

# Home or hospital care for acute myocardial infarction? A survey of general practitioners' attitudes in the thrombolytic era

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**SUMMARY.** This study examines the issue of whether to give home or hospital care to patients with suspected myocardial infarction now that the value of thrombolytic therapy has been recognized. A questionnaire survey of 69 general practitioners showed that the majority were aware of the potential benefits of thrombolysis although few thought that these extended beyond six hours after the onset of symptoms. Most would opt for hospital care for patients under the age of 70 years, but would treat older patients with uncomplicated myocardial infarctions at home, depriving them of the opportunity to receive thrombolysis. The admission policies of general practitioners for patients with suspected myocardial infarction merit reappraisal so that thrombolysis can be considered for all patients up to 24 hours after the onset of symptoms.

## Introduction

THE role of the hospital coronary care unit in the management of acute myocardial infarction came under scrutiny during the decade 1970–79, following the findings of three British studies which reported no difference in mortality between patients treated at home and in hospital.<sup>1,3</sup> Many believed that a subgroup of patients with myocardial infarction could be identified who would fare as well, if not better, if managed at home,<sup>4</sup> and the Royal College of General Practitioners published criteria detailing the relative indications for home versus hospital care.<sup>5</sup> More recently thrombolytic agents have been shown to reduce mortality in acute myocardial infarction.<sup>6,7</sup> The earlier the initiation of treatment, the greater the likelihood of successful reperfusion, limitation of infarct size, and reduction of both early and late mortality.<sup>8–11</sup> Although the use of thrombolytic therapy tends to be restricted to hospital, there has been considerable interest in its application in general practice.<sup>12–14</sup> In view of these recent advances we have undertaken a survey of general practitioners' views about hospital care of patients with acute myocardial infarction and their attitudes towards thrombolytic drug therapy.

## Method

### Background

Milesmark Hospital is the district general hospital for patients within the west Fife region, serving a mixed urban and rural

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population of approximately 135 000. There are 85 principals in general practice within this area, 73 of whom work from a total of 16 group practices. As there are no general practitioner hospital units within the district and the local geriatric service does not accept emergency referrals, Milesmark Hospital is the primary referral centre for patients with suspected myocardial infarction. Its facilities include a three bedded coronary care unit, four monitor beds and 60 general medical beds for acute admissions. The majority of patients can be admitted from home within 20 minutes and the longest estimated time for admission is one hour from the most outlying practice. After admission, all patients with suspected myocardial infarction are given thrombolytic treatment provided there is no specific contraindication.

### Questionnaire

A short questionnaire was sent to all the general practitioner principals within the west Fife region to determine their attitudes towards home or hospital care of patients with suspected myocardial infarction. The questionnaire emphasized that there were no correct or incorrect answers and that the aim was to determine general practitioners' views on home versus hospital care in the light of thrombolytic therapy. The questionnaire was similar in design to those used in previous studies of general practitioners' attitudes towards home care following acute myocardial infarction.<sup>15,16</sup>

A short case history was presented of patients with suspected myocardial infarction:

You are called to see the following men in whom symptoms suggestive of acute myocardial infarction have occurred at the varying times shown. In all cases their home supports are excellent and they have had no previous illnesses. They are stable from a cardiovascular standpoint and are now pain-free. Do you admit them to hospital?

The doctors were asked whether they would request hospital admission for patients of varying ages (45 years, 66 years, 71 years, 80 years) at five time intervals (within 1 hour, 7 hours, 13 hours, 25 hours, 48 hours) following the onset of symptoms. To encourage a maximal response the questionnaires were completed anonymously. All questions were closed.

The general practitioners were then asked whether they considered thrombolytic therapy to be beneficial in acute myocardial infarction and how long after the onset of symptoms the benefit could be expected (within 6 hours, 24 hours or 48 hours). The doctors were asked if they had access to an electrocardiograph or defibrillator and whether they would be prepared to consider initiating treatment with thrombolysis at the patient's home.

