PRACTICE OBSERVED

Practice Research

Follow up study of angina in patients aged 30 to 59 in general practice

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Abstract

In 1979, 51 general practitioners in the Northern region identified 336 patients aged 30 to 59 who had angina pectoris. Information was obtained on their treatment and how angina affected their daily lives. This study reviews the same patients after an interval of four years. Of the 307 who were not lost to follow up, 18 (12%) had died and 44 (14%) were free from angina in the last year. Drugs seemed to be used to their best advantage, with a fourfold increase in the use of the newer calcium antagonists and long acting trinitrate preparations. Many patients still suffered from angina, which was severely affecting their daily lives, but only 41 patients had had exercise electrocardiograms recorded or more detailed investigations; this includes 16 (6%) patients who had had coronary artery bypass surgery.

Introduction

In 1982 we reported on 336 young patients who had angina pectoris. This follow up study after an interval of four years was carried out to look at the subsequent morbidity and mortality of this general practice population, with particular reference, firstly, to those who had originally been found to suffer from "severe" angina and, secondly, to changes in drug treatment and the use of coronary artery bypass surgery. Most studies from hospital present a distorted picture as the patients referred to them are presumably those with more severe angina.

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Method

During 1979, 51 general practitioners from 20 practices in the Northern region reported on 336 patients aged 30 to 59 who had angina pectoris. All patients also completed a questionnaire about their angina and the effect that it had on their daily lives. In 1983 each general practitioner or successor completed a second questionnaire about the same patients, also distributing a follow up questionnaire to patients in the practice who were still alive. For those patients who had moved the relevant family practitioner committee was usually able to help to track their new general practitioner, who was then contacted.

The doctor's follow up questionnaire inquired whether it was still thought that the patient had angina in 1979 and whether the patient still had it; what use had been made of drugs to treat angina; whether any complications such as myocardial infarction had occurred; and to what extent the hospital services had been concerned in the patient's care. The date and cause of death for patients who had died was recorded.

The patients' follow up questionnaire again concentrated on their daily lives and the effect that angina or its absence had on it. For the most part the questions were identical to those in the original study, enabling direct comparisons to be made. Statistical comparisons were made by the χ^2 test.

Results

Of the original 336 patients, 307 (91%) entered the second study. Of the remaining 29 patients, four declined to participate in the follow up study but most had left the region. There was no evidence of an excessive number of deaths in this group.

The analysis relates to the remaining 307 patients. The 38 patients who died are excluded from some analyses indicated to enable more direct comparisons because their medical histories between the first study and their death was not available.

SEVERITY OF ANGINA

As in the first study patients were divided into two groups of "severe" and "not severe" angina. The definition of "severe" angina was the same as before—namely, the patient who had attacks not only when walking at an

ordinary pace on the level but also had one or more attacks a day, and whose angina affected one or more of the following activities: sport, sex, housework, and shopping. The changes in severity over the four years are shown in the figure. In the 30 patients whose angina was no longer "severe" four (13%) had had coronary artery bypass surgery. In all other respects, including drug treatment and daily activities, there was no difference between this group and the remaining 186 with "not severe" angina.

Retrospectively, the doctors thought that 256 (85%) of the surviving patients at the time of the first study did have angina. By the second study the doctor thought that 213 (79%) of these 256 (85%) did not (five not known). On analysing the patients' questionnaires 210 of these 51 had no angina in the last year but the histories of 28 were highly suggestive of continuing angina, though "not severe" angina. Seven of these 51 patients had had cardiac surgery.

Over the four years, 38 (12.4%) patients died, 28 men and 10 women (table 1). The angina in those who had died affected their daily lives for all the factors to a much greater extent compared with the 269 known survivors. Eighteen (47%) had severe angina compared with 55 (19%) of the survivors. This was highly significant ($p < 0.001$). No significant differences were found in 1979 between those who died and those who survived, with regard to smoking habits or medication, nor in the percentage who had had a myocardial infarction. One patient died during coronary artery bypass surgery.

Table II gives the medication taken at the time of the first study and the drugs that were introduced or discontinued during the study (excluding patients who died and those lost to follow up). No patient was recorded as starting or discontinuing a drug if the drug was used being changed to another in the same therapeutic group. Thirty seven (14%) patients were taking no

"Severe" angina group at first study ($n=63$)

Outcome of second study, excluding the 29 lost to follow up and 16 with severe angina not known

Changes in severity of angina. Figures are numbers of patients.

