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## An Episode of Malignant Hyperthermia Followed by a Persisting Muscle Weakness

*To the Editor:*—We have read with great interest the report by Maeda *et al.*<sup>1</sup> describing a case of malignant hyperthermia during sevoflurane anesthesia followed by a muscle weakness persisting for almost 3 months after the event. However, a few questions regarding the diagnosis and management of what was thought to be an episode of malignant hyperthermia remain to be answered.

The signs and symptoms described are strongly suggestive of malignant hyperthermia, however, for reasons of better comparison we would have appreciated the use of the clinical grading scale for malignant hyperthermia.<sup>2</sup> According to the data given, we calculated a score exceeding 50 points. Thus, the probability of malignant hyperthermia would have to be considered as almost certain.

Second, the dose of dantrole (100 mg in a patient weighing 80 kg) seems to be rather low, which requires more detailed explanation. Unfortunately no data are given as to the postoperative concentration of creatine phosphokinase. As no muscle biopsy was performed, what was the evidence of muscle destruction in this patient? Why was no *in vitro* contracture test performed to test the susceptibility for malignant hyperthermia? Despite the high score in the clinical grading scale, the *in vitro* contracture test would have been the only means to confirm the diagnosis of malignant hyperthermia.<sup>3</sup>

**Andrea Michalek-Sauberer, M.D.**  
**Hermann Gilly, Ph.D.**

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*In Reply:*—I appreciate the interest in our article<sup>1</sup> expressed by Dr. Andrea Michalek-Sauberer. She raises four points regarding the diagnosis and management of malignant hyperthermia.

We agree that the use of "clinical grading scale for malignant hyperthermia"<sup>2</sup> is useful for evaluating the probability of malignant hyperthermia. However, in our case report, we did not show the grading scale because the signs and symptoms indicated malignant hyperthermia undoubtedly. According to our hospital therapeutic protocol for malignant hyperthermia, dantrolene should be used initially at a dose of 1 mg/kg, body weight, and if the signs are not improved, additional doses of dantrolene, up to 7 mg/kg, are recommended. In this case, signs were improved with initially administered dantrolene at a dose of 100 mg. The highest concentration of creatinine phosphokinase was recorded at 78,672 U/l on the next day of the operation. The high concentration of creatinine phosphokinase strongly suggested the muscle destruction. Because we could not obtain the patient's consent to the muscle biopsy, no histologic nor pharmacologic information was available.

The patient, whose occupation was a manual laborer, had been healthy before the anesthesia. The muscle weakness occurred just after the episode of malignant hyperthermia. Because the recovery

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from muscle weakness was a matter of deep concern to the patient, we performed careful tests of his muscle strength repeatedly. Although there have been numerous reports regarding diagnosis or treatment of malignant hyperthermia, to our best knowledge, no precise description concerning muscle weakness as a post-episode of malignant hyperthermia have been made. In our case, it took 3 months to recover from this weakness. Our report may provide helpful information about the post-malignant hyperthermia muscle weakness.

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