NAP5: aware of the limitations

P. A. Ward

Hong Kong, China
E-mail: patrickward81@hotmail.com

Editor—I would like to congratulate P.S. Myles on an excellent editorial in the BJA,1 and reiterate the caution he expresses regarding the appropriateness of applying the findings of NAP5 (or indeed any clinical trial, survey or audit) to a different population than that which has been sampled. Myles refers to the misguided tendency/desire of clinicians to extrapolate the results of a specific study to incompatible contexts or populations beyond the sampling frame, and therefore the need for a judicious approach when considering the application of the NAP5 findings to an international setting.

As a UK trained anaesthetist practising in Hong Kong I am only too aware of the differences that exist between the native Hong Kong Chinese population and that which was studied in NAP5—in particular decreased BMI, altered body composition (increased fat percentage), reduced alcohol intake and pharmacogenetics/genetic polymorphism affect both the sensitivity to anaesthetic agents and pharmacokinetic properties within the local population, with demonstrable differences in drug metabolism (allelic variants for drug metabolising isoenzymes), bioavailability, drug redistribution, receptor binding, therapeutic ranges and renal clearance (to mention a few). Thus, the NAP5 findings must be interpreted in the context of observed clinical differences in response to anaesthetic agents, especially hypnotic drugs, opiates and muscle relaxants.

For example, when considering total i.v. anaesthesia (identified as a high-risk group by NAP5), if one was to apply internationally accepted target controlled infusion rates to the Hong Kong Chinese, the issue of awareness would be far outweighed by the negative sequelae of significantly overdosing most of your patients.

It is also necessary to consider the different implications of a case of accidental awareness in each population. Such are the medicolegal ramifications of an accidental awareness event in the UK, the NAP5 authors deemed it necessary to include a separate paper2 on the relevant issues and the BJA also chose to commission an editorial dedicated to it,3 whilst such an emphasis is perhaps less warranted in Hong Kong, where societal, cultural, social and behavioural differences combined with altered patient expectations create a local population that is probably less likely to pursue legal action, should such an (equally serious and devastating) event occur.

And so, whilst one can learn a great deal from NAP5, as Myles suggests it is essential to interpret its findings with the utmost care before making any inference about its applicability to patient populations outside the UK.

Declaration of interest
None declared.

References
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Postoperative atrial fibrillation and diastolic dysfunction; the contribution of autonomic nervous system function

H. Bayir* and I. Yildiz

Bolu, Turkey

*Corresponding author. E-mail: bayirhakan@gmail.com

Editor—With great interest, we read the recent article by Ashes and colleagues1 regarding the association between the dynamic changes in diastolic function during the perioperative period and postoperative atrial fibrillation (AF), in patients undergoing coronary artery bypass graft (CABG) surgery. The authors very clearly discussed the relationship between postoperative atrial fibrillation and diastolic dysfunction (DD). They showed that new or worsened DD after CABG surgery is associated with an increased incidence of postoperative AF.

As a complement to their discussion, we have summarized other possible mechanistic relationships between DD and postoperative AF; in particular the effect of autonomic nervous system function.

There are many published reports of associations between alterations in autonomic nervous system and development of postoperative AF.4,5,6 Amar and colleagues4 hypothesized that parasympathetic resurgence competing with increasing sympathetic activity, is the triggering mechanism for postoperative AF. In addition, Bauernschmitt and colleagues5 showed that the
patients experiencing postoperative AF have impaired autonomic nervous system activity before surgery. Also, Jideus and colleagues\(^4\) concluded that ‘the diminished circadian variation in autonomic nervous system before surgery and the indirect signs of a higher parasympathetic activity in patients developing postoperative AF compared with patients remaining in sinus rhythm, may indicate a propensity for AF’. Thus, impairment in autonomic nervous system function, is thought to play a role in the development of postoperative AF.

Previous studies clearly showed a close relation between left ventricular diastolic dysfunction and impaired cardiac autonomic function.\(^5\)\(^6\)\(^7\) Habek and colleagues showed that progression of diastolic dysfunction is associated with a significantly greater prevalence of reduced cardiac autonomic nervous system activity.\(^8\) Bonapace and colleagues\(^9\) found that early diastolic dysfunction, as measured by tissue Doppler imaging, is independently associated with impaired cardiac autonomic nervous system activity with normal systolic function.

As a consequence, we believe that the relation between impairment on cardiac autonomic nervous system function may have a significant role in the relation between DD and postoperative AF.

**Declaration of interest**

None declared.

**References**


**Does surgical technique add to the risk of bone cement implantation syndrome?**

D. Jain*, K. Jain and M. S. Dhillon

Chandigarh, India

*Corresponding author. E-mail: jaindivyaa77@rediffmail.com

Editor—We read the article ‘Bone cement implantation syndrome in cemented hemiarthroplasty for femoral neck fracture: incidence, risk factors, and effect on outcome’ with great interest.\(^1\) The authors have extensively studied the risk factors associated with bone cement implantation syndrome (BCIS).

However we feel that other than patient and anaesthesia related factors, evaluation of factors related to the surgical technique could have added to our knowledge.

1. Revision surgery vs Uninstrumented femoral canal: How many patients were being operated upon uninstrumented femoral canal? Owing to increased permeability to the embolic material, uninstrumented femoral canal has a greater risk for development of BCIS compared with a revision surgery.\(^2\)

2. Role of cement gun: It would have been interesting to investigate the association between use of cement gun and BCIS, as there have been conflicting reports. Cement gun use has been suggested as one of the techniques to decrease the incidence of BCIS. However its use results in increase in intramedullary pressures compared with finger packing.\(^3\)

3. Mixing of cement: We would like the authors to clarify if the technique of cement mixing was standardized. Mixing the cement in partial vacuum decreases the risk of BCIS compared with mixing under atmospheric pressure.\(^4\)

4. Lastly, we would like to know how many patients had osteoporotic bones, as this again is an important factor determining the risk of BCIS.

**Declaration of interest**

None declared.

**References**