

Depressive symptoms in Parkinson patients referred for thalamotomy

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An association between the Parkinson syndrome and depression was noted by Parant as early as 1881; this finding has been repeated subsequently by a number of workers (Wilson, 1921; Patrick and Levy, 1922; Hall, 1924; von Economo, 1931; Harris and Cooper, 1937; Schwab and England, 1958; Billenkamp, 1959). Nevertheless, the nature of the association appears to have aroused less interest and has remained obscure, particularly when it is remembered that the syndrome makes its major impact in the second half of life, a period of increasing susceptibility to depressive reactions arising from a variety of external causes such as poverty and social isolation. Information available is frequently conflicting, few studies have been adequate in size, and little use has been made of a control population. Furthermore, as far as the present author can ascertain, none of the results obtained have been subjected to any form of quantitative analysis.

Recent developments in the treatment of the syndrome have made an accurate assessment of the patient's psychological state an important procedure. The present study was undertaken in the hope of establishing at least one baseline from which such an assessment could be made. It sought to explore the association, first by comparing the incidence of depressive symptoms occurring in the syndrome with that occurring in a control population, and secondly, by examining the relationship between the depressive symptoms and certain variable factors, namely, the age of the patient at interview; the age of the patient at the onset of the disease process; the duration of the illness; the severity of the patient's physical handicap; and the vulnerability of the patient to stress as measured by his score for neuroticism on the Maudsley personality inventory.

METHOD

One hundred and forty Parkinson patients referred for thalamotomy and 140 control patients were matched for age and sex and examined clinically according to the method outlined by Mayer-Gross, Slater, and Roth (1960).

The control patients were drawn from five general hospitals within the Birmingham region and were suffering from a variety of medical, surgical, or gynaecological conditions. No attempt at selection was made, over 30 different diagnostic entities being recorded. However, no patient interviewed was in pain at the time of examination nor was any patient interviewed when in the terminal stages of an illness.

Following examination the Parkinson patients were asked to complete the Maudsley personality inventory.

CLASSIFICATION OF DEPRESSIVE SYMPTOMS The depressive symptoms encountered in both patient groups were then classified into one of three degrees of severity thus:

First degree Fleeting symptoms of depression experienced within a month of interview. Never lasting more than a few hours and being dispelled by undertaking some activity. Not severe enough to interfere with the patient's life in general.

Second degree A sustained feeling of depression present for weeks or months before interview. Severe enough to prevent the patient making a realistic adjustment to his illness but never reaching the point of suicidal contemplation.

Third degree A sustained feeling of depression severe enough for the patient to contemplate suicide and warranting psychiatric treatment at the time of interview.

CLASSIFICATION OF PHYSICAL HANDICAP Finally, the physical handicap exhibited by each Parkinson patient was assessed according to one of the following three degrees of severity:

First degree Minimal disability. No restriction of normal activity beyond difficulty with fine work such as sewing or writing. Symptoms unilateral. Gait unaffected.

Second degree Moderate disability. Symptoms bilateral but worse on one side. Obvious disturbance of gait. Parkinson facies. Difficulty with numerous tasks such as buttoning clothing, tying shoe laces, handling crockery and cutlery. Normal work performed with increasing difficulty.

Third degree Severe bilateral disability. Marked disturbance of gait. Patient unable to walk unaided. Help needed with bathing and toilet. Marked autonomic disturbance. In particular, hypersalivation troublesome.

RESULTS

The age and sex distribution of the patients exam-

ined is shown in Table I. The Parkinson sample was comparable in size, age range, and sex distribution with that reported by Patrick and Levy (1922), Diller and Riklan (1956), and Riklan, Weiner, and Diller (1959), which appeared to furnish some evidence that it was representative of the Parkinson population within the community. The ages of the Parkinson patients at the onset of the disease ranged from 10 to 69 years, the mean age of onset being 46 years in both sexes. The duration of the Parkinson disease process ranged from one to 49 years, the mean duration being nine years in the male and 10 years in the female.

TABLE I

THE AGE AND SEX DISTRIBUTION OF BOTH PATIENT GROUPS

Age in Years at Examination	Male	Female
30-34	—	1
35-39	—	1
40-44	5	4
45-49	7	6
50-54	15	13
55-59	23	17
60-64	8	13
65-69	15	9
70-74	2	1
Totals	75	65
Mean ages	57	56

TABLE II

DEPRESSIVE SYMPTOMS ACCORDING TO DEGREE OF SEVERITY IN MALE PARKINSON AND CONTROL PATIENTS

Group	Degree of Depression				Total
	0	1	2	3	
Male Parkinson	33 (44%)	3 (4%)	34 (46%)	5 (6%)	75
Male control	58 (77%)	16 (22%)	1 (1%)	—	75
$\chi^2 = 51.9$	Df. 3	P < 0.01 significant			

TABLE III

DEPRESSIVE SYMPTOMS ACCORDING TO DEGREE OF SEVERITY IN FEMALE PARKINSON AND CONTROL PATIENTS

Group	Degree of Depression				Total
	0	1	2	3	
Female Parkinson	19 (29%)	7 (11%)	27 (42%)	12 (18%)	65
Female control	33 (53%)	25 (36%)	7 (11%)	—	65
$\chi^2 = 37.6$	Df. 3	P < 0.01 significant			

Within the Parkinson group the mean score for neuroticism and the standard deviation from that score were not significantly different from those reported by Eysenk (1959) for a normal population:

Parkinson group, mean 'N' score 22.4 (S.D. 10.86); normal population, mean 'N' score 19.89 (S.D. 11.02).

