Correspondence

Divided doses of methohexitone improves ECT outcome

To the Editor:

We read with interest the recent report on substitution of mivacurium for succinylcholine for ECT treatment.¹ Since the effect of mivacurium outlasts the effect of methohexitone (MH) the authors suggested reversal of the neuromuscular block after treatment to avoid awareness.

While we are unaware of a correlation between the length of seizures and the antidepressant effect of ECT, the duration of grand mal seizures is thought to be important.² Occasionally, when using lower doses of MH, we have also experienced awareness upon recovery. Further increase of the MH dose to prevent recall shortens the duration of seizures, especially in older patients. To solve this problem we decided to split the total amount of MH to be injected ($0.65\text{--}0.8\text{ mg}\cdot\text{kg}^{-1}$) into two doses. The first (75% of the assigned dose of MH) is given together with succinylcholine ($0.8\text{--}1.0\text{ mg}\cdot\text{kg}^{-1}$) before electrical stimulation and the remainder immediately after the convulsions. Labetalol and/or glycopyrrolate are used as indicated. We have observed that with the lower first dose of MH the duration of seizures has increased by 16.7% ($52 \pm 4\text{ sec}$ vs $31 \pm 3\text{ sec}$). For the last five months the proposed technique was successfully used 146 times on 17 patients of different ages without any complications.

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- 2 Onosonn JO. Seizure characteristics and therapeutic efficacy in electroconvulsive therapy: an analysis of the antidepressive efficiency of grand mal and lidocaine modified seizures. *J Nerv Ment Dis* 1962; 135: 239–51.

REPLY

We share their concern about short acting anesthetics for ECT which might create conditions facilitating awareness. However, our use of active reversal of the neuromuscular block was intended to avoid subtle airway problems when a non-depolarizing relaxant was used for short procedures. This was of particular concern to us since our patients were predominantly elderly with systemic illness which would compromise their ability to compensate for residual weakness.

We have also used incremental doses of methohexital to

assure lack of awareness. Recent work suggests that perhaps etomidate could replace methohexital to allow for a longer seizure duration along with slower awakening.¹

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Midazolam for caudal analgesia in children

To the Editor:

In an editorial¹ which accompanied our article,² Dr. Goresky, expressed several concerns and doubt about the clinical utility of caudal midazolam for postoperative analgesia in children. He also raises several questions that warrant answers. In the Kingdom of Saudi Arabia, the rules and regulations that govern the approval of a new drug or a new route of application of an existing drug are very stringent. The regulatory body (Ministry of Health) is different from that in North America (USA and Canada). Additionally, in our institution (King Khalid University Hospital and King Saud University) the approval of the CMRC (College of Medicine Research Council) and the Pharmacy and Therapeutic Committee are mandatory for any research proposal. Our study was *not* conducted under sponsorship of the manufacturer. Nevertheless, even if this study were supported by the manufacturer, the review process would have been the same.

Dr. Goresky chose to ignore the information provided in our paper regarding the safety of both intrathecal and epidural midazolam in primates (as he suggested) and in humans. He quoted only one study in his editorial that reported changes in the blood-brain barrier after administration of very large doses of midazolam *intracisternally* in rabbits (0.3 ml of 0.1% ; equivalent to $111\text{ }\mu\text{g}\cdot\text{kg}^{-1}$).³ We addressed the limitations of this study in our paper and pointed out that even high concentrations of lidocaine can produce neurotoxic effects in humans.^{4,5} We wonder why Dr. Goresky did not refer to the remaining 18 studies in the literature (Medline search reveals 17 published papers in addition to another study that appeared in a chapter of a book)? The safety and the efficacy of neuraxial application of midazolam have been invariably demonstrated in all of these studies, both in humans after intrathecal (3 studies) and epidural (6 studies) administration as well as in different species of animals (rats, rabbits and dogs). Due to limitations of the space availability, we referred to some (but not all) of these studies in our paper.

Similarly, several studies have shown that the analgesic effect of neuraxial administration of midazolam was due to antinociceptive properties of midazolam but not due to sedation (see, for example^{6,7}).