Are accident and emergency senior house officers getting slower?

You sometimes hear people saying that senior house officers (SHOs) in emergency departments are not what they used to be. We studied data collected over a five year period (1996–2001) on the number of patients seen by all SHOs who completed a six month post in our A&E department.

The 118 SHOs (62 male and 56 female) worked a full shift rota averaging 52 hours per week. The influence of the sex of the doctors and their future career plan on the number of patients they saw was also assessed.

The number of patients seen by each SHO in six months ranged from 1069 to 2659 (mean 1774, SD 346). On average the SHOs worked between 2627 (range 1606 to 2644) (p = 0.001; unpaired t test). Male SHOs saw a lot of patients (mean 1792, range 1069 to 2644) (p = 0.001; unpaired t test). The median number of patients seen by SHOs with a surgical interest was 1831 (interquartile range 1624 to 2024), and those with a medical one was 1684 (interquartile range 1497 to 1847) (p = 0.002; Mann–Whitney U test).

We acknowledge that there have been changes in the delivery of emergency care over the time frame of this study. We did not study the quality of care given by the SHOs and it would be difficult to quantify this. It is possible that the slower SHOs were more thorough but our impression is that some SHOs (male or female) saw a lot of patients with a high standard of care. Our results show that A&E SHOs (male or female) saw a lot of patients than they used to. We need to be aware of this and consider the implications for the future of emergency care.

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References

Authors’ reply

Howes’ concern about the term “relative analgesia” pertaining to our recent description of nitrous oxide analgesia in children is noted. This is actually a term that has been used for many years. It first appeared in the dental literature and was used originally to describe situations where continuous flow/variable concentration nitrous oxide was administered, often via a nasal mask. Other authors looking at the risk of aspiration using nitrous oxide analgesia used the term “relative

What is “relative analgesia”? I welcome the paper by Frampton et al describing their experiences of nurse administered nitrous oxide, which adds further evidence to the literature supporting this technique as a useful and safe method of easing the suffering of children during their attendance at an emergency department.

I feel that the use of the term “relative analgesia” is somewhat confusing; this is not a term previously encountered in the literature describing sedative/analgesic techniques. The United States guidance (their reference 2) does not use this term when defining sedation levels nor do the current UK and Australasian’ guidance and definitions. To introduce a new term may prevent accurate comparisons of techniques in the literature.

I would also welcome description of two other outcomes measured by the authors; we would find important when considering a sedative/analgesic technique: adequacy of sedation and parent/operator satisfaction. The authors do describe 10 cases (4.4%) requiring additional sedation but whether the children were adequately sedated, or inadequately sedated but the procedure was completed anyway. Nitrous oxide has two useful properties: analgesia and sedation. In the context of this study “relative analgesia” could mean “inadequate analgesia” or “sedation (without analgesia)”. M C Howes

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Comprehensive drug screening

We read with interest the paper by Fabbri et al on comprehensive drug screening.1 We are concerned by the statement that the “Diagnosis was made on the basis of plasma or urine concentrations of drugs or their metabolites in amounts sufficient to explain the presenting symptoms.” The presence of drug in a screen should imply neither intoxication nor clinical effect, as drug or metabolite may persist for days after toxicity wanes. This is particularly important because many drugs have unique pharmacokinetics, may induce tolerance, or simply do not follow first order kinetics.2 Among the substances included in the final analysis, clearly tricyclic antidepressants (TCA) are of greatest concern. However, the electrocardiogram may be a better prognostic indicator of TCA poisoning, and may be a more sensitive indicator of drug presence3 than drug concentrations.4 In addition, it is our belief that acetaminophen is the only drug screen that has been shown to have a clinical impact in intentionally self poisoned patients5.

The diagnosis and management of the self poisoned patient is centred on a careful history and physical examination. Directed adjuncts such as an ECG and acetaminophen concentration may influence management and disposition. We would caution against the use of broad testing of the self poisoned patient as diagnosis was made on the basis of plasma or urine concentrations of drugs or their metabolites in amounts sufficient to explain the presenting symptoms.” The presence of drug in a screen should imply neither intoxication nor clinical effect, as drug or metabolite may persist for days after toxicity wanes. This is particularly important because many drugs have unique pharmacokinetics, may induce tolerance, or simply do not follow first order kinetics. Among the substances included in the final analysis, clearly tricyclic antidepressants (TCA) are of greatest concern. However, the electrocardiogram may be a better prognostic indicator of TCA poisoning, and may be a more sensitive indicator of drug presence than drug concentrations. In addition, it is our belief that acetaminophen is the only drug screen that has been shown to have a clinical impact in intentionally self poisoned patients.

