LETTERS TO THE EDITOR

Acute myocardial infarction in patients with left bundle branch block

EDITOR—We read with interest the paper about the electrocardiographic diagnosis of acute myocardial infarction (AMI) in patients with left bundle branch block (LBBB). It emphasises the difficulties many have had with electrocardiogram (ECG) interpretation in this situation and explains clearly how to use the criteria of Sgarbossa et al.1 It concludes that these criteria can be used to identify patients with LBBB and AMI.

It is essential that accident and emergency staff recognise this group of patients so that thrombolysis is delivered promptly. Shlipak et al.1 reviewed patients presenting with LBBB and an acute cardiopulmonary history and assessed the usefulness of the Sgarbossa criteria.2 They found that these criteria had a sensitivity of 10% and a specificity of 100%. Although an ECG that satisfies the criteria is almost certainly indicative of AMI, most (90%) patients with AMI will not meet the criteria. If thrombolytics were to be withheld unless the criteria were met, few patients in this high risk group would receive appropriate treatment.

Rather than relying on the Sgarbossa criteria, we feel it would be more appropriate to thrombolysse all patients (except those with contraindications) who have a history suggestive of AMI and LBBB. This policy is supported by the data of Shlipak et al.1

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The authors reply

We read with interest the comments of Shepherd and Hardern concerning our article. In large part, we agree with their thoughts. In our report, we stressed several points, including (1) the confounding effect of LBBB pattern on the electrocardiographic diagnosis of AMI; (2) the “normal” or expected findings of LBBB pattern; and (3) the association of electrocardiographic strategies to assist in identifying the patient with a potential AMI. Several electrocardiographic strategies are available to the clinician to assist in this endeavour, such as comparison with old ECGs, examination of serial ECGs, and a sound understanding of the anticipated ST segment changes resulting from LBBB. These strategies may be supplemented by the clinical decision rule developed by Sgarbossa et al.3

Since our report was published, recent literature4 has suggested that the Sgarbossa et al clinical prediction rule is less useful than reported. The first such investigation,2 not noted by Shepherd and Hardern, who applied the Sgarbossa et al criteria to patients with chest pain and established the emergency department of a North American hospital, found much less promising results—a very low sensitivity coupled with poor interobserver reliability. And, as noted by Shepherd and Hardern, a second study4 investigated the diagnostic and therapeutic impact of this criteria—none effectively distinguished the patients who had AMI from those patients with non-coronary diagnoses. The authors concluded that electrocardiographic criteria are poor predictors of AMI in LBBB situations and suggested that all patients suspected of AMI with LBBB should be considered for thrombolysis. As we stated, even if the ECG is not useful in the objective evaluation of the ECG in the patient with LBBB, the report has merit—it has enabled the clinician to review the ECG in detail and cast some degree of doubt on the early taught belief that the ECG is invalided in the search for AMI in the LBBB patient.

Traditional criteria for administration of thrombolytic agents in the AMI patient most often involves electrocardiographic ST segment elevation situated in an anatomic distribution; the presence of a new LBBB pattern represents another electrocardiographic criterion for such treatment. Shepherd and Hardern suggest that all patients with LBBB pattern—presumably regardless of its chronicity—and a history suggestive of AMI receive a thrombolytic agent. Such an approach is perhaps even more dangerous for the physician: the patient in whom a high suspicion of AMI is comforting initiating thrombolysis based solely on clinical information—in other words, an analysis of the patient’s history and physical examination. Physicians, however, may be uncomfortable administering a thrombolytic agent under such circumstances; in fact, patients with electrocardiographic LBBB and AMI less often receive thrombolysis despite an increased risk of poor outcome.2 And it is not without significant benefit.5 The clinician must realise that of all patients with chest pain, electrocardiographic LBBB pattern without obvious infarction, and clinically presumed AMI, only a minority will actually be in the presence of myocardial infarction.1 Treating all such patients with LBBB and presumed AMI will subject a number of non-infarction patients to the not insignificant risks and expense of thrombolysis. The chest pain patient with LBBB represents a significant challenge to the emergency practitioner. Currently, no single or combination diagnostic approach exists which will reliably reveal AMI in that patient. Our article was intended to review the appropriate principles of electrocardiography in the LBBB pattern in the hopes that the emergency practitioner would be better versed in interpretation of these complicated ECGs and therefore offer the AMI patient the correct treatment in rapid order.

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Confirmation of correct endotracheal tube placement

EDITOR—We were disturbed to note from the report of Florance et al that fewer than 50% of “major” accident and emergency departments in East Anglia report having any facilities for endotracheal intubation (ETCO2) monitoring available for trauma patients.1

All emergency departments in North America that manage trauma patients routinely keep in their trauma rooms at least a capnometric device with video capability to do so would be considered indefensible in the event of an adverse airway event (R N Walls, personal communication).

