with a full stomach and an untested airway, we can use a shorter-acting muscle relaxant such as succinylcholine. Instead of using ketamine in asthmatic patients, we can preserve the option of easily titratable inhalational anesthetic bronchodilators. I continue to believe that we may increase the risks to our patients when we unnecessarily exclude MH-triggering agents from our anesthetic armamentarium.

Can anesthesiologists carefully craft an anesthetic plan to meet the needs of patients whose caffeine halothane contracture test results are positive and who have several other medical problems? Absolutely. Malignant Hyperthermia Association of the United States Hotline consultants are available for consultation when anesthesiologists are confronted by such challenging cases.* Should we create challenging cases by inadequately evaluating the MH susceptibility of patients who have experienced possible MH events? I believe the answer to this question is no.

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* Malignant hyperthermia experts may be reached for questions in nonemergency situations by phoning the Malignant Hyperthermia Association of the United States at 203-847-0407. In emergencies, malignant hyperthermia experts may be reached by calling Medic Alert, Index Zero at 209-634-4917.

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Corrections Regarding Rovenstine, Bellevue Hospital, and Metropolitan Hospital

To the Editor:—As an emeritus anesthesiologist with an interest in history and personal knowledge regarding New York, I would like to submit some elucidations regarding the excellent July, 1993 issue of ANESTHESIOLOGY.

It is a curious coincidence that confusion between New York University College of Medicine and New York Medical College appears twice in the same issue.

Greene[1] (p 164) incorrectly places Dr. Rovenstine at New York Medical College at Belleview (*sic*) Hospital. Actually, Dr. Rovenstine was appointed to the University and Bellevue Hospital Medical College of New York University. Soon thereafter, the name was changed to "New York University College of Medicine." The hospital is "Bellevue," not "Belleview."

Indeed, Frost[2] (p 193) quotes Rosenberg and Axelrod's[3] error referring to New York Medical Center–Bellevue Hospital. She correctly refers to the New York Medical College and delineates its history from its founding as the New York Homeopathy College. She also mentions Ward's Island Homeopathy Hospital, which became Metropolitan Hospital. However, Metropolitan Hospital was on Welfare Island (now called Roosevelt Island). Metropolitan Hospital Center is currently in Manhattan, at First Avenue and East 97th Street.

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