The extent and severity of the depressive symptoms exhibited by both patient groups is outlined in Tables II and III.

The incidence of depressive symptoms in the Parkinson group was significantly higher than in the control group, both for male and female patients.

The severity of the physical handicap exhibited by the Parkinson patient is outlined in Table IV.

TABLE IV
THE PHYSICAL HANDICAP ACCORDING TO DEGREE OF SEVERITY IN PARKINSON PATIENTS
Degree of Severity

	First	Second	Third
Male	16	45	14
Female	6	29	30
Totals	22	74	44

Within the Parkinson group a significantly higher incidence of depression was noted in the female patients (Table V), although examination of the depressive symptoms in relation to the age of the patient at interview, his age at the onset of the disease process, the duration of his illness, and the degree of his physical handicap failed to reveal any relationship which could not have arisen by chance alone. However, examination of the

TABLE V

INCIDENCE OF DEPRESSIVE SYMPTOMS IN MALE AND FEMALE PARKINSON PATIENTS
Degree of Depression

	0	1	2	3	Total
Male	33 (44%)	3 (5%)	34 (45%)	5 (6%)	75
Female	19 (29%)	7 (11%)	27 (42%)	12 (18%)	65
$\chi^2 = 11.48$	Df. 3	P < 0.01 significant			

TABLE VI

RELATIONSHIP BETWEEN 'N' SCORE ON MAUDSLEY PERSONALITY INVENTORY AND THE DEPRESSIVE SYMPTOMS IN MALE AND FEMALE PARKINSON PATIENTS COMBINED

N Score	No. Not Depressed	No. Depressed	Total
4-17	36	10	46
18-30	19	21	50
31-42	—	44	44
$\chi^2 = 56.9$	Df. 2	P < 0.01 significant	

depressive symptoms in relation to the patient's score for neuroticism on the Maudsley personality inventory showed the incidence of depression to be higher in those patients scoring within the neurotic range of the scale. This difference proved to be statistically significant (Table VI).

CONCLUSION

The study demonstrated that the association between the Parkinson syndrome and depression was higher than that which could have arisen by chance. The lack of a significant relationship between the depressive symptoms, the age of the patient, and the duration and severity of his illness suggested that depression was not an integral part of the disease process. The relationship between the depressive symptoms and the patient's score for neuroticism suggested that the disease process was a continued source of stress to which the vulnerable patient reacted adversely. This adverse reaction appeared to be commoner in women.

SUMMARY

One hundred and forty Parkinson patients referred for thalamotomy and 140 control patients were examined psychiatrically. The incidence of depression was found to be significantly higher in the Parkinson group. It was also noted to be significantly higher in the female patient. It was found to be unrelated

to the age of the patient or the duration and severity of the Parkinson disease process.

A statistically significant relationship was found between the incidence of depression and the patient's vulnerability to stress. It is suggested that the Parkinson disease process is a continuing stress to which the vulnerable patient reacts adversely.

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REFERENCES

- Billenkamp, K. (1959). Untersuchungen zur Psychologie des Parkinsonismus. *Arch. Psychiat. Nervenkr.*, **198**, 673-686.
- Diller, L., and Riklan, M. (1956). Psychosocial factors in Parkinson's disease. *J. Amer. geriat. Soc.*, **4**, 1291-1300.
- Eysenck, H. (1959). *Manual of the Maudsley Personality Inventory*, University of London Press, London.
- Harris, J. S., and Cooper, H. A. (1937). Late results of encephalitis lethargica. *Med. Press*, **194**, 12-14.
- Mayer-Gross, W., Slater, E., and Roth, M. (1960). *Clinical Psychiatry*, 2nd ed. Cassell, London.
- Parant, (1881). *Ann. méd-Psychol.*, quoted by Mjönes, H. (1949). In *Paralysis Agitans. (Acta psychiat. neurol., suppl. 54.)* Munksgaard, Copenhagen.
- Patrick, H. T., and Levy, D. M. (1922). Parkinson's disease. A clinical study of 146 cases. *Arch. Neurol. Psychiat. (Chic.)*, **7**, 711-720.
- Riklan, M., Weiner, H., and Diller, L. (1959). Somato-psychologic studies in Parkinson's disease. *J. nerv. ment. Dis.*, **129**, 263-272.
- Schwab, R. S., and England, A. C. (1958). Parkinson's disease. *J. chron. Dis.*, **8**, 488-509.
- Economo, C. von. (1931). *Encephalitis Lethargica. Its Sequelae and Treatment*, trans. K. O. Newman. Oxford University Press, London.
- Wilson, S. A. Kinnier (1921). In *The Oxford Medicine*, Vol. 6: *Diseases of the Central Nervous System*, ed. H. A. Christian and J. Mackenzie. Oxford University Press, New York.