## Results

Eighty five questionnaires were distributed and 69 (81%) were returned completed. Table 1 shows the percentage of general practitioners who would request hospital admission for patients with suspected myocardial infarction, of varying ages and at varying times from the onset of symptoms. General practitioners

**Table 1.** Percentage of general practitioners requesting hospital admission for patients with myocardial infarction.

Age of patients (years)	Time from onset of symptoms (percentage of GPs requesting hospital admission, n = 69)				
	1 hours	7 hours	13 hours	25 hours	48 hours
45	99	97	88	46	23
66	94	87	54	16	9
71	77	54	28	7	4
80	33	23	14	4	3

n = total number of GPs.

differed considerably in their management of patients, although in general, younger patients, with a short history of symptoms, would tend to be admitted. In contrast older patients were likely to be managed at home. For all ages the majority of general practitioners would opt for home care for patients seen 25 hours or more after the onset of symptoms.

Sixty-seven general practitioners (97%) agreed that thrombolytic therapy reduced mortality in acute myocardial infarction but two (3%) thought it was of no proven value. Of those who agreed the effect was beneficial, 84% thought that the effect extended only to the first six hours after the onset of symptoms and 16% believed that benefit continued to 24 hours; none thought the benefit lasted until 48 hours.

None of the general practitioners surveyed were currently administering thrombolytic therapy at home but 35 (51%) indicated that they would be prepared to do so. A further nine (13%) would also consider treatment, providing training had been received and the cost was not met by the practice. The remaining 36% did not wish to consider such treatment.

Fifty general practitioners (72%) indicated that they had access to an electrocardiograph and five (7%) a defibrillator. Of the 35 doctors prepared to consider giving domiciliary thrombolytic treatment 26 (74%) had an electrocardiograph but only one had a defibrillator.

On the basis of their response to the management of a patient aged 66 years the general practitioners were subdivided into the nine who favoured home care (defined as those respondents who would not request hospital admission for a patient presenting within seven hours of the onset of symptoms) and the 11 who favoured hospital care (defined as those respondents who would request admission for patients presenting within 25 hours). The only difference between the home and hospital care groups was that three general practitioners in the hospital care group indicated that thrombolysis was of benefit up to 24 hours after the onset of symptoms compared with none of the home care group. All the doctors in both groups indicated that thrombolysis was beneficial in the first six hours after myocardial infarction. There was no difference in the numbers possessing electrocardiographs and there were no defibrillators in either group. Similar proportions of both groups (56% and 55%) were prepared to consider giving domiciliary thrombolysis.

## Discussion

Geographical variations occur in the attitudes of general practitioners towards home care<sup>17</sup> and our results cannot necessarily be extrapolated to other areas. In addition, no information was available about the characteristics of the non-responders. However, there was a high response rate which compares favourably with similar studies performed prior to the advent of thrombolytic therapy.<sup>15,16,18</sup>

The decision regarding home or hospital care is in reality influenced by many factors, including the presence of concurrent

illness and the patient's social circumstances.<sup>18,19</sup> However, our questions using a hypothetical patient with an uncomplicated myocardial infarction were similar to those used in earlier studies. These showed that 21–39% of general practitioners would consider home care for a 45 year old man with an uncomplicated myocardial infarction,<sup>15,16</sup> whereas only 3% of the doctors who responded to our survey would adopt this policy at present, suggesting a change in general practitioners' attitudes towards the care of younger patients with suspected myocardial infarction. Previous studies have also shown that general practitioners are more willing to consider home care for patients aged more than 65 years.<sup>17</sup> Our data support this conclusion, indicating that the older the patient the greater the likelihood of a doctor opting for home care. Indeed, two-thirds of doctors preferred to manage patients aged 80 years at home. This approach is entirely in accord with the RCGP guidelines,<sup>5</sup> which were developed before thrombolytic drugs became available. Recent evidence suggests that age is not a contraindication to thrombolytic treatment, with the greatest benefit occurring in the elderly.<sup>20</sup> In practice we do not believe that the issue of thrombolytic treatment in the geriatric population has been fully resolved. Our results suggest that considerable numbers of elderly patients are being denied hospital admission and we suggest that general practitioners should be prepared to consider referring such patients for active intervention with thrombolytic treatment.

