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Domiciliary thrombolytic by general practitioners

EDITOR—I am sympathetic to P L. Harris's objective of trying to reduce mortality from ruptured abdominal aortic aneurysms.1 I have recently screened 678 (97·6%) of the 695 patients aged 60-79 in our practice for aneurysms. Twenty six were found to have an aneurysm (range 3·0-8·3 cm external sagittal diameter), and 13 were referred for a surgical opinion. The screening programme has exposed some of the dilemmas in current management of aneurysms.

Patients deserve to know of important risks associated with repair of an aneurysm. Harris's suggestion that in the best centres elective repair carries an "operative risk of under 5%" cannot be generally assumed, and published mortality statistics may not reflect the risk for an average patient. The risk associated with elective repair of an aneurysm has not been widely published, but in series of mixed elective and emergency repairs it has been considerable.2 Without reference statistics on mortality and morbidity the balance of whether to operate for a particular size of aneurysm and risk to the patient becomes uncomfortably difficult. For individual patients local results will be most pertinent unless distant referral is considered.

Harris rightly directs attention to aneurysms of 4·0-5·0 cm, for which management is contentious; most aneurysms detected by screening fall into this category. Surgery has been advocated for aneurysms of this size but such an aggressive policy is not supported by recent prospective3 and retrospective4 studies of the natural course of aneurysm. Rarely, small aneurysms will rupture fatally, but I believe that relatives find unlikely much greater tragedy easier to bear than tragedy after well intentioned surgery. A more conservative approach to surgery tips the risk-benefit balance towards benefit, and Scott et al's5 study exemplifies how such a policy has worked successfully.

With regard to the psychological consequences of detecting aneurysms by screening, will patients with small aneurysms be able to maintain a fair perspective of a low risk of rupture or will their predominant perception be of a time bomb waiting to explode within? The predilection of those with large aneurysms who are considered to be unfit for surgery is particularly unfortunate. The anxiety an aneurysm can generate should not be underestimated or disregarded.

If a low mortality risk is combined with the benefits of early detection and intervention, and adequate counselling of patients can be combined then I believe that a local screening policy for aneurysms could make good ethical and economical sense. That such criteria apply nationally is doubtful, and currently I do not favour a national screening programme.

Lastly, β blockade has shown promise in the management of growth of aneurysms. It is common, whether physiological β1 adrenergic antagonism can retard their expansion or reduce the rate of rupture is of great importance. An extension of the Medical Research Council's small aneurysm study to address this issue would be expedient.

J S ROSE
The Surgery,
Taunton,
Somerset TA1 5DA

1 Harris PL. Reducing the mortality from abdominal aortic aneurysms: need for a national screening programme. BMJ 1992;305:697-8. (9 September.)


EDITOR—I am surprised that in the Grampian region early aneurysm trial no patients were diagnosed as having unstable angina, which is the most common differential diagnosis and the most difficult to make in the early stages of a myocardial infarction. It is likely that the patients in the diagnostic groups “possible myocardial infarction” and “ischaemic heart disease” in fact had unstable angina. If only definite and probable myocardial infarctions are counted the diagnostic accuracy of the general practitioners was 57% (and of the hospital doctors 66%). This may also account for the lower mortality and fewer Q wave infarctions in the domiciliary group.

As there is no evidence that thrombolytic treatment is of benefit in patients who have suffered a myocardial infarction that nearly half the patients in the study received thrombolytic treatment inappropriately and were needlessly exposed to the risks of haemorrhage. Colleagues and I found similar figures in a study in a Somerset, where it was thought that patients accurately diagnosed myocardial infarction on clinical grounds (without electrocardiography in most cases) in 45% of cases (S Rule et al, unpublished work). Again this was largely because many patients with unstable angina were thought to be in the early stages of myocardial infarction.

Diagnosing myocardial infarction at the onset can be difficult, but at a minimum a good history should be obtained and an electrocardiogram properly interpreted. In the Grampian study the general practitioner was required to record an electrocardiogram but not to interpret it, which seems pointless. It is the electrocardiogram, however, that causes problems for many general practitioners as individually they will see few cases of myocardial infarction each year. The higher diagnostic accuracy in hospital may relate to this.

JOHN E SANDERSON
Taunton and Somerset Hospital,
Taunton,
Somerset TA1 5DA

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EDITOR—The results of the Grampian region early aneurysm trial needed to be seen in the context of the burden of myocardial infarction that is carried by a community. The general practitioners who participated clearly, and effectively, performed a great deal of selection. Recruitment of only 1 in 10 patients in the months that means that most patients with myocardial infarction were not entered into the trial. A local estimate for Plymouth Health Authority is of eight to 10 myocardial infarctions per general practitioner each year of 400 patients. This figure, and assuming a 30% death rate if medical help is not called, these general practitioners' patients would have suffered 1537 myocardial infarctions, but only 311 patients entered the trial.

Another way of looking at this is to consider the total number of deaths ascribed to myocardial infarction among patients of the doctors in the study. Extrapolation from local data for Plymouth gives an estimate of 12 deaths per annum in the period of the study. A considerable proportion of these will have been sudden deaths; this still leaves many more deaths than those noted during the study.