TABLE 1—Causes of death of 38 patients

Myocardial infarction	Coronary heart failure	Coronary artery bypass surgery	Stroke	Other	Total
18	15	1	1	1	36
18	15	1	1	1	36

TABLE 2—Drug treatment of 269 patients, excluding those who died and those who were lost to follow up

Drug	No. of patients taking drug at first study	No. of patients taking drug at second study	% of patients taking drug at second study
Long acting trinitrate	179	211	75.5
Calcium antagonists	18	61	32.9
Other	14	21	7.6
Total	211	292	100.0

medication compared with 28 (8%) in 1979. Fifty seven (41%) of those patients who were taking glyceryl trinitrate in the follow up study were taking it prophylactically, compared with 75 (33%) in the first study. Table III gives the reasons for discontinuing a particular medication. There were recorded only for the 51 of the 73 patients who discontinued blockers and only for 19 of those who stopped glyceryl trinitrate, but were recorded for all but one of those who stopped taking long acting trinitrate preparations and for all who stopped taking calcium antagonists (table III). The large number of reasons for discontinuing drugs arises because some patients were changed from one drug to another in the same therapeutic group. For example, of the 37 patients recorded as discontinuing calcium antagonists, one patient had stopped the calcium antagonist but was now on another.

TABLE III—Reasons for discontinuing drugs, excluding those who died and those who were lost to follow up

Drug	No. of patients discontinuing drug	Reason for discontinuing drug	Total
Long acting trinitrate	18	18	18
Calcium antagonists	11	11	11
Other	14	14	14
Total	43	43	43

From 1979 onwards 73 (23%) of the surviving patients were under hospital care and 12 (12%) of these remain. Table IV gives the investigations carried out and the number of patients who had coronary artery bypass surgery, while Table V compares the severity of patients' angina in 1979 and 1983. The 16 patients who had had coronary artery bypass surgery, and survived, 11 (69%) had had a previous myocardial infarction. A further three patients had a myocardial infarction between 1979 and 1983. When compared with the remaining patients but excluding those who died and those who were lost to follow up only 12 (49%) had had a myocardial infarction; this was significant ($p < 0.05$). The severity of angina at the first study was not significantly different from that found for all patients. By the second study eight (5%) patients had been free from angina for at least a year from the date of their surgery, in comparison with the remaining patients; this was highly significant ($p < 0.001$). No improvement in state of employment was found.

TABLE IV—Investigations and surgery, excluding those who died and those who were lost to follow up

Investigation	Number of patients	Number of patients with myocardial infarction	Number of patients with coronary artery bypass surgery
Exercise electrocardiogram	18	18	18
Coronary artery bypass surgery	11	11	11
Other	14	14	14
Total	43	43	43

TABLE V—Severity of angina related to investigations and surgery, excluding those who died and those who were lost to follow up

Investigation	Number of patients	Number of patients with severe angina	Number of patients with not severe angina
Exercise electrocardiogram	18	18	18
Coronary artery bypass surgery	11	11	11
Other	14	14	14
Total	43	43	43

Over the four years 22 patients had myocardial infarctions, two patients suffered two each. Ten of these patients had not had a myocardial infarction before. There was no appreciable change in smoking habits, though the trend was downward—107 (40%) were smoking in the first study and 98 (36%) in the follow up study.

In the first study 12 patients were found to have diabetes mellitus, and at that time there was no difference between these and the rest of the patients. By the second study a further five patients were found to have diabetes. Four

of the original 12 had died and three had had a myocardial infarction, one had had coronary artery bypass surgery. By the second study, 44 patients stated that they had not had angina in the previous year. When they were seen at the time of the first study these patients were younger and their angina was much less severe compared with the remaining patients in all variables; only one patient had severe angina. By 1983 eight (18%) of these patients had had coronary artery bypass surgery. The doctor thought that 20 (46%) still had angina and 14 (32%) still took antianginal medication. Most patients were more active than in 1979, though this was not statistically significant.

Discussion

Angina is still a severe and disabling condition for many people despite recent advances in both drug treatment and surgery. As in the previous study the daily lives of many patients are greatly affected, with a continuing high morbidity and mortality.

The deaths in 34 of the patients were cardiovascular in origin, giving an annual mortality rate of 2.8% compared with an expected rate of 0.3% in the same age group for England and Wales. Fry reported an annual mortality rate of 4.6% but the average age was greater. There was no difference in the mortality rates between men and women. This is at variance with the Framingham study, suggesting a better prognosis for women, but it is in agreement with Oliver, who found a 30% mortality over eight years in women aged under 45.