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analgesia" when studying 50% nitrous oxide/oxygen (Enitoxon)." The term does not appear to have been used in any of the emergency medicine literature pertaining to nitrous oxide that we have seen. The term continues to be used in contemporary literature " and in 2001 Lahoud et al. described relative analgesia as having the element patient remaining conscious deliver 100% O₂ if needed. Certainly we found in our study that distraction techniques are easily done in conjunction with this method of analgesia and form an important part of it. We have used the term "relative analgesia" in our institution for many years, which is why it was included in our study. The term has also persisted in the name of the equipment used to administer continuous flow/variable concentration with the Quantumflex RA machine originally manufactured by Cyprane, Keighley, England and now by Matrix Medical, New York.

We agree with Fowles that there is enough confusion in the semantics of the literature on sedation/analgesic techniques without rejuvenating old terminology. However, perhaps the term “relative analgesia” may be useful in describing analgesia by inhalational techniques alone, which are becoming more common using agents such as nitrous oxide, methoxyflurane, and nitrous oxide/sevoflurane mixtures. Nitrous oxide provides analgesia, amnesia, and mild amnesia obtained with maintenance of verbal contact and predominantly intact laryngeal reflexes. No other single agent does this.

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References

Climbie Inquiry sets new standards
King and Reid' highlight a number of standards relating to child protection procedures within emergency departments. In January 2003, Lord Laming published his report of the Victoria Climbie Inquiry that contains further recommendations regarding healthcare arrangements for children and procedures for investigation of possible deli- berate harm. Those relevant to emergency department practice mainly concern admin- istrative standards, such as recording the name of the "primary carer" for each child attending the department and obtaining information on previous attendances at other hospitals when concerns about deliberate harm have been raised. The recommendations have various suggested timescales for imple- mentation ranging from three months to two years from the publication date and we would urge all those involved with child protection to read the report summary (available at http:// www.victoria-climbie-inquiry.org.uk/index.htm) and check that their practice complies with the recommendations.

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Steering wheel spin?
Nigam and Cutter totally fail to present evidence to justify the claim that “Welsh emergency vehicles exhibited an unacceptable level of bacterial contamination’’. What is more, a press release from the editorial team to local newspapers led Madeline Brindley of the Western Mail to write, “Dirty ambulances infested with huge amounts of harmful bacteria are carrying seriously ill patients to hospital in Wales, according to a report published today. The new research discovered that even after they have been cleaned, ambulances are still home to “unacceptable” levels of bacteria.”

The authors make no attempt to quantify levels of bacteria for organisms that are expected to be present in an environment occupied by people. Inevitably, steering wheels will be home to Staphylococcus epider- midis and viridans group streptococci, as they represent normal skin commensals. Bacillus sp are ubiquitous environmental organisms. Similar comments can be levied for all areas sampled throughout the ambulances.

The method used by Nigam and Cutter is not rigorous enough to accurately quantify numbers of bacteria for any given measured area. However, our work was simply described as a preliminary investigation and this pilot study did identify shortfalls in cleaning practices in use at the time of the study. These included a lack of designated cleaning equip- ment for ambulances, insufficient time for thorough cleaning, and lack of suitable decon- tamination processes for medical equipment.

Most organisms identified in the study were unlikely to pose any threat of infection to patients or ambulance personnel. This was clearly stated in our article, but sadly was often ignored in the subsequent press reports, resulting in public concern.

