Domiciliary thrombolysis by general practitioners

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Domiciliary thrombolysis by general practitioners

EDITOR—The results of the Grampian region early anistreplase trail led to the conclusion that 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 other patients with months month of coronary artery disease is a possibility that many 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 (S. Tilson, personal communication), 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 have been included in 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 impression 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 treat- ment is of benefit in patients who have already had a myocardial infarction or who will die within days of presentation, it is probably wiser to consider patients who are going to die as having unstable angina and to offer thrombolysis even if there is no evidence of a Q wave infarction on the initial electrocardiogram.

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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.)


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study in the absence of electrocardiographic criteria is not necessarily generally applicable. Unless thrombolysis is restricted to those presenting early and with classic symptoms of infarction, the proportion of alternative diagnoses (2-5%) is unlikely to be substantiated. For example, phase 1 of the myocardial infarction triage and intervention project found only one in six confirmed infarctions among those evaluated before admission to hospital.

The statement that “even in an urban area there would be a temporal advantage in the general practitioner giving thrombolytic therapy in the home” is untested and cannot be extrapolated from the present study. A 999 call and shortening of the delays in hospital would have reduced the difference between home and hospital treatment substantially. We have shown that in urban area the time of administration of thrombolytic treatment after the onset of symptoms was reduced to a median of 150 minutes by the introduction of a “fast track” system.

Until these issues are resolved it may be premature to advise the widespread implementation of pre-hospital thrombolysis without electrocardiographic confirmation.

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Entron.—Much publicity has been, and will be, given to the finding of the Grampian region early anistreplase trial that patients who received thrombolytic treatment (anistreplase) at home had 49% fewer deaths than those who received it in hospital.1 Unfortunately, the trial was really too small to estimate reliably any reduction in mortality, and so significance could be achieved only if (because of either chance or bias) an implausibly large treatment difference was observed. In cardiovascular clinical trials, a Bayesian analysis is a useful interpretation by setting a surprising finding in the context of more cautious prior belief.

First one expresses prior belief about the proportionate reduction in mortality due to thrombolysis at home. Given the known benefits of early thrombolysis,2 and the average two hours saved in time to treatment, it could be argued that a 15-20% reduction in mortality is highly plausible, while the extremes of no benefit and a 40% reduction are both unlikely. The figure (a) shows a distribution of prior belief. This prior is compatible with the results of the European myocardial infarction project, in which the same drug was given to over 5000 patients.

In the Grampian region early anistreplase trial 23 of the 148 patients who received home thrombolysis died within three months compared with 13 of the 163 who received hospital thrombolysis. This is displayed in the figure (b). The observed 49% reduction is the mode of this distribution, and the 2% tail area beyond no effect indicates p=0.02 one sided. The widely spread distribution illustrates the inevitable uncertainty with only 36 deaths in total.

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

On site medical services at major incidents

EDITOR.—Matthew W Cooke1 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 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 multi-disciplinary and combines lectures, seminars, and practical training for NHS staff called on to work with medical 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 hospital medical services at major incidents. BMJ 1992;305:726-7. (26 September.)