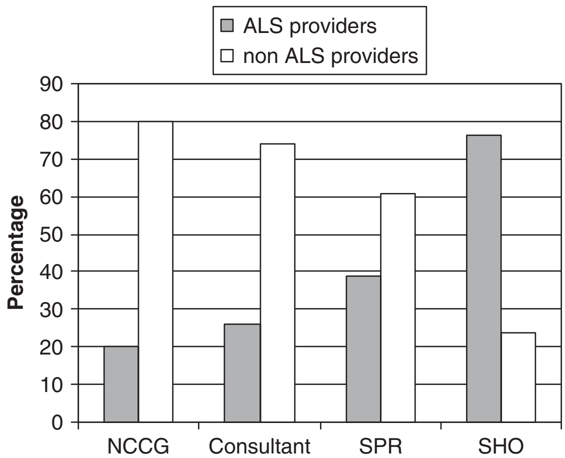

Figure 1.
The percentage of ALS and non-ALS providers for each grade of anaesthetists surveyed (NCCG: non-consultant career grade; SPR: specialist registrar; SHO: senior house officer (junior trainee)).

not attend cardiopulmonary arrests on a frequent basis. Of those who were on a cardiac arrest team, 94% knew the dose of epinephrine and 87% knew the first shock energy with a defibrillator. For those who were not on a cardiac arrest team, this was 83% for dose of epinephrine and 82% for first shock. This demonstrates that regular attendance at cardiac arrests preserves knowledge.

The findings of this survey are similar to previous work. Bell and colleagues [3] assessed the basic and advanced cardiopulmonary resuscitation skills of 30 trainee anaesthetists, and found that the management of ventricular fibrillation and asystole was carried out correctly by only 27% and 30% of anaesthetists, respectively. The conclusion from this study was that all trainee anaesthetists needed to undergo regular training and assessment of their resuscitation skills.

Despite a level of training below recommended standards, 90% of anaesthetists felt they were able to run a cardiac arrest. This feeling seems to be contrary to their overall knowledge of the algorithm. Most anaesthetists work in clinical isolation and in the event of an on-table cardiac arrest would be expected to initially resuscitate the patient. It is important therefore that all grades of anaesthetists are trained appropriately.

Knowledge of ALS and BLS forms an important clinical governance issue for all anaesthetists. It is however the responsibility not only of the individual but also of the relevant hospitals or departments of anaesthesia to ensure that an adequate training structure is provided for all anaesthetists. This is of particular importance when guidelines change, as was the case in 2005.

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Can respiratory-related variations in the optical plethysmograph be a surrogate for respiratory-related changes in arterial pressure?

doi: 10.1017/S0265021507002517

EDITOR:
The paper by Cannesson and colleagues [1], comparing respiratory-associated variations in the optical plethysmograph and arterial pulse pressure, was very interesting. It was a tightly controlled study. A study I report here, carried out in New Zealand and in the UK, was of a more uncontrolled clinical nature [2].

With the agreement of local research Ethics Committees in Auckland (NZ) and Cambridge (Addenbrooke's, UK) and the patients' consent, electronic data were collected from anaesthetic monitors (Datex-Ohmeda Division, Instrumentarium Corp., Helsinki, Finland) that were used during major surgical procedures. The scenarios were true clinical situations without standardization of anaesthetic technique. One set of data was collected at 10-s intervals to give an overall physiological picture of events, another set was collected at 100 Hz to enable waveforms of arterial pressure and pulse-oximeter plethysmography to be analysed and free text comments were collected from the anaesthetist. The data were stored on a disk and analysed off-line.

The data were smoothed to enable timestamping of the systolic peaks and then the original values

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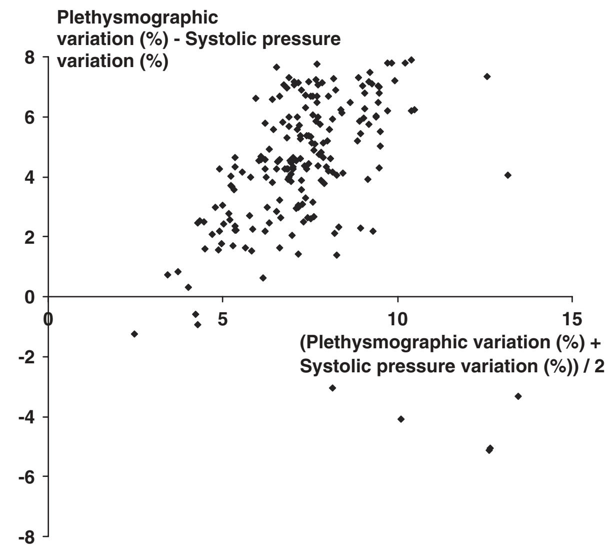

Figure 1.
Bland–Altman plot of respiratory-related plethysmographic variation (%) and respiratory-related systolic pressure variation (%).

retrieved using this timestamp. Long-duration artefacts, such as arterial blood sampling, were removed manually. The respiratory variability of the arterial pressure was compared with the variability of the plethysmograph trace in several ways. Twenty-second epochs (enclosing at least three respiratory cycles) were used to determine the periodic variability. An adjustment to the raw waveform data was made to compensate for any general upward or downward trend in the analysis period.

Systolic pressure variation and pulse pressure variation were both investigated. The plethysmogram, not having a zero baseline, was analysed by determining the envelopes that characterized the peaks and troughs, and in another analysis only the peak values were used.

No matter which technique was used, the correlations between pressure variation and plethysmographic variation were very poor and the Bland–Altman plots indicating that the substitution of respiratory related plethysmographic variation for pressure variation are inappropriate.

The graph (see Fig. 1) represents 90 min of one patient's data (nine 10-min periods during a 5-h procedure). Each measurement is from a 20-s epoch.

The results above are typical and in my view it made the use of the plethysmographic waveform variability not an appropriate substitute for respiratory-associated arterial pressure variation, I believe their comments about the drawbacks of arterial pressure monitoring are also overstated. This study was not as well-controlled as that by Cannesson and colleagues, but was carried out in realistic clinical situations. I think the clinical usefulness of respiratory-associated changes in the optical plethysmograph is still to be proven.

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Field block: an additional technique of potential value for breast surgery under general anaesthesia

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EDITOR:
Postoperative pain, nausea and vomiting are the main obstacles for ambulatory breast surgery. Although the cause of postoperative nausea and vomiting (PONV) is multifactoral, appropriate pain management during and after surgery is essential for its prevention [1,2]. Regional blocks, including thoracic paravertebral, thoracic epidural and intercostal nerve blocks applied before the incision, are known to provide prolonged analgesia and decrease the incidence of PONV in breast surgery [3]. Their main disadvantages, however, are failure rate, risk of complications, need for specific skills and time required. These potential drawbacks outweigh the

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