Of the survivors, 44 (16%) stated that they had not had angina in the last year. This remission rate is comparable with 18% reported by Fry and with the 14% of men and 19% of women with previously persistent angina in the Framingham study. Suggested mechanisms of remission have been: reduction of daily activity, an interim myocardial infarction destroying ischaemic muscle, and development of collateral circulation. As the patients seemed to be at least as active and had fewer myocardial infarctions, the first two seem unlikely. In 1979 their angina was much less severe, perhaps suggesting that they had less pronounced coronary artery disease, which enabled even a limited amount of revascularisation to free them from angina for a time at least. Eight of these patients had had coronary artery bypass surgery.

The disparity of the 28 patients who still had anginal symptoms despite the doctor's belief to the contrary seems most likely to be due to the fact that as their angina was not severe, they no longer consulted about it. Not unexpectedly, those who were first seen with "severe" angina had the worst prognosis, with 18 (29%) dying. None the less, 30 (48%) had improved, though they still suffered from angina. As in those who are now free from angina, there was no evidence that this was due to increased medication or reduction in daily activities or in smoking. The improvement was therefore presumably due to some revascularisation.

Those with diabetes seem to have fared particularly badly, with a third of those who were originally diagnosed dying. Though the numbers are small the trend is as expected and suggests that all younger patients with diabetes and angina should be referred for a cardiological opinion.

The extent to which angina affected the daily lives of patients was broadly similar in the two studies. Sadly, smoking habits had changed only a little. The most noticeable change was in employment, dropping from 175 (69%) to 99 (37%) in 1983. Accepting that this must partly be due to patients being four years older, those with less than perfect health are undoubtedly the first to be let go in a recession.

In 1979, 252 (75%) patients were taking β -blockers; by 1983 a further 14 (5%) had been prescribed such a drug. Though it is not known whether it was being used in full dosage, it seems that most of those who might benefit have received the drug. The figures are similar for glyceryl trinitrate, though still only a minority of patients is using glyceryl trinitrate prophylactically. The use of calcium

antagonists and long acting trinitrates has more than quadrupled in the four years, reflecting current interest. Twenty six (13%) patients stopped taking calcium antagonists because of side effects or lack of benefit. The numbers are small, however, and another study would be needed to clarify this.

Since 1979 only 73 (22%) of the surviving patients had been under the care of the hospital specialist specifically for their angina. Furthermore, only a few patients (table IV) had undergone detailed hospital investigation, such as an exercise electrocardiogram, despite this being a young population, in most of whom there was appreciable morbidity and mortality. The numbers are too small to be significant, but, of those with severe angina in 1979 who were investigated, over half had sufficiently severe coronary artery stenosis to warrant surgery. The outcome suggests that at least those with severe angina, together with diabetic patients who have angina, should have an exercise electrocardiogram. Raftery *et al.* showed that a properly conducted exercise electrocardiogram can be highly predictive of important coronary arterial lesions.

The results of clinical trials of surgical versus medical treatment in angina have shown that surgery improves morbidity and in those with severe left main branch stenosis or three vessel disease it may reduce mortality, though this is not clear.

In this study the morbidity was less in patients who had surgery compared with those who did not. Only a further 13 (5%) patients underwent coronary artery bypass surgery during the study interval. Using the high reporting practices as defined in the previous study, this gives an annual rate of 35 million. There may be some patients in our study population who have since developed angina for which they have had surgery. This rate may therefore be slightly low. In the Northern region few patients outside the age group studied are operated on. The reported rate in 1982 for the metropolitan regions was 169 million and for the rest of England and Wales 47 million. The questionnaires did not indicate why so few had been referred to the specialist for further investigation, but in discussions with some of the participating doctors it was apparent that they thought that the unavailability of such facilities in the region rather than the attitudes of the general practitioners. More can obviously be done, particularly in relation to smoking, and perhaps in the further use of drugs, but for those with severe angina greater use of surgery must play a greater part at present.

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Factors associated with home visiting in an inner London general practice

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Abstract

We decided to examine the services provided by doctors in an inner London practice for domiciliary care. It was expected that the study would highlight the most relevant questions and variables related to access and up- and down-grades of services; these contribute to the design of an accurate procedure for adding the pattern of delivery of home care to be conducted in the practice in the future.

During the study period, 1976-81, there were 90 500 doctor-patient contacts. For patients up to the age of 10 years the proportion of home visits was 9.2%, falling to 2.2% in the age group 20 to 29, then there is a quasi plateau till the age of 60. After 60 the proportion of home visits doubles in each of the following 10 year age groups, reaching 54% in the over 80s. The proportion of home visits (standardised by age) rises from social class II (10%) to social class V (10.9%), but is higher in social class I (11.7%).

