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 emphasizes the difficulties many have had with electrocardiogram (ECG) interpretation in this situation and explains clearly how to use the criteria of Sgarbossa et al. It concludes that these criteria can be used to identify patients with LBBB and AMI.

It is essential that accident and emergency staff recognize this group of patients so that thrombolysis is delivered promptly. Shlipak et al reviewed 334 patients presenting with LBBB and an acute cardiopulmonary history and assessed the usefulness of the Sgarbossa criteria. They found that these criteria had a sensitivity of 90% 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.

Certain authors have suggested that the criteria of Sgarbossa et al should be used to identify patients with chest pain and LBBB. Shepherd and Hardern suggest that all patients with LBBB pattern—presumably regardless of its chronicity—and a history suggestive of AMI are at very high risk of the diagnosis. We would like to draw attention to a further consideration: the presence of a new LBBB pattern is a very poor predictor of AMI in LBBB patients.

Traditional criteria for administration of thrombolytic agents in the AMI patient most often involve electrocardiographic ST segment elevation situated in an anatomic distribution of the LBBB pattern; the presence of a new LBBB pattern represents another electrocardiographic criterion for such treatment. Shepherd and Hardern suggest that all patients with LBBB pattern are at very high risk of AMI. They found that these criteria were useful in a search for AMI in the LBBB patient. The authors have also identified that the traditional approach is perhaps reasonable if the physician has a high suspicion of AMI and is comfortable initiating thrombolytic therapy based solely on clinical information. In other words, an analysis of the patient’s history and physical examination is sufficient. However, in our experience, patients with LBBB pattern are at very high risk of AMI and have a very high risk of death. We would like to draw attention to the fact that the traditional approach is not always appropriate in this situation.

We would like to draw attention to a further consideration: the presence of a new LBBB pattern is a very poor predictor of AMI in LBBB patients.

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; and (3) that traditional 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.

Since our report was published, recent literature has suggested that the Sgarbossa et al clinical prediction rule is less useful than reported. The first such investigation, not noted by Shepherd and Hardern, which applied the Sgarbossa et al criteria to patients with chest pain and LBBB in 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 study investigated the diagnostic and therapeutic impact of this criterion—one noneffectively 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 LBBB pattern is used to be less useful in the objective evaluation of the ECG, the search for AMI in the LBBB patient, the report has merit—it has forced the clinician to review the ECG in detail and cast some degree of doubt on the commonly taught belief that the ECG is invalidated in the search for AMI in the LBBB patient.

Traditionally, electrocardiographic criteria for administration of thrombolytic agents in the AMI patient most often involve electrocardiographic ST segment elevation situated in an anatomic distribution of the LBBB pattern; the presence of a new LBBB pattern represents another electrocardiographic criterion for such treatment. Shepherd and Hardern suggest that all patients with LBBB pattern are at very high risk of AMI. They found that these criteria were useful in a search for AMI in the LBBB patient. The authors have also identified that the traditional approach is perhaps reasonable if the physician has a high suspicion of AMI and is comfortable initiating thrombolytic therapy based solely on clinical information. In other words, an analysis of the patient’s history and physical examination is sufficient. However, in our experience, patients with LBBB pattern are at very high risk of AMI and have a very high risk of death. We would like to draw attention to the fact that the traditional approach is not always appropriate in this situation.

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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.
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 secondment 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.

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 secondment 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 speciality. It is impossible to start as the sole “on call” anaesthetic SHO on the first day. Hospitals vary, but most train their new SHOs over three months before allowing them onto the on call rota. In our six month secondments we participated in the on call rota and have benefited from the responsibility of acute decision making. We have become increasingly competent in preanaesthetic assessment, sedation, pain management (including regional anaesthesia), and the induction, maintenance, and recovery phases of a general anaesthetic. We have performed rapid sequence induction independently. Our improved confidence in the management of the airway has to be good for patient care, especially as we often provide initial airway control before the anaesthetist arrives in the A&E department.

A greater understanding of anaesthetic problems and equipment will be increasingly important for A&E consultants as anaesthetics are taking on an increasingly important role in airway management and ventilatory and circulatory support in critically ill patients. We propose that every A&E trainee requiring an anaesthetic secondment undergo six months of anaesthetic experience with the same commitment and training as a career anaesthetics SHO.

To achieve this, A&E training programmes should routinely allow the trainee to be released to SHO posts in anaesthetics and intensive care for six months. This could be at another hospital, although salary issues would need to be addressed in advance. These include salary protection at the specialist registrar grade, and how much each trust and postgraduate deanery pay.

