Domiciliary thrombolysis by general practitioners

EDITOR,—The results of the Grampian region early anistreplase trial need to be set within the context of the burden of myocardial infarction that is carried by a community. The general practitioners who participated clearly, and effectively, performed a good deal of selection. Recruitment of only patients with new infarction and months 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. If we accept 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 314 entered the study.

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 a rate of 14-7 deaths per 1000 of 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.

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EDITOR,—I am surprised that in the Grampian region early anistreplase 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 unstable angina it is by now 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 Stockholm, where the general practitioners chose 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.

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(61, 62, and 63). Also, three of our patients who were operated on had small aneurysms initially that grew by over 1 cm in six months, a far quicker rate of growth than that described by others in non-hypertensive patients.

On the basis of our initial findings we believe that screening should be offered to male hypertensive patients from the age of 60 and should be done regularly—for example, every three to five years—until aortic aneurysms are well recognized.

In the 388 women we have screened eight aneurysms have been detected (only two over 3-5 cm), confirming the low incidence of aneurysms in women compared to men. One woman, aged 72, has required an elective repair of an aneurysm of 6-1 cm. Many more hypertensive women will require screening to determine more precisely the lower incidence of aneurysms in this group. Offering screening in some form to this group may well, however, prove to be just as economical as breast cancer screening, in terms of quality adjusted life years at least.

Numerous studies have suggested an association between hypertension and abdominal aortic aneurysms. We believe that hypertensive people also “require special provision for screening irrespective of any plans to screen apparently healthy people.”

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1 Harris PL. Reducing the mortality from abdominal aortic aneurysms: need for a national screening programme. BMJ 1992;305:697-8. (19 September.)


EDITOR,—I am sympathetic to P L. Harris’s objective of trying to reduce mortality from ruptured abdominal aortic aneurysms. 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 3-0-3 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. Harris has underlined the elective repair of an aneurysm has not been widely published, but in series of mixed elective and emergency repairs it has been considerable. 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 prospective and retrospective studies of the natural course of aneurysm. Rarely, small aneurysms will rupture fatally, but I believe that relatives find unlikely news more acceptable than a sudden and tragic death. This change in attitude towards medical care has not yet reached some rural areas.

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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 predicament 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 risk of morbidity associated with elective surgery, a conservative approach to 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 lowering the mortality from ruptured aneurysms, which 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.

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1 Harris PL. Reducing the mortality from abdominal aortic aneurysms: need for a national screening programme. BMJ 1992;305:697-8. (19 September.)


Using Bayes’s theorem, we have combined the prior belief and likelihood to produce a posterior belief distribution (figure (a)). This quantifies how the 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

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<th>% Change in risk in using home treatment</th>
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<td>(c) Posterior distribution</td>
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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 large trial of the same 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.

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4 REACT (Regional Early Anistreplase Trial) Investigators. A small positive trial (the Grampian region early anistreplase trial) gets emphasised while another large trial of the same 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.

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 doctor or senior 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. A one 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 multidisciplinary and combines lectures, seminars, and practical training for NHS staff called on to work in 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.

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1 Cooke MW. Arrangements for on scene medical care at major incidents. BMJ 1992;305:748. (26 September.)
2 Nancekievill DG. On site medical services 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 agree that the problem exists. 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 interservice 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’s guidelines on medical services at major incidents.