Mortality in patients given thrombolytic treatment at home or in hospital

treatment without electrocardiographic confirmation.

In Stuart J Pocock and David J Spiegelhalter's interpretation of our mortality data the estimate of the prior probability of a reduction in mortality by giving treatment two hours earlier is derived from trials in which thrombolytic treatment was given in hospital at the first opportunity. But the relation between outcome and time of administration of the treatment is not a true reflection of its efficacy at different times. The outcome will be biased against indicating greater efficacy in earlier administration because of the greater severity of infarction in patients presenting earlier. Only in a trial with a design such as ours, in which patients are randomly allocated to receive treatment immediately on presentation or after a delay, can the importance of delay be determined. We acknowledge that three month mortality was not a predetermined end point and, indeed, that ours was not a mortality end point trial, but we would have been remiss not to draw attention to the mortality we found (figure).

Though agreeing that we were lucky in our result, we do not agree that a 50% reduction in mortality can be dismissed as implausible: a reduction of similar magnitude was found in the European myocardial infarction project in patients in whom the saving in time to treatment was over 90 minutes (A Leizorowic, personal communication).

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EDITOR.—We recently completed a feasibility study of a system to reduce delays to patients receiving thrombolytic therapy that may be considered complementary to the GREAT Group's study. Ambulance crews were trained to assess patients by clinical questionnaire and by recording pulse and blood pressure. Electrocardiograms were recorded by computer assisted analyser and transmitted to the coronary care unit by cellular telephone. After discussion with nursing staff in the unit the ambulance staff took patients with a high likelihood of acute myocardial infarction directly to the unit.

Forty nine consecutive patients with chest pain were assessed and transported to hospital. Eight patients did not have an electrocardiogram recorded (because they did not consent or were not in pain); for these patients the mean time from the ambulance's arrival at the scene to departure was 6.25 minutes. For the 41 patients who had electrocardiograms recorded the mean time from the ambulance's arrival at the scene to departure was 18.75 minutes. Eleven of the 49 patients had an acute myocardial infarction confirmed by enzyme values.

Ambulance crews were required to liaise with the coronary care unit's nursing staff by means of the telephone link. Among the 11 patients subsequently confirmed to have had an acute myocardial infarction, the staffing staff assessed in the electrocardiogram transmitted as confirming acute myocardial infarction in five patients, equivocal or not indicating acute myocardial infarction in three, and failure of transmission in one; one patient refused electrocardiography. One patient with an inferior myocardial infarction was incorrectly assessed as not having infarction. The medical staff diagnosed a high likelihood of acute myocardial infarction in six patients, who were considered for thrombolyis. One further patient was given thrombolyis; enzyme values did not rise importantly, the system identified five of the patients with acute myocardial infarction, who were redirected to the coronary care unit despite an open access system for general practitioner referrals. For these patients the reported in hospital assessment and transfer delays were thus avoided.

Our study shows that ambulance crews can reliably assess patients presenting with chest pain and can reduce a 12 lead electrocardiogram. In liaison with the coronary care unit's nursing staff they reliably identified patients with a high likelihood of acute myocardial infarction. Thus the system may provide an alternative to the administration of thrombolyis in the coronary care unit by general practitioners and in reducing delays by promoting direct admission to the coronary care unit for both self referrals and general practitioner referrals.

In our catchment area there are 140 general practitioners who would require access to a defibrillator and electrocardiographic equipment. There are only two frontline responding ambulances, and thus only three electrocardiographic units, including the coronary care unit's base unit, and cellular telephone units need to be provided. All frontline ambulances in Scotland have defibrillators.

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Thrombolytic treatment for elderly patients

EDITOR.—As Andrew T Elder and Keith A A Fox point out, elderly patients suffering from acute myocardial infarction are often treated differently from younger patients and sometimes are not given thrombolytic treatment for reasons that are not clearly justifiable.

J S Birkead collected data only on patients admitted to coronary care units and does not give any information about their ages. Studies in Britain have suggested that a fifth of these units set an upper age limit for admission. A recent survey of attitudes to the management of acute myocardial infarction in Wales found that no hospitals admitted to having a formal age related policy governing admission to coronary care unit or use of thrombolyis. Despite the lack of a significant association between younger age (<70) and admission to a coronary care unit (17/20 (85%) vs 14/29 (48%), p=0.02) and use of thrombolytic treatment (17/20 (85%) vs 10/29 (52%), p=0.02) the data do not support a policy of deliberate selection against treatment for elderly patients.

An audit of 251 consecutive elderly patients admitted to 12 teaching hospitals in Cardiff found that of 223 patients able to give information, 126 were admitted to hospital within 12 hours (median 185 minutes). The "decision time" was 90 minutes. This interval was considerably influenced by the patients' interpretation of the likelihood of their symptoms. Similarly, the time taken for a general practitioner to respond to a call was much shorter if the patient had a history of ischaemic heart disease. Other factors had no great influence. Ambulances


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took a median of 30 minutes to arrive at the patient's home and 20 minutes to reach the hospital. When the same variables were analysed in the patients subsequently confirmed to have definite or probable acute myocardial infarction it was found that the reaction times were not significantly different from those of patients whose relatives were with them at the onset of symptoms.