Having identified that there were shortfalls in cleaning practices, action was required. The Welsh Ambulance Trust responded immediately to the results of the study and, supported by one of the authors (JC), took action to improve standards of cleanliness. This included the following:

- The Infection Control Committee and Regional Infection Control Teams con- tinue to monitor cleanliness through regular environmental audits;
- Colour coded cleaning equipment has been introduced to prevent cross contam- ination during cleaning and standardisa- tion of detergents and disinfectants has been completed;
- All vehicles have now been provided with “spillage kits” to absorb fluid spills;
- A chlorine releasing disinfectant is provided for each vehicle for prompt decon- tamination of blood and body fluids;

www.emjonline.com
Significant investment has been made to replace re-usable medical equipment, for example, Entonox masks and suction canisters with disposable alternatives. Disposable covers are provided for laryngoscope blades and single use bougies for intubation have been supplied;

Infection control training is provided during all patient transport services and emergency technician training courses in which the importance of cleaning is included.

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Children and mini-magnets: comments and suggestions

I read with interest “Children and mini-magnets” for I had previously listed similar events. The authors illustrate the difficulty of separating attracted magnets when avoiding further trauma to the entrapped tissue, as the usual methods—of sliding the magnets apart, or using standard instruments—cannot be used. It is possible to “short out” the effective strength of a magnet (in the same way that the soft iron keeper of a horseshoe magnet greatly diminishes its external attraction) by putting a high permeability material between the poles. One such material is “Permalloy,” and pieces and sheet can be formed around a magnet. (McCormick et al do not seem to list the magnetisation directions in the shape they encountered, so one cannot make any more specific suggestions.) Permalloy might be available in your friendly neighbourhood physics department. Another technique is to put a third similar magnet against one of the two problem ones.

Here in the USA, powerful magnets are used to hold ear “rings” or ear studs in place. A friend, who has given magnetic jewelled studs as science encouragement to pre-teen girls, has received thanks from their mothers: the mothers emphatically prefer the magnets to pierced ears.

I am curious about the origin of the Sheffield magnets: extremely powerful ones are found in discarded computer hard drives, but they have irregular shapes.

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References


Radiology in paediatric cervical spine injury

I read with interest the letter by Smart et al regarding the assessment of paediatric cervical spine injuries. It would certainly appear that many children in their cohort were radiographed unnecessarily according to current guidelines. However, I would hope that the practice in their institution has changed dramatically in the six years since the group attended. Current guidelines on selection of patients for imaging are based primarily on adults. In the NEXUS group, only 30 children had a cervical spine injury, and in the Canadian c-spine group, there were no children at all. Extrapolating results to children who may be distressed or uncooperative should be performed with caution.

The low prevalence of cervical spine injuries in children makes guidelines difficult to create. In an 11 year analysis of the Trauma Audit Network Database, only 239 children (of 19 538 with major trauma) were identified as having a cervical spine fracture and 21 with spinal cord injury without radiological abnormality (unpublished data).

I am concerned that the authors feel that a single lateral projection should be adequate. The evidence for omitting the PEG view is based on small case series or questionnaires, and certainly the odontoid synchondrosis should be ossified by the age of 7.

Imaging of the paediatric cervical spine remains a difficult problem. As the authors confirm, there is no substitute for adequate clinical assessment, but where this is not possible, every effort should be made to rule out a potentially devastating injury.

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References


Emergency department investigation of deep vein thrombosis

Kilroy et al should be commended for highlighting the difficulty of point of care (“near patient”) testing in general, and in emergency medicine in particular. They, however, failed to highlight some important points that may have been significant confounding variables in this study. Firstly, the authors quite rightly pointed out the qualitative nature of the SimpliRED test (DD) assay and the inherent possibility for interobserver variation. Although this is a “simple” assay and comparatively accurate in experienced hands, there is a learning curve in performing and interpreting the results that the authors failed to emphasise. How steep or otherwise was the learning curves of the doctors who failed to emphasise. How steep or otherwise was the learning curves of the doctors who failed to emphasise. How steep or otherwise was the learning curves of the doctors who failed to emphasise. How steep or otherwise was the learning curves of the doctors who failed to emphasise.

The nature of the SimpliRED-Dimer (DD) assay it should be verified that the assay sensitivity and specificity. Although this is a “simple” assay it should be verified that the assay sensitivity and specificity. Although this is a “simple” assay it should be verified that the assay sensitivity and specificity. Although this is a “simple” assay it should be verified that the assay sensitivity and specificity. Although this is a “simple” assay it should be verified that the assay sensitivity and specificity. Although this is a “simple” assay it should be verified that the assay sensitivity and specificity. Although this is a “simple” assay it should be verified that the assay sensitivity and specificity. Although this is a “simple” assay it should be verified that the assay sensitivity and specificity. Although this is a “simple” assay it should be verified that the assay sensitivity and specificity. Although this is a “simple” assay it should be verified that the assay sensitivity and specificity.

