General Practice Observed

Patient Delay Before Treatment of Myocardial Infarction

IAIN C. GILCHRIST

British Medical Journal, 1973, 1, 535-537

Summary

Fifty patients in hospital with a definite recent myocardial infarction were interviewed, particular attention being paid to the delay before medical attention was sought. No evidence was found to associate delay with age, sex, or social class. The delay was longer outside normal working hours, and in some patients this seemed to be due to inhibition from disturbing their general practitioner. It is suggested that doctors should ensure that patients at high risk of sustaining a myocardial infarction should not be inhibited from seeking attention quickly if the need arises.

Introduction

As most deaths from myocardial infarction occur within the first few hours after the onset of symptoms,¹⁻³ and as some of these deaths might be prevented by prompt recognition and treatment of arrhythmias, the importance of prompt treatment has been stressed.⁴ Probably up to half of the delay before coronary care is instituted is taken up by the time from the onset of symptoms until medical aid is sought.⁵⁻⁷ There have been attempts to reduce the length of time before coronary care is instituted by means of "flying squads,"^{4, 8} which can enable half the patients with myocardial infarction to come under intensive care within two hours.⁸ For areas in the U.K. without such facilities, however, half of these patients come under intensive coronary care within four to six hours.^{7, 9, 10} This time might be reduced by widespread adoption of mobile intensive care facilities, which could reduce "medical delay," or by shortening the length of time from the onset of symptoms to the patient deciding to seek medical attention—that is, "patient delay."

Investigations have been made into some of the factors associated with patient delay but some findings have been contradictory.^{11, 12} These studies might not be directly applicable to the different social and medical conditions in the U.K., and so the present study was undertaken to attempt to ascertain what factors might be important in contributing to patient delay and if any could be modified.

Methods

Most patients admitted to the Southern General Hospital, Glasgow, with myocardial infarction are transferred from the

coronary care unit to the general medical wards, where they stay for the rest of their time in hospital, after the first 48 to 72 hours.⁹ A few patients, usually elderly, are admitted to the general medical wards direct and stay there throughout. This study was carried out on patients in one of three medical units during the time they were in the general ward. Patients who had been diagnosed by the medical staff of the hospital as having had a definite myocardial infarction were admitted to the study.

Each patient was interviewed and encouraged to relate freely the circumstances surrounding the onset of the infarction. The interview was semistructured, but so far as possible spontaneity of expression was sought. The following details were noted for each patient. (1) Demographic details: name, address, sex, age, marital status, and occupation; social class was coded from the Registrar General's classification.¹³ (2) Patient-doctor relationship: length of time with general practitioner, number of times the patient had seen him in the previous year, whether he liked him, and whether he had confidence in his ability as a doctor. (3) Past history of angina and previous myocardial infarction. (4) Details of the illness: time of onset of symptoms, where the patient was at that time, whether other people were present or not, who decided to seek medical aid, the time that elapsed from the onset of symptoms until this decision was made, the reasons given for seeking or not seeking medical attention, and whether the patient was admitted after seeing a doctor outside hospital or direct from the accident and emergency department. An estimate of the severity of the symptoms was made and each patient was placed in one of three categories—mild, where there was no restriction of voluntary activity by the symptoms; moderate, where the symptoms caused some restriction of activity; and severe, where virtually no voluntary activity was possible.

Results

DEMOGRAPHIC DETAILS

Of the 50 patients studied, 34 were men and 16 women; 43 were married, 2 were single, and 5 were widowed. The mean age was 58.4 years (range 33 to 76 years). There were 9 patients in social class II, 31 in III, 8 in IV, and 2 in V.

PATIENT-DOCTOR RELATIONSHIP

As might be expected with a largely middle-aged to elderly population most had been with their general practitioner for a considerable time—two-thirds had been with their doctor for over 10 years and only one-fifth had been with their present doctor for five years or less. Also 39 people stated that they liked their doctor, 7 qualified their approval, and only 2 stated that they did not; a further 2 did not know if they liked their doctor or not. Thirty-four patients had every confidence in his ability, 11 expressed some reservations, 3 had no confidence, and 2 did not know.

Southern General Hospital, Glasgow G51 4TF

IAIN C. GILCHRIST, M.B., D.OBST.R.C.O.G., Vocational Trainee in General Practice (Present address: Darbishire House Health Centre, Manchester M13 0FW)

PAST HISTORY

Altogether 14 patients had had a previous myocardial infarction and 17 had previously suffered from angina.

DETAILS OF THE ILLNESS

The relation between the time of onset of symptoms and the length of time before medical aid was sought is shown in the diagram. Patients who had a myocardial infarction in the afternoon very quickly sought medical aid, and there was a tendency for patients who developed symptoms at night to wait for some time before seeking medical attention. The mean delay before seeking help was 4 hours 29 minutes and the median delay 1 hour—this is a more meaningful figure than the mean, which was unduly prolonged by a few extremely long decision times. There was no statistically significant difference in age, sex, or social class between those whose decision time was 1 hour or less and those who delayed for longer than 1 hour.

