MEDICAL PRACTICE

Contemporary Themes

Symptoms and signs: physical disease or illness behaviour?

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Abstract

The amount of treatment received by 380 patients with backache was found to have been influenced more by their distress and illness behaviour than by the actual physical disease. Patients showing a large amount of inappropriate illness behaviour had received significantly more treatment ($p < 0.001$).

The symptoms and signs of illness behaviour need to be clearly distinguished from those of physical disease, and better assessment of illness behaviour is essential if everyday clinical practice is to fulfil the ideal of treating patients as well as diseases.

Introduction

Experience in problem back clinics in both Britain and North America has suggested that the treatment of chronic pain is often determined more by the patient's distress and demands for help than by the severity of the physical disease.[1 2] This is particularly obvious in patients who have undergone repeated back surgery,[1] in whom pain and disability persisting after failed treatment may lead to progressively more dangerous and damaging procedures in pursuit of hypothetical disorders. The fundamental error sometimes seems to be the assumption that all symptoms and signs can be explained in terms of physical disease. We all agree in theory with the ideal of treating the patient rather than the disease and then in practice get on with the job of treating the perceived disease.

For the purpose of the present study we defined illness behaviour more precisely as "observable and potentially measurable actions and conduct which express and communicate the individual's own perception of disturbed health."[3-5] Inappropriate illness behaviour could then be recognised clinically as illness behaviour out of proportion to the underlying physical disease and related more to associated psychological disturbances than to the actual physical disease. We analysed the extent to which treatment for backache was influenced by physical disease or illness behaviour.

Patients and methods

We studied 380 British born patients (190 men and 190 women), aged 20-55, with a history of low back pain of at least three months, with or without sciatica. One hundred and eighty nine were unselected patients newly referred from family doctors to a routine orthopaedic outpatient clinic, and the 191 others had been referred from other specialists to a regional problem back clinic because of problems in assessment, diagnosis, or treatment.[2] We excluded patients with pathological abnormalities of the spine, such as tumour or infection, or with a history of psychiatric illness.

A detailed history was obtained of the total amount of conservative treatment that each patient had received before attending the clinic, whether self prescribed, from family doctors, or from previous specialists. All treatment with analgesics, local lumbar injections, lumbosacral supports, physiotherapy, spinal manipulation, plaster jackets, bed rest at home, and bed rest in hospital was recorded in reliable form.[6] Each treatment scored 1 if it had been received once or for one course only and 2 if it had been received more than once or for more than one course. Adding the eight treatments gave a possible score of 0-16 for total treatment for each patient. Objective assessment of the severity of the physical problem was based on seven characteristics that have been shown to be the most important physical determinants of disability in chronic backache—namely, anatomical and time patterns of pain, lumbar flexion, straight leg raising, signs of root compression, previous lumbar surgery, and previous spinal fractures.[2 7]

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Psychological disturbances in chronic backache can be observed as distress and illness behaviour.[8-10] Distress is an emotional disturbance caused by stress and characterised by a variable combination of anxiety, increased bodily awareness, and depression.[10 11] Anxiety is more apparent in acute pain, depression in chronic pain.[11] Distress was assessed in this study by questionnaires measuring increased bodily awareness (the Modified Somatic Perception Questionnaire[12]) and depressive symptoms (the Zung Depression Scale[13]). Clinical observation of illness behaviour was most simply illustrated by the pain drawing.[14] Patients willingly recorded the anatomical pattern of their pain on an outline of a body but the way in which they drew the pain was strongly influenced by distress (fig 1). The description of pain thus provides both physical information about the pain and psychological information about the patient's response to it. Similarly, inappropriate descriptions of symptoms and inappropriate responses to physical examination in chronic backache have been shown to be clearly separable from the standard symptoms and signs of physical disease (table I) and to be closely related to distress.[10 15] In the present study illness behaviour was assessed by the pain drawing and by these inappropriate symptoms and signs.

The relation between treatment and illness behaviour was analysed by comparing the scores for previous treatment in patients with varying amounts of illness behaviour and by calculating Pearson correlation coefficients between the score for treatment and each measure of distress and illness behaviour. A series of multivariate analyses was then used to confirm the quantitative relation between the treatment score and each physical and behavioural characteristic.[16] (Details of the statistical analysis are available from GW.)