The interval between admission to hospital and administration of streptokinase in those given the drug was the longest single delay (median 102 minutes). No factors were identified that significantly influenced the time of administration of streptokinase.

Thus most elderly patients reach hospital in time to benefit from thrombolytic treatment but many elderly patients are not admitted to coronary care units. Not only must attention be given to shortening the time to administration of thrombolytic treatment but elderly patients with suspected acute myocardial infarction should have the potential benefit of specialised coronary care.

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In elderly patients with myocardial infarction the diagnosis is often unclear on presentation, and monitoring these patients has enabled us to establish the diagnosis and to give thrombolytic treatment if appropriate. We are undertaking a formal study of outcomes, including length of stay and function. The development of a high dependency unit devoted exclusively to elderly people has enabled us to give our patients the proved benefit of this treatment.

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In elderly patients with myocardial infarction, if there is any reasonable doubt as to the diagnosis, they should be given thrombolytic treatment as part of their management.

communicating with patients

EDITOR,—Information for patients, always a neglected topic, has now become one of patients' rights embodied in the patient's charter. Since 1983 Brighton Health Authority has been committed to producing good quality literature as part of a consumer affairs initiative and has won national recognition for its publications for patients.

We looked at the written material given to patients from wards, outpatient clinics, community health centres, and other departments in the health district. A doctor and a non-medical researcher formed a joint opinion on the visual appearance, content, factual accuracy, style, and presentation of each item. They awarded an overall grade to each item according to whether it was acceptable or needed revision. They then did a readability test on a random sample.

The volume of material available was surprising, though the response from the mental health sector was disappointing. Subjects covered included information for patients before a procedure and after a procedure, information on health promotion topics, and general information. We divided the publications into the following categories: in house (produced by the department concerned, 524), self help (produced outside the health authority logo but including the Health Education Authority, 247), pharmaceutical companies (192), self help groups or charities (30), the district health promotion department (22), and miscellaneous (91).

Of the in house literature, 246 items were considered to be unacceptable and 10 to be in urgent need of attention. Two hundred and seventeen publications had been photocopied, of which 171 were of a poor standard, usually because photocopies had been taken of photocopied material. Fifty three items of in house material lacked a department or subject heading, logo, or date so that the information had no context. Seventy one items were considered to be unfriendly; instructions were brusque and dictatorial, almost to the point of being rude—a failing accentuated when the text was in note form, especially if abbreviations were used and there was no introductory sentence. Twenty eight publications were considered to be too technical because they used medical terms and jargon unnecessarily or without explanation.

A particularly poor example was a leaflet for women going home after a hysterectomy. The front cover featured an inappropriate, tasteless cartoon of a chicken wearing an apron and a chef's hat staring at a pot, with the title "Your recipe for home." There was no department heading, logo, or date. The first page had a list of contents with no page numbers; it was followed by a description of what the patient was to expect postoperatively, illustrated with anatomical diagrams. The explanation then continued in question and answer form. Although my womb has been removed, my ovaries have been left behind. As I have not reached the "change of life" [sic], do I still need to use contraceptive [sic]. The simple answer [sic] is no. The womb as [sic] an incubator for the [sic] baby, so without it pregnancy is impossible.

A random sample of leaflets was selected and tested for readability by the "gobbledygook" test. We have found that a single sentence with a single verb makes sense to readers based on the principle that long sentences and polysyllabic words are harder to understand. Unfortunately, words such as diabetes, alcohol, and cholesterol were often found in the leaflets; and many other factors that affect readability—such as sentence structure, print size, and the educational background of the reader—are not taken into account by readability tests. Of the 524 leaflets selected, 96 were not suitable for the test because they consisted of diet sheets or lists of addresses. Twenty five had a score rating them as "very hard to read," on a level with the Times and the Guardian, and therefore unsuitable for the general reader. As a result of the study all departments were sent a code of good practice (box) and told that the public relations officer was available for advice. New leaflets will soon replace the 10 leaflets considered to be in most urgent need of redesign. In house literature is valuable, but departments must follow guidelines and districts must set aside realistic budgets for producing good quality patient information. This will then complement the clinical care that patients receive.

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Outcome of breech delivery at term

EDITOR,—The reply of J G Thorpe-Beeston and colleagues to the criticisms of their paper on the risks of term breech delivery emphasises the importance of antenatal counselling, while admitting that it is difficult to propose a policy decision on the basis of their study, they advocate the use of their perinatal mortality figures when advising about vaginal breech delivery. In their original paper they state that many women would find a figure "approaching 1%" disturbing and would opt for caesarean section. In their letter they suggest that women may find a risk presented as "no more than 1%" acceptable. This is a good illustration how the same statistic can be used to influence a patient's decision in either direction, and that a hidden statistic, the doctor's attitude, may be more important than the quoted figure.