Relying on having video to confirm endotracheal tube “pass through the cords” and depending on clinical signs is hazardous in the multiply injured patient. Capnography should be considered mandatory in any patient requiring intubation, especially as a guide to oral fiberoptic intubation.2 The endotracheal tube must be replaced immediately in any patient not in cardiac arrest in whom ETCO2 is not detected.3

Endotracheal intubation continues to remain the “gold standard” for airway management for patients in cardiac arrest. The standard clinical signs widely used to confirm endotracheal intubation are again potentially unreliable and capnography is unhelpful. The use of a lit tracheal stylet (for example: Trach-light Stylet and Tracheal Lightwand, Rusch Inc, Duluth, GA, USA), inserted through the endotracheal tube after intubation, can very simply provide indirect and rapid confirmation of correct tracheal placement by transillumination of the soft tissues of the neck. This simple technique may help to reduce the tragedy of failure to recognise oesophageal intuba- tion in critically ill patients.

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The authors reply

We would like to thank Black and Skinner for their interest in our survey. Since then, one more department has acquired a capnograph, with more contemplating purchase. We hope this trend will continue.

We agree that capnography is essential in patients who require endotracheal intubation.
Anaesthetic training for specialist registrars in accident and emergency

Editor,—Accident and emergency (A&E) trainees are required to spend a minimum of three months on seconddfment to anaesthetics and the intensive care unit (ICU) if they have not already obtained adequate anaesthetic/ICU experience before entering the specialty. The depth and breadth of experience varies widely. Sometimes, the trainee is purely supernumerary and gains little experience other than placing laryngeal masks and endotracheal tubes. We have each been fortunate enough to spend six months as trainee senior house officer (SHO) anaesthetists as part of our rotations. We feel that this offers considerable benefit to our training as A&E specialists and recommend it to other A&E trainees.

Anaesthetics is unlike any other clinical specialty. It is impossible to start as the sole “on call” anaesthetist in the first days of our training. We have each been fortunate enough to spend six months as trainee senior house officer (SHO) anaesthetists as part of our rotations. We feel that this offers considerable benefit to our training as A&E specialists and recommend it to other A&E trainees.

We accept that both the quality and quantity of dedicated anaesthetic SHOs must be maintained. However, six month slots could still be allocated on a competitive basis, and an anaesthetic specialist registrar or SHO could undertake a similar seconddfment in A&E on an exchange. A&E medicine has a lot to offer, particularly in those departments that perform regional anaesthesia, rapid sequence induction, advanced life support, and advanced trauma life support without initially involving the on call anaesthetist.

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Casemix Healthcare Resource Group update

Editor,—The accident and emergency (A&E) medicine clinical working group of the Casemix Office (part of the NHS Information Authority) has selected six pilot sites to participate in a study leading to refinement of the A&E medicine Healthcare Resource Group (HRG). The chosen sites are as follows (attendances in previous year in thousands):

- Leeds General Infirmary (96)
- Derbyshire Royal Infirmary (78)
- Sandwell District General Hospital (72)
- Princess Alexandra Hospital, Harlow (60)
- Stoke Mandeville Hospital (39)
- Harrogate District Hospital (35)

Other departments are thanked for submitting high quality bids but it was essential to represent a broad cross section of emergency departments.

The current HRG A&E casemix version 1.0 uses disposal data that are already collected and are generally comprehensible. The A&E HRGs also have a specificity or reduction in variance for allocating appropriate groups. Compared with the current case-mix, it would appear that activity is currently better than that of any other specialty.

Korner returns to the NHS of departmental activities. The activity undertaken as outpatient work will have been missed had the rules been applied—that is, these patients would not have been counted using the relevant existing inpatient HRGs.

The study discovered that four malleolar fractures would have been missed had the guidelines (per the Ottawa ankle rules) been applied—that is, these patients would not have had radiography.

Prospective survey to verify the Ottawa ankle rules

Editor,—In their study to verify the Ottawa ankle rules Perry et al point out “the potential dangers of rapidly adopting decision rules”. The study discovered that four malleolar fractures would have been missed had the guidelines (per the Ottawa ankle rules) been applied—that is, these patients would not have had radiography.
In view of the authors’ decision to apply only part of the Ottawa ankle rules, and the disregard for one of the malleoli, it seems inappropriate to conclude that “although useful, decision rules should be used with care and cannot replace clinical judgment and experience”.

BRENDAN McCANN

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Dr Perry replies

Thank you very much for giving me the opportunity to reply to Dr McCann’s letter. I disagree with Dr McCann’s comments about age. The Ottawa ankle rules clearly state that plain radiography is indicated if the patient is aged 55 years or greater.

The authors accept that our stamper did not specify which malleolus had been examined and may, theoretically, have resulted in some patients being recorded as “Ottawa negative” inappropriately. However, it is clearly stated in the discussion that the four missed fracture patients had their case notes reviewed and there were no apparent reasons why these fractures were not identified. This included ensuring adequate documentation of the clinical examinations.

It was never the intention to study the second rule concerning foot radiography and patients with bony tenderness of the foot, therefore, excluded.