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 take part 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 (59)
- Harrogate District Hospital (35)

Other departments are thanked for submitting sites. A&E HRGs also have a specificity or “sensitivity” problem. This is examined in a study to refine a casemix measure version 1.0 uses disposal data that are already collected and are generally comprehensive. The A&E HRGs also have a specificity or reduction in variance for allocating appropriate grouping areas. We have performed rapid sequence induction independently. Our improved confidence in the management of the airway has to be good for patient care, especially as we often provide initial airway control before the anaesthetist arrives in the A&E department.

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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 applying the Ottawa ankle rules. 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 study 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 were, therefore, excluded.

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.

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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.
A rare cause of acute confusional state

Editor,—A 42 year old man presented after attempts to eradicate a wasp’s nest in his attic with Rentokil wasp killer spray containing carbaryl 5%. The area was enclosed without windows. He was aware of the potential for toxicity and wore a cotton homemade mask. He sustained two wasp stings as he sprayed and his wife reported him staggering into the living room about 20 minutes later. Shortly after this he lost consciousness.

On arrival he was acutely confused and combative. Both conjunctiva were injected. He was haemodynamically stable with oxygen saturations >95%. He was diaphoretic, combative. Both conjunctiva were injected. He was monitored and gradually improved.

Carbaryl can produce a host of signs and symptoms:
- Mild—nausea and vomiting, diarrhoea, and tachycardia.
- Moderate—confusion, sweating, salivating, incontinence, tremor, twitching, constricted pupils.
- Severe—convulsions, coma, respiratory depression, cardiopulmonary arrest.

The acute confusional state, transient loss of consciousness, hypotension (recorded by paramedics on arrival), sinus tachycardia, and laceration seen in this man after spraying wasp killer in an enclosed, poorly ventilated area are typical of cholinergic hyperstimulation. This problem is more commonly reported with the use of agricultural pesticides containing organophosphates. Written on the bottle of the spray used is a warning not to use in confined, enclosed spaces.

BELINDA BREWER
Specialist Registrar, South Thames

CD-ROM REVIEWS

Abdominal Ultrasound: Principles and Techniques. CD-ROM written by Mark Deutchman, Associate Professor of Family Medicine, University of Colorado, Denver. Published by SilverPlatter Education Inc, Newton, Massachusetts, 1997. ISBN 1-57276-051-1. Hardware requirements: Multimedia PC with Microsoft Windows (8 MB RAM) or Windows 95 (16 MB RAM) or Macintosh (System 7.0 or later with 8 MB RAM). Details available from: SilverPlatter Education Inc. 246 Walnut Street, Suite 302, Newton, MA 02460-1639, USA (tel: +1 800 521 0574/fax: +1 617 244 0284).

The trend towards emergency abdominal ultrasound is filtering across the Atlantic. Observational studies have been made to study the impact and effectiveness of such imaging in the emergency department. This CD-ROM therefore seems appropriate for the accelerated learning of essential abdominal ultrasound principles and techniques.

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 on 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 needs more emergency case studies, particularly traumatic cases, for it to be of clinical and financial value in an accident and emergency department.

THOMAS CARRIGAN
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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.)

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Although the Oxford Clinical Mentor is an innovative way of providing access to medical information its clinical content is more suitable for in use 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.

GRAHAM JOHNSON
Consultant in Accident and Emergency Medicine, Leeds

Books received


NOTICES

Modern Management of Acute Medical Emergencies


Critical Care, Trauma, and Emergency Medicine, 38th Annual Symposium

28 February–3 March 2000, Las Vegas, Nevada, USA. Further details: Associate Dean, USC Postgraduate Medicine, 1975 Zonal Ave, KAM 307, Los Angeles, CA 90033, USA (tel: +1 323 442 2555, fax: +1 323 442 2152, +1 323 221 9617, e-mail course coordinator: bowker@usc.edu).

Children and Bereavement, Who Cares? A Challenge to the Community

21 March 2000, Queen Elizabeth II Conference Centre, London. Further details: Margaret Fitz-Hugh, Education Department, Marie Curie Centre, Catterham (tel: 01883 347 761).

British Association for Accident and Emergency Medicine 2000

4–7 April 2000, Churchill College, Cambridge. Further details: Conference Contact, 42 Devonshire Road, Cambridge CB1 2BL (tel: 01223 323437, fax: 01223 460396, e-mail: cc@conffcomm.demon.co.uk).
A rare cause of acute confusional state

Belinda Brewer

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