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References


Fractured clavicle and vascular complications

A 55 year old right handed man presented with a three month history of left arm pain and precordial chest discomfort. His symptoms had started three months previously after a heavy game of squash. Three years before the acute episode, he was involved in a motorcycle accident and had sustained a left mid-clavicular fracture.

On clinical examination he was in sinus rhythm and the supine blood pressure was 146/94 mm Hg in the right arm. He had a cold left arm with no recordable blood pressure. The left axillary, brachial, and radial pulses were absent. A bruit was audible over the left subclavian artery. The fasting total cholesterol was 4.4 mmol/l.

The chest radiograph showed non-union and displacement of the fragments of the left clavicle. Three dimensional contrast enhanced magnetic resonance angiography (CE-MRA) showed a small false aneurysm (diameter 1.5 cm) in the mid-portion of the left subclavian artery (see fig 1). In addition there was a stenosis of the left subclavian artery adjacent to the aneurysm with an intraluminal thrombus, immediately distal to the point of stenosis. The aneurysm probably resulted from insult to the subclavian artery by the clavicular fracture and aggravated by squats playing.

Percutaneous balloon angioplasty with stent deployment to the left subclavian artery was attempted. The procedure was complicated by acute thrombosis requiring intra-arterial thrombolysis with streptokinase. Restoration of blood flow was achieved by a reverse vein graft bypass between thoraco-acromial and brachial arteries.

Injury to the subclavian artery should be considered in all patients who complain of ischaemic symptoms in the arm after clavicular fracture. Furthermore, this case

Wakai
Atypical antipsychotics not recommended for control of agitation in the emergency department

We read with concern the article by Yildiz et al., regarding the recommended use of atypcal antipsychotics for the control of agitated patients in the emergency department. Our concern rests mainly with the control of agitation secondary to drug ingestion, particularly sympathomimetic drugs of misuse (cocaine, MDMA “ecstasy”, and ampheta-mites), and antidepressants (SSRIs, tricyclic antidepressants, MAOIs).

It can be difficult to distinguish with certainty, the diverse aetiologies of acute confusion/agitation, and therefore the sedative agent of choice should be safe and effective regardless of the cause. In patients presenting with drug induced agitation, or when the aetiology of the agitation is not established (particularly in teenagers and young adults), the use of atypical antipsychotics such as risperidone, ziprasidone, and olanzapine may result in adverse drug reactions including serotonin syndrome, neuroleptic malignant syndrome, QT prolongation and subsequent ventricular arrhythmias (including torsades de pointes), arrhythmias without QT, prolongation, or extrapyramidal features including dystonic reactions.

In the setting of drug induced agitation, the National Poisons Information Service (London) strongly advocates the use of carefully titrated, lone benzodiazepine sedation. This is because the benzodiazepines (for example, diazepam, lorazepam, and midazolam) are well tolerated, with a high therapeutic index, and are not implicated in any of the above reactions. They have proved safety and efficacy in animal experiments and widespread clinical use for sympathomimetic drug related agitation. They also possess dose dependent efficacy that is easily titratable, and have established seizure prophylaxis and seizure terminating activity.

Benzodiazepines have no arrhythmogenic potential with therapeutic or toxic exposures, and antihypertensive and arrhythmia preventive activity in sympathomimetic drug toxicity, and proved efficacy (in a randomised, double blind, placebo controlled trial) in cocaine associated acute coronary syndromes.

We question why one would want to put an already unstable patient at risk of further harm with the use of potentially dangerous atypical antipsychotics, when an established, safe, efficacious, rapidly acting, cheap alternative (benzodiazepines) is readily available?

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References

Nothing ever changes...

Readers may be interested in the following abstract from the Lancet of October 1869, “The Lancet investigation into the administration of the out-patient department of the London hospitals”.