Considerable interest has been shown in the use of thrombolytic therapy in general practice<sup>12</sup> and our results are encouraging in that most of the doctors who responded were aware of the potential benefits of treatment. The majority indicated that the benefits extended only to the first six hours after the onset of symptoms (within which time the majority of respondents would request hospital admission for patients aged up to 71 years) but only 16% of doctors thought that treatment was beneficial up to 24 hours (within which time few respondents would consider hospital care for a patient aged over 66 years). Although it is likely that the greatest benefit occurs the earlier treatment is initiated, one study has indicated that some benefit occurs up to 24 hours after the onset of symptoms.<sup>7</sup> While there remains some uncertainty on the exact role of thrombolytic treatment beyond six hours, on current evidence we believe that general practitioners should consider the routine admission of patients with suspected myocardial infarction within 24 hours of the onset of symptoms.

Considerable delays can occur between the onset of symptoms and hospital admission where thrombolytic treatment is administered. General practitioners could initiate treatment at the patient's home and a majority of respondents indicated that they would be prepared to consider such a policy. However, access to an electrocardiograph and defibrillator has been recommended<sup>12</sup> and few respondents in our survey had a defibrillator. Furthermore, although 72% of respondents had an electrocardiograph, recent evidence suggests that most general practitioners do not have immediate access to one when attending a patient with chest pain.<sup>21</sup> In view of the risks of administering treatment to patients without diagnostic electrocardiographic changes and recent reports of inappropriate treatment of patients with aortic dissection simulating acute myocardial infarction,<sup>22,23</sup> we believe that domiciliary use of thrombolysis cannot be recommended to general practitioners in our area at present. Clearly individual circumstances will vary and doctors working in isolated communities with long delays before hospital admission should consider whether they might offer thrombolytic drugs to their patients. However, most of the respondents to our survey raised practical problems in respect of storage and administration of thrombolytic treatment and many had concerns regarding the cost of treatment and train-

ing in coronary care. In summary, although there is interest among general practitioners in the domiciliary use of thrombolytic treatment, many issues require to be addressed before such treatment can be widely recommended.

