COMPARISON OF SUBJECTIVE AND OBJECTIVE ASSESSMENT OF ANGINA PECTORIS

BY

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Assessment of the severity of a patient's symptoms over a period of time is essential if the natural history of a disease and its response to treatment are to be studied. The patient may be asked to make this assessment for himself, or some aspect of his symptoms may be measured objectively. I report here the results obtained by these two methods in a small group of patients with angina pectoris, in order to draw attention to the lack of correlation between subjective and objective assessment in this condition.

The Investigation

Eleven patients (ten male and one female) were studied. There was an unequivocal clinical history of angina pectoris and an abnormal electrocardiogram at rest or after exercise in every case. These patients with angina pectoris formed part of a larger group with other manifestations of ischaemic heart disease in whom the metabolic effects of a diet rich in polyunsaturated fats was being studied. They were all on a diet containing no animal fat, were taking supplementary corn oil 1-3 oz. (28-85 ml.) a day, and were attending regularly for serum lipid analysis.

Case 1.—Man aged 55. Familial hypercholesterolaemia with cutaneous and tendinous lesions. Developed angina pectoris March, 1958.

Case 2.—Man aged 47. Angina pectoris began April, 1956.

Case 3.—Man aged 39. Onset of effort angina in May, 1958.

Case 4.—Man aged 40. Familial hypercholesterolaemia with skin and tendon deposits. Angina developed 1954.

Case 5.—Man aged 52. Angina pectoris began in 1952. January, 1954: anterior myocardial infarct, treated by bed rest and short-term anticoagulant therapy. Angina reappeared when he resumed normal activities.

Case 6.—Man aged 44. Developed angina pectoris in 1957.

Case 7.—Man aged 62. Angina pectoris since 1957.

Case 8.—Woman aged 61. Pernicious anaemia and early subacute combined degeneration of the cord 1950. Complete remission on vitamin B₁₂. 1952: posterior myocardial infarction. Angina of effort thereafter. 1957: found to have xanthelasma palpebrarum and tendon deposits. Serum cholesterol elevated.

Case 9.—Man aged 63. October, 1957: posterior myocardial infarction. Effort angina thereafter.

Case 10.—Man aged 60. Myocardial infarction March, 1957, and on resuming normal activities began to have angina pectoris.

Case 11.—Man aged 38. Effort angina from 1954. E.C.G. showed old posterior infarct. December, 1957: chest pain at rest, lasting several hours. Did not seek medical advice, but continued at work, and four days later had 10 teeth extracted under local anaesthesia. Died suddenly six hours later. Necropsy showed old posterior and recent massive antero-septal infarction.

The patients were seen every three to six months, and at each visit the severity of their symptoms was assessed subjectively and objectively.

Subjective Assessment.—The patients were asked about the frequency and duration of attacks of chest pain and the amount of exertion needed to produce them. They were also asked about such activities as cycling, gardening, household chores, running for buses, and so on. These points were discussed and recorded at each visit, and at the most recent interview they were asked to say whether, over the period of observation, they felt that they were "improved," "unchanged," or "worse."

Objective Assessment by a Standard Exercise Test.

A strong and stable wooden platform 18 in. (46 cm.) high, with a step at each end 9 in. (23 cm.) high, was used. A circular path, 10 walking paces long, was marked out on the floor from one end of the platform round to the other. The test was always done at 10-11 a.m., and therefore bore a constant relationship to meals. Comparable clothing was worn on each occasion, and for at least 15 minutes before the test the patients had been sitting quietly in the comfortably warm room where the test was done. The patients walked round the circuit at 100 paces a minute, in time to a metronome, climbing up the two 9-in. (23-cm.) steps on to the platform, down two 9-in. (23-cm.) steps, and walking 10 paces round to the steps again. When chest pain developed, the test was stopped and the time from the start to the onset of pain recorded. The time for the pain to pass off again was also noted, both measurements being taken, to the nearest five seconds, from a stop-watch. The patients could not see the stop-watch and were not told what their performance had been.

Body weight was recorded at each visit, and there was no significant change in any patient.

Results

Eight patients thought that they had improved during the period of observation and dietary treatment, and the other three felt that their condition was either unchanged or worse.

The results of the exercise tests are shown in Table I. Of the eight patients who believed that their effort tolerance was "improved" only three had better performances, the other five being unchanged or worse. Of the three patients who felt the same or worse, only one gave this result on the exercise test, the other two having improved their performance. Table II compares the subjective and objective assessments and shows agreement in four patients and disagreement in seven.

Discussion

In many chronic diseases such as asthma, bronchitis, and rheumatoid arthritis the patient's own assessment of his progress has been found to bear little relation to objective measurements of respiratory efficiency, strength of grip, and so on.

Fife *et al.* (1957) felt that this might also apply to patients with angina pectoris, and commented that "many patients will, of their own accord, modify their lives according to their exercise tolerance. . . . A substantial proportion adapt themselves to their disability in this way, and even in the absence of therapy may complain less of their symptoms as time passes, though questioning in detail will often elicit the fact that the degree of exertion required to induce the pain has not appreciably changed."