Fast tracking patients with a proximal femoral fracture—more than a broken bone

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Since we published the paper a number of changes have occurred at our hospital which reflect changes occurring in many hospitals in the NHS: the number of acute orthopaedic beds on the hospital site fell from 75 to 60; the number of acute admissions, particularly medical, has continued to rise; and improved resources and initiatives for managing emergency admissions have suffered at the expense of initiatives for reducing waiting lists.

In January 1999 we reviewed the length of stay in the accident and emergency (A&E) department for 25 consecutive patients over 65 years of age who were admitted with a proximal femoral fracture and compared them with figures for patients who were fast tracked in our original paper (fig 1). Although the 1995 figures were for patients who were fast tracked, the mean time for patients who could not be admitted because of the unavailability of an orthopaedic bed had still been only 4 hours and 8 minutes. The average length of stay has risen sharply with 40% of patients now staying in the A&E department for more than seven hours.

This apparent breakdown of a quality improvement initiative is an example of how emergency patients are suffering because of reduced numbers of acute hospital beds and a reduction in resources available for acute cases. In 1998 there were 812 cases of proximal femoral fracture over the age of 65 years admitted to our hospital. We advocate the availability of three dedicated beds each day for the management of patients with a proximal femoral fracture. The predictability of numbers and almost uniformity of presentation makes a fast track system for this type of injury eminently suitable. It is important, however, that hospital management work alongside clinicians in providing the necessary resources to develop a fast track service for this vulnerable group of patients.

Fast tracking patients with a proximal femoral fracture

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Figure 1. Length of stay in the A&E department for patients admitted with a proximal femoral fracture.

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It was never the intention to study the second rule concerning foot radiography and patients with bony tenderness of the foot, therefore, excluded.


The authors reply

We thank Mr Southward for his comments on our paper. Comprehensive data on CS incapacitant spray are lacking, particularly with regard to the more concentrated solution in use by UK police forces.

Mr Southward reminds us that serious effects are more likely with excessive or prolonged exposure and are generally mitigated by the victim being removed to a well ventilated area. We recommended irrigation of the eyes for severe symptoms as well as suggesting some general measures for decontamination and the treatment of cardiorespiratory complications.

Mr Southward recommends that particular attention be given to areas of the body where air flow may not occur and we are grateful to him for providing this additional advice.
Installation of the software is simple. Within minutes the novice is introduced to the basic physics and practicalities of sonographic imaging. Each organ of the abdominal cavity is anatomically orientated via a 3D animated model or coronal computed tomographic videographic image, relevant acoustic windows and shadows are highlighted, and normal ultrasonic images are emphasised. Representative images of common abnormalities, such as organomegaly, cysts, tumours, ascites and calculi, are presented via real time video images and multiple still images. Practical skills such as frame selection and organ measurement are emphasised and assessed. Cross reference icons allow for rapid updates to unfamiliar terms and principles, both within the text or via the world wide web.

This CD-ROM costs US$175 for individual use and US$495 for institutional use (plus shipping costs outside the US). While the educational content and the graphical quality are impressive, this CD-ROM requires more emergent case studies, particularly traumatic cases, for it to be of clinical and financial value in an accident and emergency department.

Oxford Clinical Mentor CD-ROM or floppy disks. Single user version, network versions available. Oxford University Press. (Available from Healthwork Ltd, 30-38 Dock Street, Leeds LS10 1JF; tel: 0113 234 6624, fax: 0113 242 7782, e-mail: sales@d-access.demon.co.uk; the Oxford Clinical Mentor Plus is the new updated and expanded edition of the Oxford Clinical Mentor and costs £150 plus VAT.)

Increasingly well known medical texts are being republished as software for use on computers. These may have advantages over print and paper for the computer literate user particularly for the facility to search text rapidly. The Oxford Clinical Mentor is described as an “electronic medical knowledge support system”. More precisely it consists of the texts of the Oxford Handbook of Clinical Medicine and the Oxford Handbook of Clinical Specialties presented for use on a personal computer. Additionally the Oxford Handbook of Clinical Rarities is included, which is not available as a book. An IBM compatible computer with a minimum specification of a 486 DX-66 with 8 MB RAM and 30 MB hard disc space is required. The software runs under Windows 3.1 (or higher) or Windows 95. The publishers state that it is designed “for use in GPs’ surgeries, hospital casualty departments and by medical students everywhere”. The main search window allows rapid access to the information required but takes a little time to master. The text provided is of high quality and will be familiar to many who have used the books. The emphasis is on general medicine and though most other areas of medicine are covered, it could not be accepted as a comprehensive text for doctors working in accident and emergency (A&E) departments.

There is extensive cross referencing that is accessed by electronic jumps and references for further reading. There is a temptation to browse through the different sections of the programme, which might prove a distraction for junior colleagues.

Although the Oxford Clinical Mentor is an innovative way of providing access to medical information its clinical content is more suitable for use in general practice than A&E. A similar system more orientated to the clinical problems of A&E medicine would be a welcome addition to a department’s resources. While the Oxford Clinical Handbooks are a valued part of most departmental libraries, I would not recommend the purchase of this electronic version for use on A&E computer systems.

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