Depression in rheumatoid disease

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In a disease in which the patient is continually subjected to pain and forced to face the probability of increasing deformity and handicap, the occurrence of a depressive reaction might be expected. (Symposium, 1968).

It has been suggested that many patients suffering from rheumatoid disease experience a depressive reaction which may materially impede progress and delay rehabilitation (Leading article, 1969).

Several studies reported in the literature deal with the psychological profiles and personality traits of patients suffering from rheumatoid arthritis.

Thus, Rimon (1969), in a detailed psychological study of 100 female outpatients suffering from rheumatoid arthritis, noted a depressive reaction in 29 during the investigation period.

In a psychological study by Robinson, Kirk, and Frye (1971) of patients with rheumatoid arthritis and selected controls with non-painful chronic diseases, it was found that patients with rheumatoid arthritis showed a higher incidence of 'anxiety and depression' when compared with the control subjects.

It has also been suggested that any person who suffers from a chronically painful and disabling disease is likely to demonstrate psychological reactions similar to those exhibited by the rheumatoid patients, *i.e.* 'conflicts in the expression of hostility' and more anxiety and depression. Some support for the plausibility of this 'pain hypothesis' was provided by a recent study by Robinson, Kirk, Frye, and Robertson (1972).

In another study (of personality, disease parameters, and medication in RA), Moldofsky and Rothman (1971) found that, in comparison with those who had never received oral corticosteroids, those who had received such drugs were found to be 'less persevering, more depressed, taciturn, complaintive and demanding, dependent and easily upset'.

The purpose of the present study has been:

- (1) To attempt to record the incidence and degree of mood disturbance that occurs in patients with rheumatoid disease.
- (2) Compare such incidence with that occurring in a control group of patients suffering from other chronic painful locomotor disorders.

- (3) To assess to what extent, if at all, parameters of disease activity influence the occurrence of such a reaction.
- (4) To quantify any change in mood after a period of hospitalization.

Method

The Beck Depression Inventory (BDI) was chosen as an index of mood disturbance well suited to the purposes of the present study (Beck, Ward, Mendelson, Mock, and Erbaugh, 1961). This is a self-assessment inventory designed to incorporate all symptom-complexes relevant to the depressive constellation of symptoms and at the same time providing for grading of the intensity of these symptoms. Although the limitations of any inventory used as a diagnostic instrument are recognized, the value of the BDI as a method of assessing the level of depression has been confirmed by a British study, the results of which agree with those of the original validation carried out in the United States (Metcalf and Goldman, 1965).

Scoring

The method of scoring the inventory was that used by Rimon (1969). With this method, the highest score (25 to 45) approximates to a clinical rating of 'moderate to severe' depression, the middle range (15 to 25) to 'mild to moderate', and the lowest (0 to 14) to 'no depression'. Symptom complexes, such as weight loss, loss of libido, and work inhibition likely to have been due largely to physical rather than psychological causes, were not scored.

Patients

Fifty unselected patients who fulfilled the A.R.A. criteria (Ropes, Bennett, Cobb, Jacox, and Jessar, 1959) for definite or classical rheumatoid arthritis were included in the study. They completed the inventory within 3 days of admission after the purpose of the assessment had been clearly explained to them. 26 patients of this group agreed to complete the inventory again at the time of their discharge from hospital.

The control group consisted of 32 patients suffering from a variety of painful non-inflammatory disorders of the locomotor system admitted to the same unit. These had failed to respond to treatment by their general practitioner and/or outpatient therapy, and were subsequently admitted for inpatient therapy. They were likely, therefore, to have had persistent discomfort and pain before admission, thus constituting a reasonably comparable disease entity to the rheumatoid group of patients. The group included nine patients with osteoarthritis and 23 with chronic backache and/or sciatica.

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The two groups were matched for age and sex, the majority of patients in both groups being aged between 40 and 59 years (78 per cent. of those with rheumatoid disease, and 75 per cent. of the control subjects), the mean age being 53.7 and 50.5 years respectively. Fourteen of the fifty rheumatoid patients were male (28 per cent.) and 36 female (72 per cent.). In the control group there were ten male (31.2 per cent.) and 22 female patients (68.8 per cent.). The mean duration of disease was longer in the rheumatoid group than in the controls, *i.e.* 11 and 4.6 years respectively. This disparity did not prove to be important as will be shown later in the analysis of the results. An estimate of disease severity was obtained by consideration of erythrocyte sedimentation rate, presence or absence of rheumatoid factor, nodules, erosions, and functional grading, using a modified Steinbrocker disability grading (see Appendix, p. 135).

FIG. 1 Distribution of BDI scores in RA patients and controls

Results

Fig. 1 shows the distribution of the BDI scores in the two groups. The mean BDI score of the rheumatoid group as a whole was 15.0, whilst that of the control group was 10.9. There was evidence of mood disturbance in 23 patients (46 per cent.) with rheumatoid disease, compared with six in the control group (18.7 per cent.), this difference being significant at the

5 per cent. level (Table I). Of these, fifteen (30 per cent.) were 'mildly to moderately' depressed, and eight (16 per cent.) were 'moderately to severely' depressed, while in the control group, four patients were 'mildly' depressed (12.5 per cent.) and only two (6.25 per cent.) 'severely' depressed.

Table I Incidence of depression

Score	RA		Controls	
	No.	Per cent.	No.	Per cent.
0-14	27	54	26	81.25
15-24	15	30	4	12.5
25-45	8	16	2	6.25

* $P < 0.05$.

