who had a mean PCV of 49.4% with a control group who had a mean PCV of 42.1%. The mean TEI in the first group was 31.25 Ω, which was significantly greater than that in the second group—27.5 Ω ($P < 0.05$) [5].

These observations may help to explain the “surprisingly increased response in TEI” noted by the authors. The influence of PCV clearly assumes greater importance with larger variations in PCV, seen, for example, after cardiac surgery.

Failure to understand the limitations of TEI in the estimation of lung water may explain why a technique that was well described more than 20 years ago has yet to find its way into routine clinical use.

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Investigation of extravascular lung water would thus probably have resulted in even more pronounced differences between the two kinds of volume loading before extradural Caesarean section.

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SURFACE ELECTRODE POSITION DURING ULNAR NERVE STIMULATION

Sir,—Although the recent paper by Kalli [1] on the effect of surface electrode position on evoked EMG response appears to be well designed, experience from our department is at variance with some of his results. Kalli reported a peak-to-peak amplitude of 8.5 mV when the evoked compound action potential (ECAP) was measured using the adductor pollicis muscle and the index finger (TD2) as the recording electrode pair. He found that the response of the first dorsal interosseous was significantly greater (12.5 mV) and hence preferred the latter muscle for clinical monitoring.

Using a study design and instrumentation that appeared to be similar to that of Kalli, we found that TD2 electrode placement produced a peak-to-peak amplitude of 13.1 (SEM 0.7) mV or 50% greater than the evoked response that Kalli recorded. However, a modest resting tension was applied to the thumb in all of our patients. In Kalli’s investigation the arm to be studied was secured in a splint, but there was no mention of any preload applied to the thumb. As there is some evidence that preload can effect the ECAP [2], it would be helpful if Kalli could be a little more specific regarding the exact method used to secure the experimental hand and arm. If no resting tension on the thumb was used, Dr Kalli’s conclusions on the usefulness of the adductor pollicis compared with the first dorsal interosseous may need to be re-examined.

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Sir,—I read with interest Dr Kopman’s comments on evoked compound muscle action potential (ECAP) monitoring of muscle relaxation.

The aim of the recent study [1] was to compare the ECAP responses of different muscles of the hand. The hand was fixed in a neutral position on a splint; no pre-tension was applied to the thumb. Increased hand muscle mass may have an impact on ECAP. Female patients with similar characteristics were selected to minimize interindividual variability. Depending on the methodology used in various studies, the results may vary.
In Dr Kopman's study [2], the responses were studied during nitrous oxide in oxygen anaesthesia and up to 15 min after barbiturate induction. In my study, ECAP were assessed from 30 to 60 min after induction during a steady isoflurane anaesthesia. Control recordings which were made 30 min apart did not show any time-related difference. Without further studies, it is unclear if different anaesthetic techniques have an effect on the recorded ECAP. However, it has been claimed that, at 10–20 min after induction, ECAP baseline drift may occur [3].

The thenar ECAP response may be affected significantly by the site of the indifferent recording electrode [4]. In the present study, when the indifferent electrode was moved from the second to the first finger, the adductor pollicis peak-to-peak amplitude decreased by 27%.

Preload applied to the thumb is an essential part of the mechanomyographic method of monitoring neuromuscular block. It has been recommended also to improve assessment of train-of-four [5]. Although ECAP and muscle contraction are different entities, a few reports have suggested that thumb position and pre-tension may affect thenar ECAP [2, 6, 7]. This subject has not been studied widely but, in a recently completed study, I analysed the effect of standard preload on adductor pollicis ECAP. Peak-to-peak amplitudes increased by 10% when a preload of 250 g was applied to the thumb. This implies that ECAP response of the adductor pollicis with the additional application of preload to the thumb was 76% of the response of the first dorsal interosseous muscle.

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