Use of aspirin by general practitioners in suspected acute myocardial infarction

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BMJ 1994;308:760

The second international study of infarct survival clearly showed a 25% reduction in mortality when 160 mg aspirin was given within the first four hours of the onset of chest pain.¹ These effects add to those of streptokinase. The role of general practitioners in managing patients with suspected acute myocardial infarction was reviewed by a British Heart Foundation working group in the light of these results.² Its report recommended early therapeutic intervention with aspirin and the rapid transfer of patients to hospital for intravenous thrombolysis. We therefore looked at the use of aspirin by general practitioners and the time taken from the onset of symptoms to hospital admission and thus to intravenous thrombolysis.

Patients, methods, and results

All patients admitted with acute chest pain by their general practitioner to one of two district general hospitals over the six months from 1 December 1991 to 31 May 1992 were entered into the study. The hospitals both serve mixed urban and rural areas in England, one in the south midlands and the other in the south east. Patients (or those accompanying them) were asked by the nursing staff about the time of onset of the chest pain and whether they had been given aspirin before admission. Times of admission to hospital and of administration of intravenous thrombolytics were also recorded. The letter accompanying the patient was examined to ascertain the general practitioner's provisional diagnosis and for evidence of whether aspirin had been given. All records were completed within 24 hours of admission. Patients were defined as having received aspirin either if they recalled having been given aspirin or if the letter accompanying them stated that it had been given.

Overall, 156 patients were admitted by their general practitioner. Fifteen questionnaires were not completed, mainly because the time of onset of symptoms was unclear. Four patients were admitted with a provisional diagnosis of non-cardiac chest pain. The remaining 137 patients were admitted either with a diagnosis of ischaemic heart disease or without a specific diagnosis having been made. Of these, 102 were men. The mean age was 62.0 years.

The various delays between onset of symptoms and

thrombolysis are shown in the table. Twenty six patients were given aspirin before admission. The 96 patients who subsequently had proved myocardial infarction were no more or less likely to have received aspirin before admission. There were no significant differences between the two hospitals.

Delays between onset of symptoms and thrombolysis in 137 patients admitted with suspected myocardial infarction by general practitioner

Delay	Median (interquartile range) (minutes)
Between onset of symptoms and arrival in hospital	179 (95-265)
Between arrival in hospital and intravenous thrombolysis	82 (38-125)
Between onset of symptoms and intravenous thrombolysis	248 (110-360)

Comment

Although the method chosen for this survey is likely to result in an underestimate of aspirin use by general practitioners, it is of some concern that despite the proved benefit of aspirin¹ only one fifth of patients presenting with acute chest pain received aspirin before admission. The delays to intravenous thrombolysis in our study are consistent with those reported by Birkhead,³ with a median time of around four hours for patients admitted by their general practitioner. If patients start to receive aspirin only when they receive intravenous thrombolytics some of the benefit of aspirin will have been lost.¹

While the delays to intravenous thrombolysis remain long³ overall mortality could be reduced if more general practitioners gave 150 mg aspirin (chewed for better absorption) to all patients with suspected acute myocardial infarction. This simple treatment is more likely to be acceptable than the introduction of intravenous thrombolysis in the community. Furthermore, the observation that patients are admitted much more rapidly if they call the ambulance themselves³ suggests that the time may be right for aspirin to be carried and given by ambulance crews.

We thank all the nursing staff in the two hospitals who participated in the study and Liz Kwantes for writing the computer program.

1 ISIS-2 (Second International Study of Infarct Survival) Collaborative Group. Randomised trial of intravenous streptokinase, oral aspirin, both, or neither among 17 187 cases of suspected acute myocardial infarction. *Lancet* 1988;ii: 349-60.

2 British Heart Foundation Working Group. Role of the general practitioner in managing patients with myocardial infarction: impact of thrombolytic treatment. *BMJ* 1989;299:555-7.

3 Birkhead JS. Time delays in provision of thrombolytic treatment in six district hospitals. *BMJ* 1992;305:445-8.

(Accepted 17 August 1993)

Pre-hospital opiate and aspirin administration in patients with suspected myocardial infarction

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BMJ 1994;308:760-1

The benefit of immediate oral aspirin in the treatment of acute myocardial infarction is now established, having an equivalent impact to that of intravenous thrombolytic therapy in reducing early mortality.¹⁻³ Though practical problems still exist with pre-hospital thrombolysis, aspirin can easily be given in this setting. Pain relief is a fundamental component and opiate analgesia is thought to be the most effective treatment.

It is accepted that the route of administration should be intravenous rather than intramuscular, which can result in erratic absorption,⁴ haematoma formation, and a spurious increase in creatine kinase activity.⁵

The aim of this study was to assess the frequency with which aspirin was given acutely in patients suspected of acute myocardial infarction and the frequency and route of opiate analgesia given at home.

