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Breaking Glass Vials

To the Editor.—Most anesthesia and resuscitation drugs now are supplied in prescratched, easy-to-break vials. However, opening an unscratched vial necessitates the use of a metal file, which is small and not always available, especially during an emergency.

Scratching the neck of one vial with the base of another (fig. 1) allows easy opening of any vial. We have used this method during the past 2 years without any failure. Especially in times of emergency, it may be helpful.

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Fig. 1. Scratching a glass vial using another one. The base of one vial is applied forcefully to the neck of the vial to be opened, at an angle of about 45°. Moving one vial against the other scratches the vial’s neck, allowing easy breakage and opening.

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To the Editor.—Kopman et al.1 have performed a very valuable service in examining the incidence of residual neuromuscular paralysis after the use of mivacurium and pancuronium. It is time that the many reports describing the high incidence of residual block after the use of pancuronium were put to scrutiny by a carefully performed clinical investigation. They demonstrated what can be achieved by a select group of careful and experienced clinicians interested in muscle relaxants when neuromuscular block is controlled using train-of-four (TOF) monitoring and when reversal is attempted with sufficient doses of anticholinesterases given at the appropriate time. The questions are 1) Can their results be achieved by everyone? 2) Are they good enough? 3) Will they save money?

The principal finding of the study was that, on arrival in postanesthesia care unit (PACU), the incidence of residual neuromuscular paralysis was low. TOF ratios averaged 0.93 after mivacurium and 0.85 after pancuronium; 54 of 56 patients given pancuronium had TOF ratios of ≤ 0.7. At first glance, this level of neuromuscular recovery after long-acting relaxants is much greater than previously reported by several investigators since Vibo-Mogensen et al.1 in 1979. Our own studies in Montreal showed that 17 of 47 adults given pancuronium had TOF < 0.7 when tested in PACU compared with only 2 of 46 given atracurium and 5 of 57 given vecuronium.2 The difference, however, may be the time between reversal of block and neuromuscular testing in PACU. Kopman et al. tested patients given pancuronium at 30 min and those given mivacurium at 19.7 min after reversal. In our studies in Montreal, adults were tested 13–15 min after reversal, and children were tested 15–18 min after reversal.3 A more recent study in Vancouver, examining residual block after mivacurium, tested adults at 12–14 min and children at 8–9 min.3 Kopman et al. showed that 10 min after reversal, the mean TOF ratio in patients given pancuronium was 0.65. The results are very similar.

It is likely that by administering muscle relaxants and their antagonists...

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carefully, other clinicians will be able to achieve results similar to Kopman et al. Whether the patients demonstrate residual block on arrival in PACU depends on how long it takes to get there!

It is ironic that in the same issue of Anesthesiology, Dexter and Macario calculated that the cost of running an operating room (OR) at Stanford University Medical Center was $8.13 dollars per min. Simplistic arithmetic suggests that in New York, the average OR cost for patients given pancuronium was $85 dollars more than for those given mivacurium. Muscle relaxants are cheap, OR time is expensive.

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References


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In Reply — We thank the Drs. Bevan for their kind remarks, and we agree with most of their comments. However, their final conclusions regarding cost considerations are probably premature. As noted in our table 2, the times to the first train-of-four (TOF) measurement in the postanesthesia care unit (PACU) for pancuronium (30.0 min) versus mivacurium (19.7 min) required an asterisk. These intervals represent whichever came first, the initial TOF value noted in the PACU or the time until the TOF ratio reached a value of 0.90 (as measured in the operating room [OR]). Thus, 52 of 56 patients who received pancuronium had neuromuscular monitoring that continued into the PACU. Only 15 of the 35 patients who received mivacurium required such follow-up evaluation. Consequently, it probably is not correct to assume that 10 min of OR time was "saved" with the mivacurium group.

If the average clinical anesthetist was routinely able to accurately quantitate residual block and defer discharge from the OR until satisfactory recovery of neuromuscular function (TOF ≥ 0.70) was present, then we suspect that short- to intermediate-acting relaxants would provide real savings in OR recovery time. Unfortunately, subjective evaluation of the extent of TOF fade is notoriously imprecise. Once the TOF ratio exceeds a ratio of 0.40, most clinicians are unable to detect that any fade exists. In the "real world" as Bevan’s data nicely demonstrate, after antagonism of pancuronium-induced neuromuscular blockade, 15 min is insufficient time to guarantee satisfactory return of neuromuscular function.

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References


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