Any strategy for implementing a new advance needs to take into account the whole range of presentations of conditions; for thrombolysis this means not only patients with classical myocardial infarction diagnosed by general practitioners but also, for example, people with atypical chest pain and those who do not perceive their symptoms as serious.

ALISON ROWN
Plymouth Health Authority.
Plymouth PL4 8XN


EDITORS—The Grampian region early aneurysm trial provides a valuable contribution to the debate on pre-hospital thrombolysis, particularly in view of the importance of minimising the delay to treatment. Several points merit additional discussion. Although the authors state that about half of eligible patients were recruited into the study, they do not state the proportion of all patients with myocardial infarction. The narrow time window for inclusion into the trial selected patients presenting early. Indeed, the median patient delay in an earlier community study by the same authors was two hours, compared with 45 minutes in this study. Thus the improvements in outcome may not necessarily apply to patients presenting later. The median delay to presentation in recent large scale studies has been substantially longer (57% beyond four hours in the second international study of infarct survival)7.

The high accuracy of diagnosis achieved in this
Using Bayes's theorem, we have combined the prior belief and likelihood to produce a posterior belief distribution (figure 2). This quantifies how opinion on the efficacy of home thrombolysis should be affected by the limited amount of highly positive data in the Grampian region early anistreplase trial. The peak of the posterior distribution is a 25% reduction in mortality, with a 95% confidence interval from no effect to a 43% reduction. Thus belief is shifted in a positive direction, but not by much, and, specifically, a halving of mortality remains implausible.

(a) Prior distribution

(b) Likelihood based on 23/148 + 13/163 deaths

(c) Posterior distribution

% Change in risk in using home treatment

Bayesian analysis of data from Grampian region early anistreplase trial

Perhaps the Grampian region early anistreplase trial was just lucky. For instance, based on the figure (a) a difference of 23 versus 13 deaths or more should occur with probability 0.1. We are also concerned, however, about the emphasis on three month mortality (not a predefined end point), the lack of independent monitoring of data, the randomisation method, and the early stopping of the trial.

Overall, such an important therapeutic issue requires larger scale trials which can quantify the treatment effect precisely. Here we seem faced with publication bias. A small positive trial (the Grampian region early anistreplase trial) gets emphasised while another larger trial of the same therapeutic issue (the European myocardial infarction project) remains unpublished. On a broader note, we would encourage a wider use of bayesian methods in reports of clinical trials, especially when a small trial is claiming a large treatment benefit.

Stuart J Poock
Medical Statistics Unit,
London School of Hygiene and Tropical Medicine,
London WC1 E 6BT

On site medical services at major incidents

Editor,—Matthew W Cooke and D G Nancekievill emphasise the need for better organisation and training for hospital staff in providing on site medical services when a major incident occurs.

A hospital coping with a deluge of casualties from a major incident might be overstretched in providing one or more appropriate teams as well as a surgical unit capable enough to be the medical incident officer (the Department of Health has abandoned the term site medical officer). Cooke highlights the paucity of training in this role. Wide ranging discussions have taken place in London with representatives of the London accident and emergency consultants’ group, the London Ambulance Service, the British Association for Immediate Care, and health emergency planning officers from each Thames regional health authority with the aim of creating a cadre of 40–50 trained and accredited medical incident officers. This scheme relieves the main receiving hospital of the onerous duty of providing all the resources required at the site. The scheme has been approved by all participants, but, in view of its variation from guidance from the Department of Health, individual units will retain the option of making their own arrangements.

Two established training courses for doctors are available nationally. One a day course is run by the British Association for Immediate Care each year in Cambridge, and a three day course on the medical management of major incidents is run jointly by the Royal Postgraduate Medical School and the British Association for Immediate Care at Hammersmith Hospital. This course is multi-disciplinary and combines lectures, seminars, and practical training for NHS staff called on to work in real major incident officers or with mobile medical and nursing teams. In the two years that the course has been run, 102 people have been trained. The participants undertake an assessment at the end of the course, a major function of which is to allow the course organisers to assess the effectiveness of the training offered in key principles.

Though advanced trauma life support courses offer excellent training in clinical aspects, specific training is required for all prehospital care, including elements of safety and working with the emergency services.

Robert A Cocks
Royal Postgraduate Medical School,
Hammersmith Hospital,
London W12 OHS

1 Cooke MW. Arrangements for on scene medical care at major incidents. BMJ 1992;305:748. (26 September.)

2 Cooke MW. Onscene medical care at major incidents. BMJ 1992;305:726-7. (26 September.)


Editor,—We agree with D G Nancekievill that both medical incident officers and site medical teams for major incidents need to be trained and to be familiar with the procedures of the other emergency services. We disagree, however, that this is a problem. The British Association for Immediate Care has been training doctors in this work for many years.

The association produced its first guide to managing major incidents in 1985, and the skills of doctors trained by the association were recognised in the report on the railway accident at Clapham. The association’s inter-service and disaster liaison committee has been working with the ambulance, police, and fire services and the armed forces, coastguard, mountain rescue services, and, latterly, the Home Office adviser on civil emergencies on all aspects of managing major incidents.

The association has drawn up guidelines on the medical aspects of managing major