What does this lack of evidence when comparing interventions with NTS training against ‘routine’ training alone really reflect? Does this mean that teaching non-technical skills is a ‘forgotten topic’ in anaesthesia education literature? Not necessarily; it is noteworthy that there was a large number of publications where the main topic was CRM training in anaesthesia (32 of 77). In order to mention some examples, we can cite other articles, which describe training with the aim of improving participants’ non-technical skills, such as improving communication skills, cognitive and behavioural skills, calling for help early, and distributing tasks.

The Operator’s Guide to Human Factors in Aviation describes that, in fact, the generic term ‘non-technical skill’ does comprise all CRM skills [http://www.skybrary.aero/index.php/Assessment_and_Feedback_of_Non-Technical_Skills_(OGHFA_BN)]. To train the anaesthetists’ NTS, a CRM approach was adopted, using both classroom and simulator sessions. Anesthesia crisis resource management (ACRM) training has been defined by Gaba as the articulation of principles of individual and crew behaviour that focuses on skills of dynamic decision-making, interpersonal behaviour, and team management. Actually, in 1989 Gaba and colleagues began to develop a simulation-based curriculum, structured in part on CRM in aviation and its key principles. In this context, while performing ACRM courses, we have been truly training non-technical skills in anaesthesia for years.

Does this mean that there is abundant literature evaluating the effectiveness of simulation as a tool to teach non-technical skills under a different name (anaesthesia crisis resource management training)? Unfortunately, the answer is ‘no’. From our point of view, what we are facing here is a gap between what the experts in medical education using simulation tools have been training and what the research has been capable of demonstrating as ‘strong’ evidence. We totally agree with the lack of evidence comparing interventions with NTS training against ‘routine’ training alone. Nevertheless, we have evidence to affirm that simulation-based training improves participant’s non-technical skills in simulated crisis management.

As the evidence increases, we should focus our efforts to describe better how we are doing our training. Do we incorporate psychological teaching, human factors training, or live interactive actors? Do we focus on medical management only? Finally, use of the proper assessment tools, in accordance with our training, will help us to demonstrate the usefulness of this amazing learning tool.

**Declaration of interest**

None declared.

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1 Lorello GR, Cook DA, Johnson RL, Brydges R. Simulation-based training in anaesthesiology: a systematic review and meta-analysis. Br J Anaesth 2014; 112: 231–45


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**Pre-ictal bispectral index values; are they accurate?**

Editor—We read with great interest the study by Soehle and colleagues concerning the use of bispectral index monitoring during electroconvulsive therapy (ECT). As the authors note, knowledge of pre-ictal anaesthetic depth is essential for balancing optimal anaesthetic depth to avoid awareness without impeding therapeutic seizure induction and duration. When anaesthesia is too ‘light’, the patient risks recall of the electrical stimulus; therefore, the application of bispectral index technology to monitor anaesthetic depth during ECT seems logical to avoid these undesirable extremes.

In our experience, targeted pre-ictal unilateral BIS values did not always accurately reflect the patient’s true anaesthetic depth. Our anaesthetic induction technique for the application of ECT mirrors that of Soehle and colleagues, with one exception. Following i.v. induction, circulatory isolation of the foot, and the administration of succinylcholine, we ask the patient to move the toes on the isolated foot immediately prior to ECT stimulation. If the patient responds purposefully, additional i.v. anaesthetic is administered. During our evaluation of pre-ictal BIS assessment of anaesthetic depth, two bilateral temporal ECT patients in a series of 25 responded purposefully to verbal commands after i.v. induction even though the pre-ictal BIS values reflected recommended ranges (40–60) sufficient for general anaesthesia. The BIS values (42 and 40) were further validated using the manufacturer’s recommended EMG (48 and 29, respectively) and signal quality
index ranges (90 and 98, respectively). The response by both patients warranted additional i.v. anaesthetic prior to application of the electrical stimulus. Fortunately, neither of the patients reported awareness of the procedural events.

Consequently, we no longer use bispectral index monitoring alone to assess pre-ictal anaesthetic depth in patients receiving ECT.

Moreover, Zand and colleagues recently reported that the BIS was not a reliable monitor of anaesthetic depth during Caesarean section and that BIS values lower than previously recommended are needed to avoid isolated extremity responses. They suggest, for a sensitivity of 100%, that the BIS value should be lower than 27 to ensure that all patients are truly unconscious.

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1 Soehle M, Kayser S, Ellerkmann RK, Schlaepfer TE. Bilateral bispectral index monitoring during and after electroconvulsive therapy compared with magnetic seizure therapy for treatment-resistant depression. Br J Anaesth 2014; 112: 695 – 702
5 Litt L, Li D. Awareness without recall during anesthesia for electroconvulsive therapy. Anesthesiology 2007; 106: 871–2

doi:10.1093/bja/aev019

Reliability of bispectral index analysis in patients undergoing Caesarean section

Editor—We read with interest the article by Zand and colleagues entitled ‘Survey on the adequacy of depth of anaesthesia with bispectral index and isolated forearm technique in elective Caesarean section under general anaesthesia with sevoflurane’. They conclude that bispectral index analysis (BIS) is not a reliable method for monitoring depth of anaesthesia in Caesarean section and that lower than previously recommended values are needed to avoid isolated forearm technique test responses during laryngoscopy, intubation, and skin incision. We do not feel that this conclusion is representative of our practice in the UK, where usual doses of thiopental are higher, at 5–7 mg kg$^{-1}$. As such, we would find this medical device assessment difficult to perform. Nonetheless, these results have the potential to impact our practice. Inclusion of the patient characteristics and indication for the procedure would help us to transfer these findings to our clinical context.

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1 Zand F, Hadavi SM, Chohedri A, Sabetian P. Survey on the adequacy of depth of anaesthesia with bispectral index and isolated forearm technique in elective Caesarean section under general anaesthesia with sevoflurane. Br J Anaesth 2014; 112: 871–8
5 Chin KJ, Yeo SW. A BIS-guided study of sevoflurane requirements for adequate depth of anaesthesia in Caesarean section. Anesthesia 2004; 59: 1064–8

doi:10.1093/bja/aev018

Avoiding awareness in Caesarean sections under general anaesthesia

Editor—The recent paper by Zand and colleagues was of interest to us (a group of British anaesthetic trainees) because routine Caesarean sections are rarely performed under general anaesthesia in our practice. As such, we would find this medical device assessment difficult to perform. Nonetheless, these results have the potential to impact our practice. Inclusion of the patient characteristics and indication for the procedure would help us to transfer these findings to our clinical context.