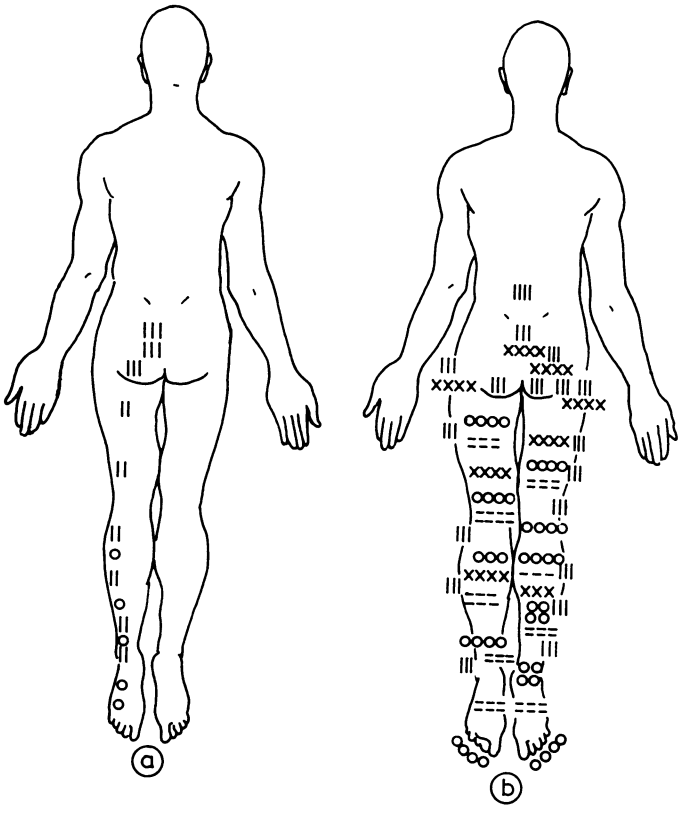

FIG 1—Pain drawing.[14] Patient A describes the physical pattern of S1 sciatica from a disc prolapse. Patient B with simple backache is communicating distress. Many patients do both to varying degrees. (II = pain; O = pins and needles; X = ache; and = = = numbness.)

TABLE I—*Comparison of symptoms and signs of physical disease and inappropriate illness behaviour in chronic backache*

	Physical disease	Inappropriate illness behaviour
Symptoms[10]:		
Pain	Localised	Tailbone pain Whole leg pain
Numbness	Dermatomal	Whole leg numbness
Weakness	Myotomal	Whole leg giving way
Time pattern	Variable	No intervals free of pain
Response to treatment	Variable benefit	Intolerance of treatment Emergency admissions
Signs[15]:		
Tenderness	Localised	Superficial, widespread, non-anatomical
Simulated rotation	No pain	Pain
Simulated axial loading	No pain	Pain
Raising straight leg	No change on distraction	Improves with distraction
Sensory	Dermatomal	Regional
Motor	Myotomal	Regional
General reaction	Appropriate pain	Over reaction (crying out, facial expression, muscle tension, sweating, collapsing)

Results

Patients showing little inappropriate illness behaviour had a mean score of 3·5 for total treatment, whereas patients showing a moderate amount of inappropriate illness behaviour had a mean score of 4·9 and those showing a large amount had a mean score of 7·1. Thus patients showing a large amount of inappropriate illness behaviour had received significantly more treatment ($p<0·001$). Correlation coefficients between the score for treatment and each measure of illness behaviour (increased bodily awareness, depression, pain drawing, inappropriate symptoms, and inappropriate signs) ranged from 0·23-0·53. The multivariate analysis (table II) confirmed that in a poorly understood condition such as backache the amount of treatment received was influenced more by the patient's distress and illness behaviour than by the severity of the physical problem. It should be noted that distress and illness behaviour were not the actual clinical or conscious indications for treatment but rather those features of the illness that, in retrospect and possibly even unrecognised by the patient or clinician, influenced the amount of treatment received.

TABLE II—*Multiple regression analysis of scores for treatment, showing that, even after every allowance had been made for physical factors, distress and illness behaviour were the most powerful influences on amount of treatment received for backache*

Identifiable influences	Extent to which these account for the amount of treatment received (%)
Duration of symptoms	14·0
Physical impairment	11·3
Psychological distress	9·3
Illness behaviour	15·2
Total variance identified*	49·8

*With imprecise clinical measurement it is unusual to be able to identify and measure as much as 50% of a biological relation.

Discussion

Since Pasteur suggested that infectious disease was caused by microbes[17] and Virchow expressed the concept of cellular pathology,[18] the past century of advance in western medicine has been based on a disease approach to illness. We start by recognising patterns of illness behaviour as symptoms and signs, and from these we infer the underlying disorder to reach a diagnosis. We then direct physical treatment to the underlying disorder and expect illness behaviour to improve as we achieve a cure.