No significant correlation was found between the inventory score on the one hand, and age, sex, severity of disease, duration of disease (Tables II and III, overleaf), or steroid therapy. However, it became apparent that, where depression was present, it occurred earlier in the course of the disease in males and later in the course of the disease in female patients within the rheumatoid group.

Analysis of results of the 26 rheumatoid patients who completed BDI again on discharge from hospital

The 26 patients who were asked to complete the inventory a second time immediately before discharge were unselected and consisted of nine men (34.6 per cent.) and seventeen women (65.4 per cent.). There was, as it happened, a very comparable incidence of mood disturbance amongst these patients (46.2 per cent.) and the whole group of fifty rheumatoid patients, with mean scores on admission of 16.6 and 15.0 respectively. It was felt, therefore, that the 26 patients were representative of the whole group.

An analysis of the BDI scores of these 26 patients on discharge (Fig. 2, overleaf) revealed that a highly significant improvement in their score ($P < 0.001$) had taken place during their period of inpatient therapy, the reduction in score being greater in those with higher scores on admission (Table IV, overleaf).

Effect of therapy

In addition to treatment directed towards their arthritis, five of these patients received antidepressant drugs, eight received tranquillizers, and thirteen received no psychotropic drugs. When the BDI scores of these patients were analysed (Table V) after they had been discharged, the following facts emerged:

- (1) A reduction in score was apparent irrespective of whether psychotropic medication had been employed or not.

Table II *Incidence of depression v. age, sex distribution, duration of disease, and steroid therapy*

Patients	Age (yrs)	Sex		Mean duration of disease (yrs)			Steroid therapy (no. of patients)	
		Male	Female	All	Male	Female	Yes	No
Depressed	54.0	7	16	10.8	7.7*	12.1	10	13
Non-depressed	53.4	7	20	11.1	11.4	11.0	10	17

* Not significant.

Table III *Incidence of depression v. disease severity (ESR, presence or absence of rheumatoid factor, nodules, erosions, and functional grading)*

Patients	Mean ESR (Westergren)	Serology		Nodules		Erosions		Functional grading (mean score)	
		Positive	Negative	Present	Absent	Present	Absent	Grade I and II	Grade III and IV
All	47	32	18	22	28	45	5	26	24
Depressed (23)	49	13	10	10	13	20	3	11 (22.7)	12 (23.3)
Non-depressed (27)	45	19	8	12	15	25	2	15 (7.9)	12 (8.6)

Table IV *Reduction of BDI score at time of discharge*

Patients	No. of patients	Mean score	
		Admission	Discharge
All	26	16.65	10.00*
Depressed Total	12	24.91	13.25
Severely	5	32.4	16.2
Mildly	7	19.57	11.14
Non-depressed	14	9.57	7.21

* $P < 0.001$.**Table V** *BDI scores in 26 patients on admission and discharge and psychotropic medication*

Therapy (26 patients)	Mean score	
	Admission	Discharge
No psychotropic drugs (13)	13.7	8
Tranquillizers (8)	16.25	9
Anti-depressants (5)	25	17

- (2) The clinical assessment of the psychological state of these patients at the time of their admission to hospital, and the decision regarding the need for psychotropic medication, showed a good correlation with the BDI scores.

Discussion

The occurrence of a depressive reaction in patients suffering from rheumatoid arthritis is not an unexpected result of the persistent pain and disability, and one that common sense would predict (Robinson and others, 1972). The increased incidence of such a reaction noted in the rheumatoid group of patients as compared to those with other painful locomotor disorders, might be attributed to the systemic nature of rheumatoid disease, the greater persistence of pain

and disability, or constant uncertainty about what the future might hold. All these factors constitute a pattern of constantly changing adjustment, a demand specific to rheumatoid disease (Robinson and others, 1972).

Rimón (1969) found a somewhat lower incidence of depression (29 per cent.) among 100 female patients suffering from rheumatoid arthritis attending an outpatient clinic, than was observed in the present investigation. Of the depressed patients in his study, 52 per cent. had shown psychopathological symptoms during their lives, and it may be that a predisposing personality defect determines which patients become depressed when subjected to the stresses of a chronic often painful disease. Certainly the present study was not able to show any correlation with disease severity or duration.

FIG. 2 BDI scores of 26 RA patients on admission and on discharge from hospital

Although a high quality of clinical management is in itself good psychotherapy (Leading article, 1969), the need of the patient for constant reassurance should not be overlooked, since apprehension for the future may be a possible cause for continuing anxiety and depression.

Summary

When fifty patients with rheumatoid arthritis were compared with 32 patients with other chronic painful non-inflammatory skeletal diseases, it was found that there was a significant excess of mood disturbance and depressive reactions amongst the patients with rheumatoid arthritis as assessed by the Beck Depression Inventory (BDI). No correlation with age, sex, duration of disease, disability grading, disease severity, or steroid therapy was seen. Hospitalization, irrespective of whether psychotropic drugs were used or not, had a beneficial effect on the depressed patients with rheumatoid arthritis.

The fact that there was good correlation between the BDI scores and the clinical impression of the psychological state of these patients appears to confirm the reputation of the BDI as a simple and reliable means of assessment of the level of depression.

Appendix Disability grading used at the Hume Kendall Unit. Modified from Steinbrocker and others (1949)

Grade 0	Full mobility—freedom from disability
Grade 1	Able to carry out usual occupation, but with minimal symptoms
Grade 2	Able to carry out usual occupation, but with considerable symptoms
Grade 3	Not able to carry on usual occupation with or without partial dependence
Grade 4	Total dependence

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