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In Reply:—The letter from Jacqueline Leung, M.D., addresses several potential problems with the recently published investigation of Wallace *et al.*[1] Dr. Leung carefully points out that more patients randomized to the atenolol group had been medically managed with β-adrenergic antagonists before participation in the study. She hypothesizes that these same patients would probably continue beta-blocker administration postoperatively after hospital discharge, thus contributing to reduced long-term mortality, regardless of randomization to *perioperative* beta-blockade in the study. This is an important criticism. One interpretation for the discrepancy in the demographic data between groups is that those patients treated with beta-blockers before participation in this study had a greater severity of disease necessitating more medication. An equally plausible interpretation is that these patients were medically managed more aggressively, and, as Dr. Leung suggests, it is highly likely that this aggressive management continued after returning to a physician's care after surgery. Therefore, the study by Wallace *et al.*[1] may possess some flaws, but the ultimate message is clear. Patients with coronary artery disease who are treated preoperatively, intraoperatively, and postoperatively with β-adrenergic blocking agents can have a reduced incidence of morbidity and mortality (especially to cardiovascular events). This is not by any means profound because many patients not undergoing anesthesia for surgical procedures already have benefitted from this group of drugs. More significant is the emerging role of the anesthesiologist in perioperative medicine and the rational use of these drugs in the perioperative period, which hopefully extends to long-term administration.

David C. Warltier, M.D., Ph.D.

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Predicting Malignant Hyperthermia Susceptibility

To the Editor:—Fierobe *et al.*[1] describe a patient in whom rhabdomyolysis associated with isoflurane anesthesia developed. They cited the Clinical Grading Scale[2] and assigned the patient a rank of 3 (total score = 18, "somewhat less than likely"). However, they failed to consider the muscle rigidity of the left arm described in their case report. This raises the rank to 4 (total score = 33, "somewhat greater than likely").

"The Clinical Grading Scale ranks the qualitative likelihood that an adverse anesthetic event represents malignant hyperthermia (MH). The assigned rank represents a lower bound on the likelihood of MH."[2] The Grading Scale is meant to provide an agreed-on clinical case definition of MH. It does not rely on data from *in vitro* contracture testing when used to rank a possible MH event.

The Grading Scale is of limited usefulness when data are absent. This usually occurs because laboratory tests are not performed during the event. Clinicians are urged to perform serial arterial or venous blood gas (or both), serum potassium concentrations, and creatinine kinase measurements when a possible MH episode occurs. In the case of Fierobe *et al.*,[1] the clinical signs were present, but the authors failed to score all of them when determining the patient's probable rank.

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In Reply:—Dr. Allen writes that we failed to take into account the muscle rigidity of the left arm in the clinical scale of Larach *et al.*,[1] leading to an underestimation of the likelihood of MH susceptibility. However, only tachycardia and muscle breakdown could be detected in this patient. We intentionally did not take into account the muscle rigidity of the left arm, because in the definition published by Larach *et al.*,[1] rigidity is designed as generalized rigidity or masseter muscle spasm. Our patient did not exhibit such clinical signs.

We agree with Dr. Allen that data from *in vitro* contracture tests are not used to rank a possible MH event. In our case, the clinical signs were mild (perhaps beneath the threshold of clinical detection?). Nevertheless, the laboratory tests were performed as soon as MH was suspected, as recommended by Dr. Allen. This case report is interesting, because mild clinical signs may be associated with life-threatening rhabdomyolysis, in the face of an otherwise unrecognized MH episode. In such a clinical setting, *in vitro* contracture tests are needed to determine MH susceptibility.

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Is Lack of Statistical Power Always Evidence of Lack of Effect?

To the Editor:—I read with interest the paper by Pittman *et al.*[1] recently published in ANESTHESIOLOGY. The study in the article shows that rats undergoing 75-min middle cerebral artery occlusion during pentobarbital or propofol anesthesia, in doses sufficient to maintain electroencephalogram burst suppression, have similar neurologic and histologic outcomes. The study is well designed, and I think that this research is extremely important.

As stated in the article by the authors, the neurologic scores between the two groups were not significantly different. However, when neurologic scores are analyzed in detail (their fig. 2), animals treated with pentobarbital seem to have a better neurologic outcome. In fact, seven pentobarbital-treated animals had a neurologic score of 1 (as compared to one propofol-treated animal), and fewer pentobarbital-treated rats had a score of 2 (four *versus* seven) or a score of 3 (six *versus* nine). If we pool the results (0 to 1 *versus* 2 to 3 neurologic score), 10 animals treated with pentobarbital *versus* 3 animals treated with propofol had a "good" neurologic score (0 to 1, no deficit or left forelimb flexion only), and 10 *versus* 16 had a more severe hemiparesis (2 to 3 neurologic score).

The authors did not attempt to "force" the results in any direction. I also agree that histologic results (infarct areas) provide a better end point when considering the protective cerebral effects of any drug or treatment, or both. However, although the aforementioned differences are not statistically significant, they should be considered. The authors did not provide any correlation between histology (infarct area) and neurologic deficit. I would speculate that such scores are congruent, with smaller cerebral infarct size correlating with better neurologic outcome. However, if this is the case, I wonder which drug provides a better correlation.

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