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DEPRESSION IN WILSON'S DISEASE

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SUMMARY

This study comprise of 23 patients of Wilson's Disease, who were assessed individually by a psychiatrist and neurologist separately. Clinically discernable psychiatric symptoms were detected in 11 patients. Depressed affect was the commonest finding in the series. While four out of five young patients showed depressive symptomatology, none of the six patients showed any depression. All four patients who had severely depressed affect were also patients who had most severe extrapyramidal features.

In his original monograph, Wilson (1912) mentioned some degree of mental change or impairment in eight out of twelve cases of Wilson's disease (heapato lenticular degeneration). Since then, this disease has been reported to be associated with various psychiatric features like mood swings, cognitive deficit, and schizophreniform psychosis (Cytryn & Lourie, 1975 ; Martin, 1975), pathological emotionality (Ishino *et al.*, 1972) and deficits in primary mental function coupled with paranoid delusions and suicidal ideas antedating neurological symptoms (Manchanda and Agnihotri, 1979). Paranoid schizophreniform psychosis voyeuristic compulsions with suicidal attempt, psychotic depression, homicidal behaviour, impulsivity (Scheinberg, 1976) and alternating cycles of mania and depression (Scheinberg *et al.*, 1968) are also reported.

In the series of Goldstein *et al.* (1968) out of 22 cases of Wilson's disease, nine patients had psychiatric symptoms and prior to detection of Wilson's disease, had been variously diagnosed as hysterical personality (one case), confusional state (one case), schizoid personality (one case), mixed psychoneurosis (one case), mental retardation with psychosis (one case), mixed psychoneurosis with hysterical and depressive reaction (two cases). In the series of Walshe (1976), out of 112 cases four were actually admitted to Mental Hospitals with the provisional diagnosis of schizophrenia, seven were referred to psychiatric clinics suspecting functional illness, and ten patients at some stage required psychiatric treatment.

In about 40% of symptomatic cases liver is the initial source of initiation of clinical symptoms. In 30-40% cases the neurological signs are first noted whereas neurotic, psychotic or bizarre behavioural disorder may herald the onset in about 25% of cases (Scheinberg *et al.*. 1968).

In 49 cases of Wilson's disease studied by Schienberg (1976), 30 patients had significant psychiatric disturbances and 9 were classified as psychotic.

It is quite apparent from the aforesaid brief review of literature that

(1) Psychiatric symptoms are often associated with Wilson's disease.
(2) These psychiatric symptoms may precede neurological symptoms or may develop at some stage during

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the course of the disease.

(3) Because of these psychiatric manifestations, cases of Wilson's disease may be referred, misdiagnosed and treated as primary functional psychiatric states.

These facts together with the observations that in most patients penicillamine favourably affects hepatic and neurological functions (Walsche, 1976) and also their psychiatric symptoms (Goldstein *et al.*, 1968), Scheinberg *et al.*, 1968) make it all the more necessary for the psychiatrists to be aware of the existence of this disease. This brief report focusses on the psychiatric symptoms observed in a group of patients belonging to Wilson's disease.

MATERIAL AND METHOD

The sample of the present study comprised of patients of Wilson's disease admitted in Department of Neurology, National Institute of Mental Health and Neuro-Sciences, Bangalore, during the past 10 years (1969 to 1979). The clinical diagnosis of Wilson's disease was confirmed in all these cases by demonstration of Kayser-Fleischer rings and with relevant biochemical investigations. A detailed mental status examination was done by a psychiatrist in all the cases. The clinical rating of extrapyramidal features, pyramidal features, cerebellar features, hepatomegaly, splenomegaly and systemic features was rated as mild, moderate, or severe by a neurologist. The present study focusess on the patients with clinically discernable psychiatric symptoms.

OBSERVATIONS

As shown in Table 1, psychiatric symptoms were detected in eleven out of the total twenty-three cases of Wilson's disease. The psychiatric symptoms included

TABLE 1—*Summary of Patients of Wilson's Disease with Psychiatric Symptoms*

Case	Age of Onset (in yrs.)	Age at diagnosis & psychiatric evaluation (yrs.)	Extrapyramidal features	Psychiatric Symptoms
1	10.5	11	+++	Depressed affect, ideas of hopelessness.
2	4.5	5	+++	Depressed affect, weeping spells, psychomotor retardation.
3	22	25	+	Prerseveration.
4	29	33	+	Disorientation to time & place, intellectual decline.
5	37	46	++	Confabulation, delusion of persecution, memory impairment, intellectual decline.
6	22	28	+	Impaired recent memory.
7	15	17	+++	Anxious affect, restlessness.
8	14	15	+++	Severe depression, feelings of guilt.
9	12	13	+++	Severe depression, psychomotor retardation.
10	29	32	+	Circumstantiality.
11	27	29	+	Withdrawal & neglect of personal hygiene.

+ Mild, ++ Moderate, +++ Severe

depressed affect (4 cases), ideas of hopelessness (one case), weeping spells (one case), marked psychomotor retardation (2 cases), disorientation (1 case), memory deficit and intellectual deterioration (2 cases), feelings of guilt (1 case), perseveration (1 case) circumstantiality (1 case), delusions of persecution (1 case), anxious affect (1 case), restlessness (1 case) and withdrawn behaviour with neglect of personal hygiene (1 case).

Depressed affect was the commonest finding noted and this becomes still more significant when it is considered that a parkinsonian facies masking all affect was present in many of the cases.

Two other interesting findings emerged in relation to the depressed affect and depressive symptomatology.

(1) Out of total five young patients (below 20 years of age), four patients had depressed affect and depressive symptomatology and one had anxious affect with restlessness, whereas none of the six other patients (above 20 years of age) showed any depressive symptomatology ($p<0.05$).

(2) All the four patients who had severely depressed affect were also the patients who had severe extrapyramidal features ($p<0.05$).

As far as the symptoms suggestive of organic brain dysfunction observed in some of the patients, we felt that a neuropsychological testing could have added to the accuracy of ratings. However, this was not possible in all patients due to some reasons.

COMMENTS

It is not possible at this stage to explain why depressive symptomatology was confined to the young patients of Wilson's disease ($p<0.05$). While the mask like facies of Parkinsonism may interfere with accurate objective judgment of affect, it is unlikely that it can interfere with judgment of depressive ideational content and even the latter was confined only to younger patients.

The genesis of depression in Wilson's disease can be a reaction to a chronic illness. However, the association of depression with extrapyramidal symptoms can be explained at a biochemical level implicating dopamine. Wilson's disease has also been hypothesized to be causing a breakdown of sodium pump mechanism due to erythrocyte ATPase inhibition which leads to haemolysis in Wilson's disease (Walshe, 1972). In depression also an increase in residual sodium returning to normal after recovery has been found and there is suggestive evidence that there may be a dysfunction of sodium pump (Cohen, 1975). Thus depression in these patients may be attributable to breakdown of sodium pump in Wilson's disease. Such explanations, however, need further investigation for conclusion.

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