NAP5 and the isolated forearm technique

J. R. Sneyd

Plymouth, UK

E-mail: robert.sneyd@pms.ac.uk

Editor—The NAP5 team have delivered a landmark study with important new findings about accidental awareness during general anaesthesia(AAGA).1 The summary paper published in this journal makes extensive reference to the main report2 which contains additional data and detailed recommendations. Unfortunately, the authors have chosen to give extensive coverage of the isolated forearm technique(IFT) and described it in approximately equal terms to processed EEG (pEEG).

The isolated forearm technique, IFT3 is an experimental technique used by a very small group of investigators in a limited number of small clinical studies. Perhaps surprisingly, it has not been adopted by the global research community interested in depth of anaesthesia monitoring. IFT ‘responsiveness’ during apparently adequate anaesthesia is a scientifically interesting and arguably disturbing phenomenon. Its incidence is unclear given the contradiction between reports. It occurs commonly when what some would consider an inadequate anaesthesia technique is used whereas it is very infrequent during more ‘standard’ anaesthesia. Nevertheless the idea that a patient can voluntarily respond to verbal commands during surgical anaesthesia demands attention.

IFT has not been tested in large clinical studies either for efficacy in reducing awareness (i.e. the equivalent of the B-aware study),4 nor has it been compared with alternatives (in the manner of the B-unaware & BAG-recall studies).5,6 There is no CE marked equipment approved for IFT monitoring, no training packages for its use have been developed or validated, and the practicalities and clinical consequences of titrating patients to an IFT non-responsive state are not known. Overall IFT can only be considered an investigational method and is definitely not suitable for deployment.

The encouragement in the NAP5 report of IFT training and its apparent elevation to equal status with pEEG, may lead to well-meaning but potentially harmful clinical experimentation, with unknown consequences for patients.

Although a tourniquet may be safely inflated for a limited period during arm surgery, failure to deflate an IFT cuff might eventually lead to serious patient injury or ironically interrupt ipsilateral i.v. anaesthesia and cause the very event it is intended to prevent. Before proponents of IFT can justify its general use it requires comprehensive evaluation, dedicated equipment with a CE mark and built in safety features (for example automatic cuff deflation after a fixed period) and a proper understanding of the dose-response relationship between anaesthetic agent concentration and IFT responsiveness.

It would be appropriate for the NAP5 team to clarify their intentions around IFT and hopefully be explicit that it not be widely used until the necessary pre-conditions outlined above have been achieved. In the meantime, please leave it out of the anaesthesia curriculum, except as a thought provoking clinical phenomenon and an area for further research.

Declaration of interest

None declared.

References

1. ↵ Pandit JJ, Andrade J, Bogod DG, et al. 5th National Audit Project (NAP5) on accidental awareness during general anaesthesia: summary of main findings and risk factors. Br J Anaesth 2014; 113: 549–59
2. ↵ National Audit Projects. www.nationalauditprojects.org.uk/NAP5\_home.
3. ↵ Tunstall ME. Detecting wakefulness during general anaesthesia for caesarean section. Br Med J 1977; 1: 1321
4. ↵ Myles PS, Leslie K, McNeil J, et al. Bispectral index monitoring to prevent awareness during anaesthesia: the B-Aware randomised controlled trial. Lancet 2004; 363: 1757–63
5. ↵ Avidan MS, Jacobsohn E, Glick D, et al. Prevention of intraoperative awareness in a high-risk surgical population. N Engl J Med 2011; 365: 591–600
6. ↵ Avidan MS, Zhang L, Burnside BA, et al. Anesthesia awareness and the bispectral index. N Engl J Med 2008; 358: 1097–