On the morning in question, 120 patients were seen and dismissed in an hour and ten minutes, or at the rate of 35 seconds each. Who shall say what mistakes were made? None can tell...they are dismissed with a doubtful dose of physic, ordered almost at random, and poured out of a huge brown jug, as if the main object were to get rid of a set of troublesome customers, rather than to cure their ailments. A physician and surgeon have been appointed to stand inside the doors of the waiting room. They are to receive and examine the patients as they enter and distribute them amongst the various departments, according to their judgement. They are also authorised “to refuse treat-ment to any person who appears not to be a fit object of charity.” Naturally desirous of gaining all the experience possible, the house-surgeons have been in the habit of keeping all the interesting cases under their own care, and of sending the chronic and incurable to the out-patient room...

There are three articles in all, which make for a fascinating read. If the language used were updated slightly, they could easily have been written 150 years later.

Acknowledgements
I am grateful to Dr Sue Barnes for drawing these articles to my attention.

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BOOK REVIEWS

The 5 minute toxicology consult for PDA


Why am I writing a review of an e-book?

PDAs are small but immensely capable mobile computers with greater processing power than the desktop machines of five years ago. These handheld computers have matured from simple address books to devices that can word process, email, run presentations, manage databases, and (this is the best bit) switch on every television in my house. Their basic memory varies from 8–64 megabytes but this may be expanded into the gigabyte range. This immense memory together with the ultra portability of the PDAs means that they can always be in your pocket offering near infinite text storage. A PDA may be the perfect way to carry your textbooks with you. This toxicology program is supplied on a CD ROM together with nine other programs all from Lippincott Williams and Wilkins. The CD is compatible with Windows CE/PocketPC and PalmOS operating systems; this review used a Compaq iPAQ running PocketPC. The purchased program is the only one with unlimited access but all the others may be used up to 15 times on a trial basis. As the program is supplied on a CD it must be...
It seems that this statement was never as true. The solitude of one's office seems worlds apart from the frenetic troubled Middle East. It is productive and includes plenty of vantage points to sit and think, sidebars, and a comprehensive index. Moreover, it minimizes the risk of appearing daunt- ing to its proposed audience of EMTs in basic or continuing training, as it is no thicker than the average Sunday newspaper supplement.

I turned to this book as a timely opportu- nity to learn from other’s experiences and expertise and to cross check my own depart- ment’s strategies and planning with the unexpected. It contains many reports of previous disasters; maritime, terrorist, aviation, radiation and mass gathering disasters for example. However, it is the section on conflict related disasters; that seems most appropriate at present. Time has already, perhaps, overtaken the authors and the concern about bioterrorism in particular has become highly pertinent. Transient as they might be, references to the useful CDC and WHO web sites in this regard would have been a helpful addition as would reference to a number of other pertinent web sites.

The sections are far from comprehensive but sufficiently stimulating to make the reader search elsewhere for further informa- tion. The authors of the various chapters are exclusively American but have successfully resisted the temptation to be parochial in their choice of disasters to illustrate their chapters. Nevertheless the recommended response has a distinctive North American influence centred around an efficient EMS but at the same time a prehospital care system that differs in many ways from the UK and European models.

The chapter authors have evidently been given considerable licence in writing their chapters. This makes for challenging reading. A more uniform approach might facilitate the reader search elsewhere for further informa- tion. The editors propose a clinical approach although the depth of the clinical approach could be greater. For instance, drug doses and therapies in general are understated. This is apparent for example in the chapter on mass gatherings where a list of the doses and volumes of medications required might be helpful to the reader planning a service for a major gathering. It seems to me that this is a book more suited to the practising emergency health care ‘planner’ rather than the ‘provider’ as suggested by the editors. For those of us actively engaged in reviewing preparedness for disasters it is a worthwhile text that stimu- lated me to consider many aspects of my own department’s plans. However this is not a text for the provider to turn to on disaster day.

J M Ryan

ACLS for EMT-Basics


In conclusion, this book should be subtitled “EMTs are capably of much more than carrying the paramedic’s kit”. As such, it has the potential to fulfill an important unmet need. Sadly, it fails to do so through poor attention to detail and a lack of consistency in the level of clinical information it seeks to deliver to its target audience.

Reference

Nothing ever changes...

E Walker

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