

PostScript

LETTERS

Effects of altitude on endotracheal tube cuff pressures

In regard to the article by Mann *et al.*,¹ the issue of endotracheal tube (ETT) cuff inflation in response to reduced barometric pressure at altitude has been recognised for a long time. The most recent study published in 2004 used pressure transducers to examine the effects *in vivo*.² The pressure effects of altitude on cuff volume are predicted by Boyle's law, which states that a fixed mass of gas will expand as ambient pressure decreases. If there is no method of venting this expansion, there will be an increase in pressure within any air filled space. Accordingly a number of authorities recommend the use of saline (incompressible) rather than air in ETT cuffs for aeromedical transport of intubated patients.^{3,4} This avoids the problems of gas expansion and contraction in response to changes in barometric pressure and/or the use of a relatively complex formula for deflation on ascent and re-inflation on descent.

Philip Kaye

Emergency Department, Royal United Hospital, Bath, UK

Correspondence to: Dr Philip Kaye; philip_bath@hotmail.com

doi: 10.1136/emj.2007.048884

Competing interests: none

REFERENCES

- Mann C, Parkinson N, Bleetman A. Endotracheal tube and laryngeal mask airway cuff volume changes with altitude: a rule of thumb for aeromedical transport. *Emerg Med J* 2007;24:165-7.
- Henning J, Sharley P, Young R. Pressures within air-filled tracheal cuffs at altitude – an *in vivo* study. *Anaesthesia* 2004;59:252-4.
- Shirley P. Transportation of the critically ill and injured patient. *Update in Anaesthesia* 2004;18:(article 2).
- Ogle J, Ross H. Aerospace medicine. <http://www.emedicine.com> (accessed 2006).

Clinical signs of dehydration in children

The recent Best Evidence topic report article by Fayomi¹ clearly illustrates the dangers of too narrow a focus when practising evidence based medicine. Firstly, the search strategy is too narrow, as three papers²⁻⁴ which have studied this have been missed. All of these papers found tissue turgor time to be closely associated with the presence of dehydration, while the paper cited by Gorelick *et al.*⁵ found this sign to be very specific, but of low sensitivity.

Secondly, the focus of the question is too narrow. A number of studies, including Gorelick *et al.*,⁵ has revealed that combinations of clinical findings traditionally associated with dehydration greatly enhanced accuracy, sensitivity and specificity.⁴⁻⁸ Accuracy, sensitivity and specificity figures of over 80% have been published, with combinations of clinical signs.⁵

In addition, some of these papers have demonstrated improvements in clinical care of the dehydrated patients with the use of scoring systems for dehydration based on combinations of clinical signs.

Many of the clinical signs of dehydration individually have high specificity, but low sensitivity. Combinations of signs are more accurate, especially when used by experienced clinicians, and are probably more accurate for lower levels of dehydration than classically taught.⁴⁻⁸ There is a tendency therefore to overestimate the level of dehydration, and this can lead to over treatment. However, there is an absence of any useful proven prospective diagnostic tools, and clinical examination is therefore still an acceptable method for determining treatment.

The usefulness of the Best Evidence topic reports have been debated in the correspondence section of this journal on previous occasions; like all medical literature, interpretation and implementation should be considered with caution, especially with regard to a wider, more strategic aspect.

Simon Smith

A&E Department, Wycombe Hospital, High Wycombe, Bucks, UK

Correspondence to: Dr Simon Smith; simon.smith@buckshosp.nhs.uk

doi: 10.1136/emj.2007.049429

Competing interests: none declared

REFERENCES

- Fayomi O. Is skin turgor reliable as a means of assessing hydration status in children? *Emerg Med J* 2007;24:124-5.
- Laron Z. Skin turgor as a quantitative index of dehydration in children. *Pediatrics* 1957;19:816-22.
- Mackenzie A, Barnes G, Shann F. Clinical signs of dehydration in children. *Lancet* 1989;2:605-7.
- Duggan C, Refat M, Hashem M, *et al.* How valid are the clinical signs of dehydration in infants? *J Pediatr Gastroenterol Nutr* 1996;22:56-61.
- Gorelick MH, Shaw KN, Murphy KO. Validity and reliability of clinical signs in the diagnosis of dehydration in children. *Pediatrics* 1997;99:e6.
- Vega RM, Avner JR. A prospective study of the usefulness of clinical and laboratory parameters for predicting percentage of dehydration in children. *Pediatr Emerg Care* 1997;13:179-19.
- Santosham M, Brown KH, Sack BB. Oral rehydration therapy and dietary therapy for acute childhood diarrhoea. *Pediatr Rev* 1987;8:273-8.
- Fortin J, Parent MA. Dehydration scoring system for infants. *Trop Pediatr Environ Child Health* 1978;24:110-14.

