invasive respiratory support. Less physiologically stressed patients receiving repeated bolus injections in a course of treatment could also be at risk.

After more than a quarter of a century of use, and more than 20 yr after serious harm was first described, practitioners and drug regulatory agencies need to re-evaluate the role of etomidate in clinical practice.

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Impact of NICE guidance on the provision of ultrasound machines for central venous catheterization

Editor—We read with interest the editorial by Bodenham on the training and accreditation issues surrounding the use of ultrasound imaging by anaesthetists. There has been extensive debate regarding ultrasound guidance for the placement of central venous catheters (CVCs) ever since September 2002 when the National Institute for Clinical Excellence (NICE) published its recommendations for the use of ultrasound locating devices for the placement of CVC. Two years later, in an editorial in this journal commenting on the controversies regarding the implementation of guidelines, Scott concluded that ‘ultrasound guidance for venous and arterial catheterization is here to stay’. He went on to talk about a ‘new generation of anaesthetists, no more likely to attempt central venous cannulation without ultrasound guidance than they would be to embark on an anaesthetic without an ECG, a pulse oximeter and capnograph’. NICE guidelines should be adhered to within 3 months of publication and if the hospitals do not respond by implementing the correct in place, there is little point printing these guidelines. A survey measuring the impact of the NICE recommendations of September 2002 was conducted by Abacus International in July 2004, almost 2 yr after its publication. A postal questionnaire was sent out to 250 anaesthetists registered with the Royal College of Anaesthetists. The survey showed that 36% of the anaesthetists surveyed felt they had appropriate resources in place for the use of ultrasound technology; however, 46% felt they had little or no access to ultrasound technology. Of these anaesthetists surveyed, only 28% considered themselves compliant in the technique of ultrasound-guided CVC insertion. Most of the anaesthetists polled agreed that everyone involved in CVC placement using ultrasound should undertake appropriate training. However, two-thirds of them rated the level of training provided for medical staff on two-dimensional ultrasound CVC insertion as poor or non-existent. In August 2005, NICE reviewed its original guidance and decided to make it static.

The foremost requirement to follow a guideline is to have access to the necessary equipment. In January 2006, we conducted a survey, by telephone, of 195 hospitals in the UK to find out the ready availability of ultrasound machines for CVC insertion. The method used was to call the anaesthetic registrar on-call for each hospital and ask whether their department owned an ultrasound machine in the intensive care unit (ICU) and if not, was there one readily available in theatres designated for CVC insertion. The results showed that 185 hospitals (95%) had ultrasound machines readily available for inserting CVCs. Our survey also showed that only six of the hospitals that owned an ultrasound machine did not have one permanently on site in ICU and needed to collect it from theatres when required.

In conclusion, NICE guidance has had a large and positive impact on the provision of ultrasound machines for the guidance of CVC placement. We are now looking at whether there has been an increased uptake of training and compliance with the guidelines.

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3 Scott DHT. The king of the blind extends his frontiers. Br J Anaesth 2004; 93: 175–7
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Respiratory Systolic Variation Test to predict fluid responsiveness

Editor—Priesman and colleagues1 have published an interesting study showing that the Respiratory Systolic Variation Test (RSVT) is an accurate way of predicting fluid responsiveness. They state that it demands a complex respiratory manoeuvre and off-line measurements and calculations. We note that they use three airway pressures and use linear regression to calculate the slope of a line of best fit. Using linear regression with three points, the middle value has no effect on the slope of the line of best fit. The same accuracy can therefore be obtained using two ventilator pressures, at 10 and 30 cm H2O. This then makes the respiratory manoeuvre much simpler and a screen capture can be used to measure the two lowest systolic pressures whilst switching from 10 to 30 cm H2O breaths. The slope is then given by the equation (lowest systolic pressure at 10 cm H2O)−(lowest systolic pressure at 30 cm H2O)/20. Using their calculated cut-off value of 0.52 cm/H2O gives an even easier calculation: if the lowest systolic pressure falls by greater than 10.2 mm Hg when switching from 10 to 30 cm H2O breaths then fluid responsiveness is implied. This simple modification makes the RSVT a simple bedside test using a standard ventilator and a standard monitor which allows screen capture.

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Editor—We thank Drs Brown and Chappell for their interest in our study. They correctly state that the slope of the line of best fit for the RSVT would not be affected by the addition of a middle value and that the same accuracy may be achieved by a manoeuvre composed of two consecutive breaths. We used three consecutive incremental airway pressures in our study to avoid any erroneous blood pressure measurement resulting from occasional extrasystoles, spontaneous respiratory effort, etc. If the manoeuvre had been of only two breaths, it would have been difficult to identify such abnormalities and discard them from measurement. We did not encounter such a situation in our clinical studies but it did occur in our preliminary animal experiments.

Thus, in our opinion, it is worthwhile to use three breaths with incremental pressures during the RSVT manoeuvre to identify and reject artifacts.

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Anaesthetic management in patients with high-risk Brugada syndrome

Editor—We read with interest the case report from Dr Edge and colleagues,1 and would like to report the successful management of two cases with Brugada syndrome and focus on risk evaluation of proarrhythmia, postural change and neostigmine administration. During anaesthesia of Brugada syndrome, many factors may precipitate a significant risk of malignant arrhythmias and cardiac arrest.

Both patients were asymptomatic with no medical history of cardiac disease or family history of sudden death. Preoperative echocardiography was normal, and the ECG over the third intercostal space and the ECG following pilsicainide administration revealed obvious augmentation of ST segment elevation in leads V1–V4, without QT prolongation. Electrophysiological studies, without prior medication, induced ventricular fibrillation (VF) and systolic pressure <40 mm Hg, and defibrillation restored sinus rhythm. These findings led to a definite diagnosis as high-risk Brugada syndrome.

Before induction of general anaesthesia, the 12-lead ECG was continuously monitored, along with routine monitoring and cardioverter-defibrillator pads. An automated external defibrillator and an i.v. drip infusion of the β-stimulator isoproterenol were prepared, in case ventricular dysrhythmias developed.2 No pre-anesthetic medication was

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