Twenty-four-hour clock showing time from onset of symptoms to time when patient sought medical aid.

The patients can be divided into two groups—those whose symptoms developed during “office hours”—defined as 09.00 hours to 17.59 hours—and those whose symptoms developed from 18.00 to 08.59 hours. Patients whose symptoms developed during office hours delayed less in seeking medical attention than patients whose symptoms developed during the evening, night, or early morning. The median delay for patients during office hours was 15 minutes, whereas it was 2 hours for patients whose symptoms developed outside office hours. The Mann-Whitney U test¹⁴ shows the difference between the two groups to be statistically significant ($U = 137.5, z = 2.716, P < 0.0033$). It is improbable that this difference is due to an excess of severe myocardial infarctions during the day (table I).

TABLE I—Patients classified according to Time of Onset of Symptoms and Severity of Symptoms

Severity	Time of Onset	
	09.00–17.59 hours	18.00–08.59 hours
Severe	4	5
Moderate	9	16
Mild	4	16

The difference between the numbers of severe and mild cases during the day and “after hours” is not statistically significant by Fisher’s test.¹⁵

When asked about the reasons for deciding to seek or not to seek medical attention the answers from each patient fell into one of three categories. There were those who gave positive reasons for seeking medical attention—for example, the severity or nature of the pain or the thought that they had had a “heart attack” or might die (group 1). In group 2 were placed those patients who gave reasons for not seeking medical aid—for example, “I did not want to disturb my doctor,” “I thought it was wind,” “I thought it would pass.” Group 3 was composed of patients giving ambivalent reasons—for example, “I thought I was going to die but did not want to disturb my doctor,” “The pain was almost unbearable but I did not want to call my doctor in case it had gone by the time he got there and someone else needed him more than me.” Details of these groups are summarized in table II. Four patients could not give details of their thoughts at that time.

TABLE II—Comparison of Patients classified by Reasons given for Seeking or Not Seeking Medical Attention

	Group 1	Group 2	Group 3
Total in group:	13	23	10
Mean age (years)	59.4	58.9	55.6
Sex ratio (M. : F.)	10 : 3	16 : 7	5 : 5*
Patient delay { Mean	20 Min	306 Min	303 Min
Median	10 Min	180 Min	120 Min
Past history { Previous M.I.	4	4	1
Angina	4	5	1
M.I. and angina	0	4	1
Symptoms { Severe	5	3	1
Moderate	7	11	6
Mild	1	9	3
Decision to seek medical attention taken by:			
Self	11	11	7
Self and other	1	1	0
Other person	1	11	3†

* $\chi^2 = 1.93, D.F. = 2$, not significant.

† If the two patients who came to a decision with some other person are disregarded there is a statistically significant difference between the numbers of patients who made the decision themselves and those for whom some other person made the decision to seek medical attention when group 1 is compared with group 2 ($\chi^2 = 4.22, D.F. = 1, P < 0.05$) and when group 1 is compared with group 3 ($\chi^2 = 3.90, D.F. = 1, P < 0.05$). M.I. = Myocardial infarction.

In groups 2 and 3 there were seven patients who stated that they had not wanted to disturb their general practitioner. Details of these patients are summarized in table III.

Discussion

Rationalization and denial may be present in any illness, and has been well documented in relation to myocardial infarction.¹⁶ Eighteen patients in this series appeared to have rationalized their symptoms, ascribing them to “wind,” “indigestion,” etc. After a variable time each patient accepted that his symptoms were important and that he needed help in dealing with his illness.⁶

All the patients except those in group 1 initially delayed seeking medical aid. One factor associated with the length of delay was the time the symptoms occurred. Delaying longer at night might be a physiological phenomenon or it might be a psychological and social phenomenon. It is unlikely to be physiological, as one American study showed the delay to be shorter at night.¹² British patients might be more inhibited from calling their doctor than American patients are from going to a hospital emergency department. In fact, seven patients did spontaneously admit that they had not wanted to disturb their doctor. It is possible that this inhibition might be due to not knowing or disliking their doctor, but the results do not bear this out. These seven patients may have been denying their illness, and the explanation of not wanting to disturb their doctor might have been a rationalization of this denial. If this were so, however, one would not expect any difference due to the time of occurrence of the symptoms. As patients did wait longer at

TABLE III—Summarized Details of Patients who stated that they did Not want to Disturb their Doctor

	Patient No.						
	1	2	3	4	5	6	7
Age in years (mean 55.9 years)	60	57	65	54	33	61	61
Sex	M.	F.	F.	M.	M.	F.	M.
Social class	II	III	II	III	III	II	III
Years with G.P.	15+	10-15	1-2	15+	13	15+	1
Do you like your G.P. ?	"Yes"	"Not very much"	"Very nice"	"Yes"	"All right"	"Very well"	"Quite nice"
Do you have confidence in your G.P. ?	"Yes"	"Not much"	"O.K."	"Yes"	"Yes"	"Every confidence"	"Every confidence"
Past history	M.I. and angina	None	M.I.	None	None	None	M.I. and angina
Time of onset	21.00 hours	16.30 hours	02.30 hours	18.00 hours	04.30 hours	02.00 hours	08.00 hours
Delay before calling doctor	3 hours	1 hour	5 hours	2½ hours	4½ hours	2 hours	24 hours
(mean 6 hours, median 3 hours)							
Severity of symptoms	Moderate	Moderate	Mild	Moderate	Mild	Severe	Moderate

The difference between the number of patients delaying for longer than 1 hour in this group compared with all the other patients who did not state that they had not wanted to disturb their doctor is statistically significant at $P < 0.05$ ($\chi^2 = 3.93$, D.F. = 1). In other details of age, sex, social class, past history, and severity of symptoms there is no statistically significant difference.