The success of treatment has been shown—for example, in surgical treatment for disc prolapse[19]—to depend on the accuracy of diagnosis of the physical disease (table III). Conversely, several independent studies (including an unpublished investigation by Dzioba and Doxey presented to the American Academy of Orthopaedic Surgery, 1983) have shown that the success of any treatment for sciatica is inversely proportional to the degree of illness behaviour (table IV).[20-22] The present study suggests that both these findings reflect the accuracy—or lack of accuracy—of clinical assessment. When appropriate physical treatment is directed at clearly defined physical disease it is likely to be successful. If, however, a patient's distress and illness behaviour are not recognised they may be misinterpreted

TABLE III—*Importance of directing physical treatment to an accurate physical diagnosis. (Calculated from the data of Spangfort[19])*

Disc abnormality found at operation	Relief of sciatica obtained from surgery	
	Complete (%)	Partial (%)
Complete herniation	90	9
Incomplete herniation	82	16
"Bulging" disc	63	26
Normal disc	37	38

TABLE IV—*Outcome of physical treatment for sciatica related to pre-existing illness behaviour*

Treatment	Success rate of treatment in patients with:	
	No inappropriate signs (%)	Multiple inappropriate signs (%)
Chemonucleolysis for disc prolapse[10]	57	11
Patients treated by workmen's compensation board*:		
First lumbar surgery	78	48
Repeat lumbar surgery	65	38
Rehabilitation (unsuitable for surgery)	54	4
Laminectomy for disc prolapse (based on the pain drawing)[21]	94	28
Calcitonin for neurogenic claudication[22]	65	

*Dzioba and Doxey. Unpublished findings presented to the American Academy of Orthopaedic Surgery, 1983.

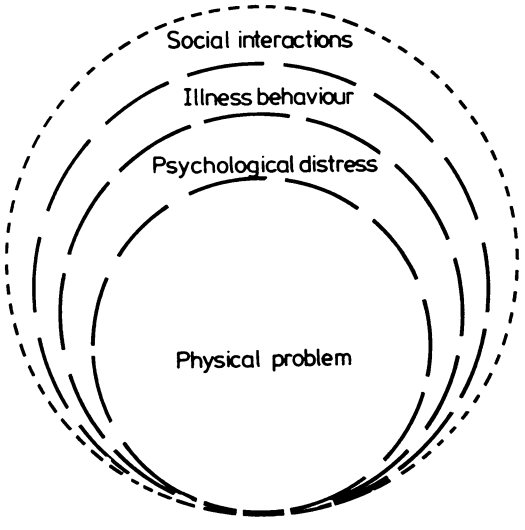

FIG 2—The Glasgow illness model. A diagrammatic representation emphasising that the outward expression of physical disease is illness behaviour and that the symptoms and signs of illness behaviour must be distinguished from those of physical disease. (Reproduced with permission from *Spine*.[10])

in terms of a hypothetical and unconfirmed physical diagnosis. If apparent severity and failure to respond to simpler treatments are then used to justify invasive or dangerous treatment such as surgery, that misdirected treatment is not only foredoomed to failure but may actually reinforce and aggravate the illness behaviour. The conclusion is simple: the symptoms and signs of illness behaviour must be distinguished from those of physical disease.

Medicine cannot confine itself to disease or abandon the patient in distress, and the doctor's role as healer cannot be separated from that as personal adviser and comforter in illness.[23] The present results do not dispute this but rather suggest that, if physical disease and illness behaviour are distinguished, physical treatment can be directed more effectively and safely to the physical disease while better understanding and assessment of illness behaviour can permit better management of the illness.

That medicine should treat the whole man has always been recognised (fig 2), and the hallmark of a good clinician is the ability both to diagnose disease and instinctively to assess the patient. Unfortunately, in practice, as the present results show, we cannot all match this standard, and it is a sad reflection that during the past century of advance the art of medicine has not kept pace with the science of disease. We know that a standard medical history and examination provide a wealth of information not only about the disease from which the patient is suffering but also about how that particular person is reacting to and coping with his or her illness. What is necessary now is to devote as much time and effort to the study and understanding of illness behaviour as we do at present to the investigation of physical disease. Only thus can we put the art of medicine on to a sound scientific basis.

The challenge facing medicine in the next century is to improve our treatment of patients to match our 20th century ability to treat disease. The principle is agreed; recognition and study of the symptoms and signs of illness behaviour should be the starting point to making it a reality in everyday practice.

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Is there any evidence that the use of vitamin B complex is beneficial in patients who are taking antibiotics for a short or a long time?

There is no evidence that the use of vitamin B complex is beneficial in patients who are taking antibiotics, short or long term. Tetracyclines do reduce the serum B_{12}, B_6, and pantothenic acid concentrations, and long term treatment might possibly cause vitamin deficiencies, particularly in the elderly.—C W H HAVARD, consultant physician, London.

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