In Response:

We thank Koessler et al. for their interesting, concerned, and valuable comments on our article (1). Their experimental animal study demonstrated that embolic material in the right atrium and the pulmonary artery is always observed during vertebroplasty (2). We completely agree with their comments that thoracic epidural sympathetic blockade can improve the cardiovascular outcome (3), and that a bone venting connected to a vacuum suction may reduce the risk of cardiovascular complications (4,5). Moreover, perhaps the experience of the surgeon plays the most important role in this complication. In this case, multiple vertebral punctures and injections of several batches of cement were performed by an inexperienced surgeon; this was his third procedure. Our experience is that these procedures were smooth and without any complication during operation under either IV sedation or general anesthesia. However, we suggest that intraoperative TEE is the paramount monitor for the patient receiving general anesthesia, and a thoracic epidural anesthesia may be a good anesthetic choice for high-risk patients.

Hsueh-Lin Chen, MD
Ching-Tang Wu, MD
Chih-Shung Wong, PhD, MD
Department of Anesthesiology
Tri-Service General Hospital and National Defense Medical Center
Taipei, Taiwan

References

Managing a Tachyarrhythmia in a Patient with Pheochromocytoma with Landiolol, a Novel Ultrashort-Acting β-Adrenergic Blocker

To the Editor:

Recently, short-acting β-adrenergic blockers, such as esmolol, have been recommended for treating pheochromocytoma-induced tachyarrhythmias. Landiolol hydrochloride (landiolol), is a novel ultrashort-acting β-adrenergic blocker that has higher β1-selectivity (β1/β2 = 255) and a shorter elimination t1/2 (4 min in healthy subjects) than esmolol (1–3). Here, we report the management of a tachyarrhythmia due to pheochromocytoma in a 63-yr-old woman taking landiolol. After inserting an epidural catheter at T9/10, general anesthesia was induced with fentanyl 2 μg/kg and propofol 100 mg, and maintained with nitrous oxide 2 L/min, oxygen 3 L/min, and 1–1.5% sevoflurane; 0.75% ropivacaine, 6 mL were administered intermittently via the epidural catheter. A tachyarrhythmia and paroxysmal hypertension over 240 mm Hg occurred during tumor manipulation. Although the intravenous administration of nicardipine attenuated the hypertension, the tachyarrhythmia deteriorated (Fig. 1A). Consequently, landiolol

Figure 1. Electrocardiogram recorded at the following times: (A) before administering landiolol hydrochloride; (B) 1 min after administering landiolol hydrochloride 125 mg/kg/min for 1 min; (C) 4 min after B.

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Is Desflurane a “Weak” Trigger of Malignant Hyperthermia?

To the Editor:

With great interest we read the report by Hoenemann et al. concerning a case of delayed onset of malignant hyperthermia (MH) during inhaled anesthesia with desflurane (1). This report seems to support the assumption that desflurane might be a “weak” trigger of MH compared to other volatile anesthetics. However, this report raises two relevant issues.

First, the onset of MH may be delayed also after administration of other trigger substances (2–5). In previous reports onset times of 9 (3) or 18 h (4), respectively, after isoflurane and succinylcholine administration have been described. Furthermore, a review of the database of the North American MH Registry presenting desflurane-related MH events showed that the onset times for MH after halothane were not significantly different from those after desflurane (6). Therefore, it must be stated that onset times are no clinical indicator for the trigger potency of anesthetics, and consequently it has to be clarified that desflurane is a trigger of MH like all other volatile anesthetics and must be avoided in all patients susceptible to MH.

Second, the authors stated that a causal link between desflurane and the observed symptoms was confirmed by postoperative testing. This is not correct. An in vitro contracture test (IVCT) according to the standard procedure of the European MH Group has been performed, but this test failed to give an unambiguous result due to technical problems. On the one hand, it would be interesting to know which problems occurred, because for our knowledge this is the first time that such problem was presented in the literature. On the other hand, it should be explained whether the authors recommended to perform the IVCT in this patient for a second time, or performed the IVCT in the direct family members, respectively.

Further studies are needed to investigate which factors might modify the onset and course of MH. First steps in this direction were made and it could be demonstrated that in vitro contracture test results depend on different malignant hyperthermia-associated ryanodine receptor gene mutations (7). Whether these observations are of relevance also under in vivo conditions, however, remains unclear until now.

Frank Wappler, MD
Marko Fiege, MD
Department of Anesthesiology
University Hospital Hamburg-Eppendorf
Hamburg, Germany

References

In Response:

In this reply I would like to thank Drs. Wappler and Fiege for their comments on our case report on the delayed onset of malignant hyperthermia (MH) during inhaled anesthesia with desflurane (1). In fact, desflurane is a trigger of MH compared with other volatile anesthetics.

First, onset time is no clinical indicator for the trigger potency of volatile anesthetics, and we never mentioned this in our case report. Second, we did not confirm the MH by postoperative testing and he is correct. We are sorry about that misleading title.

The in vitro contracture test (IVCT) according to the standard procedure of the European MH Group and all the other tests have been performed or organized by Prof. Mortier (Abteilung für Neu- ropädiatrie, Kinderklinik der Ruhr-Universität, St. Josef-Hospital, Gudrunstr. 56, 44791 Bochum, Germany). He was so kind to give us all results at the end of the tests. I cannot make comments on the postoperative testing or on the statement of Dr. Wappler about technical problems. In fact, it was the first time that Prof. Mortier had such a problem with the IVCT, and he discussed all results with the patient and her family. To my knowledge, the family rejected the chance to perform a second IVCT.

Professor Mortier is a well-known specialist and his laboratory is listed as MH center on the homepage of the European MH Group (www.emhg.org). For any questions regarding this case and the postoperative testing, I would be happy to get all interested scien- tists in contact with Prof. Mortier.

Regarding the failed IVCT, I completely agree that further studies are necessary to investigate this problem, and it is of major interest which factors modify onset and course of MH.

Christian Hömemann, MD
St. Marienhospital Vechta
Vechta, Germany

Reference

An Abbreviation of the ACC/AHA Algorithm for Perioperative Cardiovascular Evaluation for Noncardiac Surgery

To the Editor:

The recently published ACC/AHA Guideline Update for Perioperative Cardiovascular Evaluation for Noncardiac Surgery (1) provides an algorithm that can easily be followed in the decision-making process when presented with a patient possibly requiring further cardiac workup.

I would like to offer an alternative to this algorithm that utilizes the same thought process, but is easier to memorize. As with the algorithm, the three assignments have to be made: clinical predictors (Table 1), functional capacity, and surgical risk (Table 2).

Each patient then gets a point score from each of the three columns in Table 3. The total score for the three columns is added. A point score of 4 or more would suggest the need for further setup.