M.I. = Myocardial infarction.

night before calling their doctor it can be postulated that most patients were inhibited from calling their doctor, and this was later volunteered by some patients.

Education of patients to overcome this psychological barrier could be directed along two lines. One would be to educate people about the symptoms of myocardial infarction. It is unlikely that this could be done without creating cardiac neurosis but it might be worth while to attempt to educate "high-risk" patients—for example, those with angina—and attempt to evaluate the benefits of earlier treatment of a subsequent myocardial infarction against the possible harmful effects of the education.

The second line of education would be to correct the impression that the general practitioner works such long hours that he should be disturbed only after severe symptoms of a serious illness have been present for some hours. The average length of time spent by British general practitioners in clinical work is around 40 hours a week.^{16 17} There is the danger, of course, that if patients were encouraged to call the doctor sooner, as has been suggested,⁷ then general practitioners and hospital coronary care units might be overwhelmed by patients who have not suffered a myocardial infarction to the detriment of those who have.

One hopes that there may be a middle course, where doctors are not overworked nor patients inhibited from seeking medical attention when necessary, and individual doctors might wish to try to prevent this inhibition in their patients.

I wish to thank Drs. G. B. Shaw, A. Allison, and J. F. Robinson

for permission to interview patients under their care, and Mr. D. McMillan, of the department of medical illustration, Southern General Hospital, for drawing the diagram.

References

- Bainton, C. R., and Peterson, D. R., *New England Journal of Medicine*, 1963, 268, 569.
- McNeilly, R. H., and Pemberton, J., *British Medical Journal*, 1968, 3, 139.
- Fulton, M., Julian, D. G., and Oliver, M. F., *Circulation*, 1969, 40, Suppl. No. 4, p. 182.
- Chazov, E. I., in *Acute Myocardial Infarction*, ed. D. G. Julian and M. F. Oliver, p. 313. Edinburgh, Livingstone, 1968.
- Oliver, M. F., *Journal of the Royal College of Physicians of London*, 1968, 3, 47.
- Moss, A. J., and Goldstein, S., *Circulation*, 1970, 41, 737.
- Gambier, D. M., *Journal of the Royal College of General Practitioners*, 1970, 20, 153.
- Pantridge, F., in *Acute Myocardial Infarction*, ed. D. G. Julian and M. F. Oliver, p. 316. Edinburgh, Livingstone, 1968.
- Shaw, G. B., Groden, B. M., and Hastings, E., *Scottish Medical Journal*, 1971, 16, 173.
- Gilchrist, I. C., *British Medical Journal*, 1971, 4, 153.
- Hackett, T. P., and Cassem, N. H., *American Journal of Cardiology*, 1969, 24, 651.
- Moss, A. J., Wynar, B., and Goldstein, S., *American Journal of Cardiology*, 1969, 24, 659.
- Office of Population Censuses and Surveys. *Classification of Occupations*. London, H.M.S.O., 1970.
- Siegel, S., *Nonparametric Statistics for the Behavioural Sciences*, p. 116. New York, McGraw-Hill, 1956.
- Olin, H. S., and Hackett, T. P., *Journal of the American Medical Association*, 1964, 190, 977.
- Reports from General Practice*, No. XIII, 2nd edn. London, Royal College of General Practitioners, 1970.
- MacDonald, A., and MacLean, I. G., *Practitioner*, 1971, 207, 680.
- Siegel, S., *Nonparametric Statistics for the Behavioural Sciences*, p. 96. New York, McGraw-Hill, 1956.

A New Look at Infectious Diseases

Leptospirosis

L. H. TURNER

British Medical Journal, 1973, 1, 537-540

Numerous combinations of symptoms and signs can occur during infections with pathogenic strains of *Leptospira*. The diagnosis of leptospirosis on clinical grounds is apt to be unreliable;

Leptospirosis Reference Laboratory, London School of Hygiene and Tropical Medicine, London WC1E 7HT
L. H. TURNER, M.D., Director

thus in the United Kingdom at present jaundice occurs in only one-half of all diagnosed cases. However, reliable serological tests are now available which can be carried out in any general-duty laboratory. Suitable treatment—antibiotics and supportive measures—have reduced the mortality from severe infections; in mild infections the patient will recover without special treatment. The epidemiology of leptospiral infections is essentially simple, but many animals other than rats and dogs can act as reservoir hosts. The notion that leptospirosis is a matter only of Weil's "disease" and rats is no longer tenable. The