Patients, methods, and results

From August 1992 to February 1993, 160 patients (110 male) admitted to the coronary care unit at this hospital with suspected myocardial infarction were studied. Patients were interviewed at the time of arrival by means of a questionnaire administered by the admitting medical or senior nursing personnel. All

relevant details regarding the patients, use of opiate analgesia and aspirin, and presence of chest pain were recorded. Serial cardiac enzyme measurements and electrocardiograms were used to establish a final diagnosis.

One hundred and thirty three of the patients (83%) were referred by general practitioners either directly to coronary care (n=91) or via the casualty department (n=42). A total of 66 of them had a discharge diagnosis of myocardial infarction. The administration of opiates and aspirin to the total group and to the subgroup with infarcts is summarised in the table. Isolated rises in creatine kinase activity were observed in four out of 10 patients who did not have a myocardial infarction but who had received intramuscular analgesia. No haematomas were detected in the seven patients who received both intramuscular opiate and thrombolytic therapy.

Patients referred on account of suspected myocardial infarction

Treatment given	No (%) receiving treatment		No (%) who after treatment a, b, or c were pain free on arrival	
	Total with suspected infarcts (n=133)	Subtotal with definite infarcts (n=66)	Patients with suspected infarcts	Patients with definite infarcts
(a) Intravenous opiate	28 (21)	12 (18)	14 (50)	6 (50)
(b) Intramuscular opiate	19 (14)	9 (14)	7 (37)	3 (33)
(c) No opiate	86 (65)	45 (68)	28 (33)	11 (24)
Aspirin	4 (3)	0	—	—

Comment

This study had two main findings with respect to pain. Firstly, a substantial number of patients suspected of having a myocardial infarction still do not have adequate pain relief on admission to hospital. Secondly, patients who receive no analgesia or who are given intramuscular analgesia are more likely to

be in pain than are those given intravenous analgesia. We did not measure the severity of pain on admission but think that had we done so this would have borne out the view that those not receiving intravenous analgesia had less satisfactory control of pain.

Despite the absence of haematoma in this study, we think that this is still a concern in view of the widespread use of thrombolytic therapy and a further reason why intramuscular analgesia should not be given.

Only four of 133 patients received aspirin at home. Possibly the number noted was falsely low owing to prior regular aspirin therapy. However, the benefits attributed to aspirin in acute myocardial infarction are in connection with the use of 150 mg or more being chewed at the time of the acute event.^{2,3} Therefore, until further information is available aspirin should be given acutely to all patients suspected of myocardial infarction, regardless of their regular treatment.

This study has shown that the current frequency and mode of administration of opiate analgesia at home is suboptimal. We recommend that aspirin should be given as per the international study of infarct survival regimen³ to all patients suspected of having an acute myocardial infarction. Opiate analgesia should be given more frequently and via the intravenous route.

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(Accepted 29 December 1993)

Survey of whether general practitioners carry aspirin in their doctor's bag

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BMJ 1994;308:761-2

Our previous study found that less than a fifth of patients admitted to hospital with suspected acute myocardial infarction had been given aspirin by their general practitioner before their admission.¹ This result is surprising given that the early use of aspirin, alone or in combination with intravenous thrombolytic agents, is obviously beneficial² and that guidelines have been published on such use.³ We suspected that one of the reasons for the low use of aspirin was that general practitioners were not carrying the drug in their doctor's bag. We therefore conducted a survey to investigate this hypothesis further.

Subjects, methods, and results

We selected the study sample in June 1993 with the help of Oxford Regional Health Authority, which has a computerised list of all general practitioners in the region. Once the first general practitioner's name was randomly chosen we systematically selected every second name from the list. Data were collected by means of a standardised, self administered postal questionnaire, which was sent to each participating general practitioner. No reminders were sent. Demo-

graphic data (age and sex) and whether the general practitioner belonged to a training practice were recorded. In addition, the questionnaire asked whether the general practitioner carried each of six common drugs, including aspirin, in their doctor's bag.

Returned questionnaires were analysed by the Epi-Info package.⁴ The drugs carried by general practitioners from training and non-training practices were compared. The differences were evaluated using relative risks and 95% confidence intervals. Analysis of the non-responders showed them to be no different from the responders with regard to age, sex, and type of practice.

Of the 670 questionnaires sent, 593 were returned (88.5%); 15 were either blank or incomplete, which left 578 (86.2%) completed questionnaires available for analysis. Of these, 412 were from male general practitioners. Less than half (252) of the respondents were aged 25-39, the remainder being 40-54 (258) or 55-69 (68). More than a third of the respondents (213) were from a training practice. Penicillin was carried by the most general practitioners (556) and aspirin by the fewest (346). General practitioners in a training practice were significantly more likely to carry aspirin than their counterparts in a non-training practice (relative risk 1.63; table).

Comment

General practitioners are ideally placed to initiate early treatment with aspirin in patients with suspected