The proportion of home visits according to distance from the practice rises from 8.2% near the health centre to 9.6% at a distance of 0.25 to 0.50 mile, and drops to 8.8% beyond 0.75 mile. The distance effect is not consistent when the social class dimension is added: social classes I and II have higher proportions of home visits in certain age and distance groups. Single people have the lowest proportion of home visits (6.8%). There are large differences between men and women among widowed (14.1% and 8.6% respectively) and divorced or separated (7.0% and 10.7% respectively) patients. There are important variations in the proportions of home visits made by the doctors in the practice, the trainees carrying out proportionally many more home visits.

Data collected in the practice can be used to define specific issues for future audit exercises. Furthermore, socio-demographic characteristics of patients have been shown to be associated with use and access to medical services.

Introduction

The declining home visiting rate of general practitioners in the past 10 years is well documented in England as well as in the United States, where the alleged poor cost effectiveness of this service was a strong incentive for reducing it. Time spent travelling in the car is largely wasted, and the availability of equipment and other resources argue in favour of the patient coming to the doctor rather than the reverse. General practitioners have expressed the fear of home care of patients being taken over by other professionals if this declining trend persists, there are claims of "total responsibility for family care." "If the profession is failing to meet a public need society will find some way of meeting the need, if necessary by turning to a group outside the profession."

Nowadays, rehabilitation in the home, preadmission home visiting for geriatric patients who have been referred for care as inpatients, and the whole person approach to a patient's management are in vogue. "The questions of 'access' and 'utilisation' of

medical services (overutilization and underutilization) have also been discussed; perhaps these terms should no longer be exclusively to the planners' vocabulary but be applied to primary care providers; it might enable them to rationalise their patterns of delivery of care on need rather than on demand to achieve greater equity of access, although the assessment of need and of appropriate use relative to need is not simple. This would lead to a selection of criteria for home visits: "Learn to respond to the need not to the demand," wrote Cautley.

We thus decided to examine the services provided by doctors in an inner London practice for domiciliary care. We expected that in highlighting current practice the study would yield clues for selecting questions and criteria to audit in the future the pattern of delivery of domiciliary care, with emphasis on accessibility and usage.

Method

The practice is one of a group of three located in a health centre in inner London that has access through the department of general practice, St Mary's Hospital Medical School, to computer facilities for storing and analysing the data on the registration and consultations of all its patients. The practice had three full time partners and a trainee during the study; the list size was 5800 patients in 1976 and 7100 in 1981. The data that we analysed related to all doctor-patient contacts between 1976 and 1981. The registration data for each patient included age, sex, marital status, social class according to the Office of Population Censuses and Surveys classification of the practice, and distance of residence from the health centre. The consultation data included up to two diagnoses for each consultation, whether or not a prescription, a certificate, or a follow up appointment was given, and details of up to three investigations and one referral for each diagnosis.

We studied the proportions of home visits according to age, sex, social class, distance from the surgery, marital status, and doctor; the proportions were standardised by age to the population of England and Wales (1981), using the direct method. The denominators were the total numbers of contacts in the relevant cells. The statistical analysis was performed with the Statistical Package for Social Sciences. The relations between the variables were tested with the χ^2 test.

Results

During 1976-81, 90 500 patient contacts, consultations and home visits, were coded and stored on computer. The results refer to home visits only.

Age, sex, social class, distance, marital status, and doctor

The effect by age on home visits is clear (fig. 1). The proportion of home visits in the age group up to 10 years is similar to the overall practice average (9.2%); the lowest proportion of home visits, 2.2%, is a characteristic feature of the age group 20 to 29, increasing to 11.7% in the age group 50 to 59, doubling in each of the following 10 year age groups to reach 54% in the over 80s; $p < 0.001$. Men had a higher proportion of home visits than women as a whole, 9.8% v. 8.5%, $p < 0.001$, which, after standardising for age, is 8.4% for men and 8.3% for women.

The relation between home visits and social class shows an increase in the proportion of home visits from social class II (10%), to III (8.5%), to IV (9.2%), to V (10.9%), but the proportion is highest in social class I (11.4%). With regard to distance, the proportion of home visits rises from 8.2% near the health centre (0-0.25 mile) to 9.6% at a distance of 0.25 to 0.5 mile, dropping to 8.8% at 0.50 to 0.75 mile and 8.8% when the distance is over 0.75 mile.

Figure 2 shows the variations in the proportion of home visits according to marital status. Single people had the lowest proportion of home visits. There

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