### References

- Colling A, Dellipiani AW, Donaldson RJ, MacCormack P. Teeside coronary survey: an epidemiological study of acute attacks of myocardial infarction. *Br Med J* 1976; 2: 1169-1172.
- Hill JD, Hampton JR, Mitchell JRA. A randomised trial of home-versus-hospital management for patients with suspected myocardial infarction. *Lancet* 1978; 1: 837-841.
- Mather HG, Pearson NG, Read KLQ, *et al.* Acute myocardial infarction: home and hospital treatment. *Br Med J* 1971; 3: 334-338.
- Colling A. Home or hospital care after myocardial infarction: is this the right question? *Br Med J* 1974; 1: 559-563.
- The Council of the Royal College of General Practitioners. Guidelines for admitting patients with myocardial infarction to hospital. *J R Coll Gen Pract* 1974; 24: 829-831.
- Gruppo Italiano per lo studio della streptochinasi nell' infarcto miocardio (GISSI). Effectiveness of intravenous thrombolytic treatment in acute myocardial infarction. *Lancet* 1986; 1: 397-402.
- ISIS-2 (second international study of infarct survival) collaborative group. Randomised trial of intravenous streptokinase, oral aspirin, both, or neither among 17187 cases of suspected acute myocardial infarction: ISIS-2. *Lancet* 1988; 2: 349-360.
- Markis JE, Malagold M, Parker JA, *et al.* Myocardial salvage after intracoronary thrombolysis with streptokinase in acute myocardial infarction. Assessment by intracoronary thallium 201. *N Engl J Med* 1981; 305: 777-782.
- The ISAM study group. A prospective trial of intravenous streptokinase in acute myocardial infarction (ISAM). Mortality, morbidity, and infarct size at 21 days. *N Engl J Med* 1986; 314: 1465-1471.
- Koren G, Weiss AT, Hasin Y, *et al.* Prevention of myocardial damage in acute myocardial ischaemia by early treatment with intravenous streptokinase. *N Engl J Med* 1985; 313: 1384-1389.
- Sheehan FH, Mathey DG, Schofer J, *et al.* Effect of interventions in salvaging left ventricular function in acute myocardial infarction: a study of intracoronary streptokinase. *Am J Cardiol* 1983; 52: 431-438.
- de Bono D, de Bono A. Coronary thrombolysis. *Practitioner* 1988; 232: 1099-1101.
- Gordon I. Streptokinase used in general practice. *J R Coll Gen Pract* 1989; 39: 49-51.
- Report of a British Heart Foundation Working Group. Role of the general practitioner in managing patients with myocardial infarction: impact of thrombolytic treatment. *Br Med J* 1989; 299: 555-556.
- Hampton JR, Morris GK, Mason C. Survey of general practitioners' attitudes to management of patients with heart attacks. *Br Med J* 1975; 4: 146-148.
- Mason C, Murdoch JC. Current opinion concerning the treatment of heart disease. *J R Coll Gen Pract* 1983; 33: 91-99.
- McIlmoyle EL, Kerr MM, Mathewson ZM, *et al.* Myocardial infarction: hospital and home management in Northern Ireland. *J R Coll Gen Pract* 1985; 35: 280-283.
- Poole NW, Wilson FW, Barber JH. The treatment of acute myocardial infarction. *Scott Med J* 1980; 25: 230-233.
- Rawles JM, Kenmure ACF. The coronary care controversy. *Br Med J* 1980; 281: 783-786.
- Naylor CD, Armstrong PW. Guidelines for the use of intravenous thrombolytic agents in acute myocardial infarction. *Can Med Assoc J* 1989; 140: 1289-1299.
- Colquhoun MC. General practitioners' use of electrocardiography: relevance to early thrombolytic treatment. *Br Med J* 1989; 299: 433.
- Curzen NP, Clarke B, Gray HH. Intravenous thrombolysis for suspected myocardial infarction: a cautionary note. *Br Med J* 1990; 300: 513.
- Butler J, Davies AH, Westaby S. Streptokinase in acute aortic dissection. *Br Med J* 1990; 300: 517-519.

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## RCGP

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## RESEARCH FUNDING

Applications are now being received for grants for research in or relating to general medical practice, for consideration at the November 1990 meeting of the Scientific Foundation Board. In addition to its general fund

the Board also administers specific funds including the Windebank Fund for specific research into diabetes.

The Scientific Foundation Board's definition of research is catholic and includes educational research, observational as well as experimental studies, and accepts the methodologies of social science as valid. It is not in a position to fund educational activities.

If the study involves any intervention or raises issues of confidentiality it is wise to obtain advance approval from an appropriate research ethics committee otherwise a decision to award a grant may be conditional upon such approval.

Studies which do not, in the opinion of the Board, offer a reasonable chance of answering the question posed will be rejected. It may sometimes be useful to seek expert advice on protocol design before submitting an application.

Care should be taken to ensure that costs are accurately forecast and that matters such as inflation and salary increases are included.

The annual sum of money available is not large by absolute standards and grant applications for sums in excess of £15000 for any one year are unlikely to be considered.

Application forms are obtainable from the Secretary of the Board at: The Clinical and Research Division, 14 Princes Gate, London SW7 1PU. *The closing date for receipt of completed applications is 28 September 1990*; any forms received after that date will, unfortunately, be ineligible for consideration.

## FOURTH NATIONAL COURSE ON RESEARCH METHODS

12-14 September 1990  
University of Leicester

The Fourth National Course on Research Methods, held under the auspices of the Association of University Teachers of General Practice and the Royal College of General Practitioners, will take place at the University of Leicester on 12-14 September 1990. The lecture programme will provide a framework for the development and implementation of research ideas. Time will also be spent in small group discussion of delegates' individual research projects.

Course fee: £90.00 inclusive of accommodation and all meals, including course dinner. Two days PGEA applied for. Application forms from: Dr Jacqueline Jolleys, General Practice Unit, Department of Community Health, University of Leicester, Clinical Sciences Building, Leicester Royal Infirmary, PO Box 65, Leicester LE2 7LX.