Debriefing

In the article by Doy *et al.* reference is made to "critical incident stress debriefing". It was suggested there was some disagreement as to its effectiveness, but nevertheless the article appeared to be recommending its use. I would, however, refer readers to the National Institute for Health and Clinical Excellence guidelines on post-traumatic stress disorder (www.nice.org.uk). These guidelines state that for individuals who have experienced a traumatic event, the systematic provision to that individual alone of

brief, single session interventions (often referred to as debriefing) which focus on the traumatic incident should (not their bold type) be routine practice when delivering services.

Anthony D Redmond

Hope Hospital, Manchester, UK

Correspondence to: Professor Anthony D Redmond; tony.redmond@manchester.ac.uk

doi: 10.1136/emj.2007.049478

Competing interests: none declared

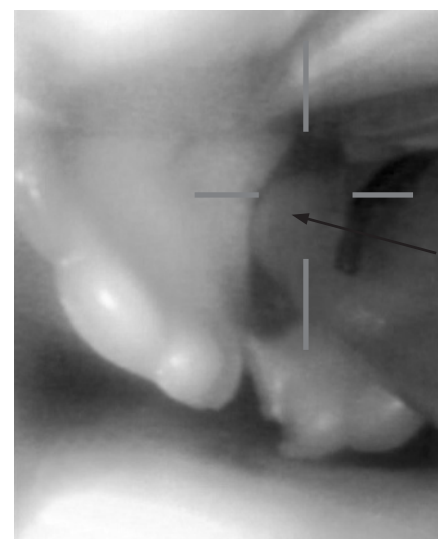
REFERENCE

- Doy R, Blowers EJ, Sutton E. 16 mental health. *Emerg Med J* 2006;23:304-12.

CORRECTIONS

doi: 10.1136/emj.200.045013corr1

In the short report, Airway scope management versus Macintosh laryngoscope: a manikin study (*Emerg Med J* 2007;24:357-358), figure 1C is incorrect. Please find the correct figure 1C below. The journal apologises for this error.



doi: 10.1136/emj.2006.044677corr1

In the May issue the paper by Bailey *et al.* (*Emerg Med J* 2007;24:348-352) has cited the author of references 7, 13 and 18 incorrectly. The correct spelling for this authors surname is Fatovich.

doi: 10.1136/emj.2007.047258corr1

Following the notification of several errors of the paper by Lockey and Porter (*Emerg Med J* 2007;24:437-438) the article has been corrected and is printed below. The online pdf has also been replaced. The journal apologises for these errors.

PREHOSPITAL CARE

Prehospital anaesthesia in the UK: position statement on behalf of the Faculty of Pre-hospital Care



David Lockey, Keith Porter

Emerg Med J 2007;24:437–438. doi: 10.1136/emj.2007.047258

Prehospital anaesthesia is carried out regularly by a small number of prehospital care practitioners in the UK. Although mostly predictable, prehospital procedures can be more difficult than those in hospital, and, in addition, peer and skilled anaesthetic assistance is usually not available. Patient safety is of paramount importance, and systems need to be in place to ensure that the highest standards are achieved.

The exact proportion of patients with trauma who require early airway intervention is unclear, but is likely to be relatively small.¹ A large proportion of patients who require urgent tracheal intubation do not receive it until their arrival in hospital, which may result in suboptimal care.¹ Rapid sequence induction (RSI) with oral intubation followed by maintenance of sedation is the technique of choice in the emergency department, and, where resource and skill permits, in the prehospital phase.^{1,2} Most UK prehospital practitioners cannot and should not practice prehospital anaesthesia. Those practitioners who do not have competence in RSI or who operate outside an appropriate supporting system may make significant contributions to the management of most injured patients without this skill, and should not be in any way pressured to perform the technique without appropriate training, resource and local support.² When patients with airway compromise are encountered, oxygenation should be attempted with simple airway manoeuvres, meticulous bag-valve ventilation and rescue devices (eg, the use of supraglottic airway devices familiar to the individual practitioner).