The discrepancy between the patient's exercise tolerance and his own assessment of it is clearly of

TABLE I.—Results of Exercise-tolerance Tests in 11 Patients with Angina Pectoris

Exercise Tolerance Improved				Exercise Tolerance No Change or Worse								
Case No.	Date	Pain On		Pain Off		Case No.	Date	Pain On		Pain Off		
		min.	sec.	min.	sec.			min.	sec.	min.	sec.	
Subjectively Improved												
1	25/3/58	6	0	—	40	4	8/11/57	2	20	—	40	
	24/6/58	8	20	—	45		24/3/58	3	0	—	40	
	2/2/59	10	0	—	40		6/6/58	2	40	—	25	
	18/8/59	12	5	—	35		17/11/58	2	20	—	20	
	16/6/60	11	10	—	30		21/5/59	3	0	—	30	
2	19/6/57	3	30	1	30	5	20/2/60	3	10	—	40	
	24/7/57	3	10	1	10		10/11/58	2	20	—	45	
	7/1/58	6	0	1	30			18/2/59	3	10	—	40
	21/9/58	9	30	1	10			6/7/59	2	40	—	30
	3/1/59	10	0	—	40			6/1/60	3	5	—	45
3	6/7/59	14	0	—	55	6		15/7/57	12	0	1	0
	2/2/60	9	45	—	50		7/11/57	5	0	1	30	
	17/11/58	7	0	—	25		24/3/58	5	25	1	20	
		2/5/59	10	15	—		30	10/11/58	6	15	1	0
		17/8/59	12	5	—		35	6/7/59	5	40	1	15
27/2/60		16	10	—	40	2/3/60	6	10	1	10		
Subjectively No Change or Worse												
9	1/10/58	2	30	—	40	11	26/6/57	3	20	1	10	
	9/1/59	4	40	—	25		20/10/57	2	0	—	50	
	8/4/59	9	30	—	20		4/11/57	1	5	1	10	
	8/7/59	9	20	—	30							
	17/2/60	8	20	—	15							
10	6/6/58	4	20	—	45							
	10/9/58	4	10	—	40							
	19/1/59	6	20	—	35							
	6/7/59	9	35	—	50							
	17/2/60	8	55	—	35							

TABLE II.—Comparison of Subjective Assessment with Exercise-tolerance Test in a Group of 11 Patients with Angina Pectoris

Subjective Assessment	Exercise Tolerance Improved	Exercise Tolerance No Change or Worse	Total
Improved	3	5	8
No change or worse ..	2	1	3
Total	5	6	11

first importance in therapeutic trials in angina pectoris, where remarkable subjective improvement tends to occur when any treatment is begun. Evans and Hoyle (1933) found that 38% of a group of patients given a placebo reported improvement in their angina, and an uncontrolled trial of any drug is therefore valueless. If, however, a double-blind trial is undertaken, and there are a substantial number of patients in both the control and test groups reporting improvement when their condition is unchanged, this could obscure a significant difference between the placebo and the drug on trial. Assessment by an exercise-tolerance test would undoubtedly overcome some of these difficulties if care is taken to standardize the conditions of the test. In particular, it is important to ensure that the rate of walking, the time interval from the last meal, the amount of clothing worn, and the room temperature remain constant throughout, and the patient should always be allowed to rest for at least 15 minutes before the test is done (Wayne and Laplace, 1933; Wayne and Graybiel, 1934).

It has been held that to exercise a patient until he gets pain is an unjustifiable risk; but, as Wayne and Laplace (1933) point out, "he is asked to do no more while under close control than he is in the habit of doing several times a day without supervision."

Summary

The progress of 11 patients with angina pectoris was assessed subjectively and by a standardized exercise-tolerance test. There was agreement between the two methods in only four patients, and disagreement in the other seven.

The implications of this finding with regard to therapeutic trials in angina pectoris are discussed.

I am grateful to Sir George Pickering for advice and encouragement.

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CLINICAL EVALUATION OF PHENIPRAZINE IN ANGINA PECTORIS

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The use in angina pectoris of drugs which inhibit monoamine oxidase is a problem of current therapeutic interest. Conflicting reports on the use of one such compound, iproniazid, have been obtained; considerable success was claimed by Cossio (1958), Master (1958), and Towers and Wood (1958); but little therapeutic effect was found by Dewar *et al.* (1959) and Snow and Anderson (1959). The use of iproniazid is, however, limited by its toxic effects. A preliminary report on a similar monoamine oxidase inhibitor, pheniprazine hydrochloride (beta-phenylisopropylhydrazine; "cavodil"), which apparently has no toxic effects, was very encouraging (Mackinnon *et al.*, 1960), but little objective evidence was presented to support the conclusions. In view of this it was decided to carry out a controlled study of the clinical value of pheniprazine as a long-acting coronary vasodilator in patients suffering from angina pectoris.

Patients and Methods

Twelve out-patients aged from 49 to 70, with well-authenticated and typical features of angina pectoris, were studied. The angina had been static for the previous 12 months. There were nine men and three women, and in all of them the presumptive aetiology was coronary artery disease; one woman aged 43 (Case 11) had familial hypercholesterolaemia. Four patients had electrocardiographic evidence of previous myocardial infarction. All patients were taking trinitrin freely for their anginal attacks.

A double-blind technique was employed. An initial control period of one month was allowed when no additional coronary vasodilators were taken apart from trinitrin. One month's supply of either pheniprazine or an identical placebo was provided, neither the patient nor the observer knowing which drug was given. Two tablets of 3 mg. each were administered twice daily.