Individual competence

Prehospital practitioners should not practise prehospital anaesthesia in professional isolation. Prehospital practitioners should have the same level of training and competence that would enable them to perform RSI unsupervised in the emergency department.^{3,4} RSI is well recognised as a potentially hazardous intervention, and considerable time has been spent in ensuring that anaesthetists and non-anaesthetists who perform RSI in hospital can do it safely. Standards in prehospital care should be the same. Practitioners should perform RSI regularly and frequently enough to maintain competence. The definition of “regular” and “frequent” is difficult, and the competence of the individual should be assessed by the lead clinician of the prehospital scheme. In

the UK, this is likely to require regular in-hospital practice.

PROCEDURAL SEDATION

There are occasions when sedation and analgesia are desirable outside hospital to facilitate extrication, splinting and other procedures. Concern has been raised in numerous documents and publications about the potential for complications when performed (in hospital) by non-anaesthetists.⁵ Prehospital sedation should not be undertaken lightly; in critically unwell patients, prehospital practitioners must be aware of the potential of sedation to lead to deterioration and the need for urgent RSI, and should be competent to perform it.

Local organisation

The local prehospital organisation (this may be an immediate care scheme, a hospital-related scheme or an ambulance service trust-related scheme) should provide the support to practitioners practising RSI:

- A named responsible lead clinician who ensures responsible competency-based practice and regular review/appraisal of practitioners.
- A clinical governance structure, which includes regular case review, audit, an adverse event reporting system, and regularly reviewed guidelines or standard operating procedures.
- Equipment should be adequate for the purpose and maintained to the same standard as ambulance service or in-hospital equipment. Minimum standards of monitoring should be the same as for in-hospital anaesthesia.⁶
- Anaesthesia in hospital should be only conducted in the presence of an appropriately trained assistant. The same standards should apply in prehospital care. The prehospital team that provides anaesthesia should provide an appropriately trained assistant. Paramedics with a critical care qualification or with competency-based training can fulfil this role.

Summary

Although early intervention in a small number of trauma patients a desirable,¹ poorly performed RSI can result in unnecessary morbidity and mortality.⁷ The procedure should be only performed by appropriately trained and competent practitioners working in a properly structured prehospital system. A multispeciality working party has been set up recently by the Association of Anaesthetists of UK and Ireland to consider the issues of

Abbreviation: RSI, rapid sequence induction

See end of article for authors' affiliations

Correspondence to: Professor K Porter, University Hospital Birmingham NHS Trust, Selly Oak Hospital, Selly Oak, Birmingham B29 6JD, UK; keith.porter@uhb.nhs.uk

Accepted 2 March 2007

prehospital anaesthesia in detail, and will submit its report in due course.

Authors' affiliations

David Lockey, Consultant Anaesthetist, London, HEMS, UK

Keith Porter, Professor of Clinical Traumatology, University Hospital Birmingham; Chairman of the Faculty of Pre-hospital Care

Competing interests: None declared.

REFERENCES

- 1 **Dunham CM**, Barraco RD, Clark DE, *et al*. Guidelines for emergency tracheal intubation immediately after traumatic injury. *J Trauma* 2003;**55**:162–79.
- 2 **National Association of EMS Physicians**. *Drug assisted intubation in the pre-hospital setting*, Position Statement 2005. <http://www.naemsp.org/position.html> (accessed 30 Mar 2007).
- 3 **Nolan JP**, Clancy M. Airway management in the emergency department. *Br J Anaesth* 2002;**88**:9–11.
- 4 **Royal College of Anaesthetists**. *Competency in anaesthesia*. <http://www.rcoa.ac.uk/docs/cctptii.pdf> (accessed 30 Mar 2007).
- 5 **UK Academy of Medical Royal Colleges and their Faculties**. *Implementing and ensuring safe sedation practice for healthcare procedures in adults*, Nov 2001. <http://www.rcoa.ac.uk/index.asp?PageID=59> (accessed 30 Mar 2007).
- 6 **The Association of Anaesthetists of Great Britain and Ireland**. *Recommendations for standards of monitoring during anaesthesia and recovery*. 2000. <http://www.aagbi.org/publications/guidelines/archiveglossies.htm#m> (accessed 30 Mar 2007).
- 7 **Spaite DW**, Criss EA. Out-of-hospital rapid sequence intubation: are we helping or hurting our patients? *Ann Emerg Med* 2003;**42**:729–30.

Access a vast information database with Toll-Free linking

“Toll-free” linking gives you immediate access to the full text of many of the cited articles in a paper’s reference list—FOR FREE. With the support of HighWire’s vast journal catalogue, a huge reference library is now open to you. If HighWire hosts the journal, you can view the full text of the referenced article, completely free of charge by following the Free Full Text links in the references.