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The Nithsdale Schizophrenia Survey: II. Abnormal Movements

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Summary: In a review of all known schizophrenics (n = 133) from a discrete geographical area, Nithsdale in Dumfries and Galloway Region, 88 per cent were examined for evidence of tardive dyskinesia (TD) and parkinsonism. The prevalence of both TD and parkinsonism was 31 per cent. The TD group was older and more often showed negative schizophrenic symptoms than the non-TD group. The trend was towards a higher prevalence among in-patients and Feighner positive schizophrenics. Parkinsonism was common in patients receiving anti-parkinsonian drugs. Ten per cent of patients had both TD and parkinsonism. The findings will act as a baseline for regular reassessment of the population.

Tardive dyskinesia (TD) is now widely believed to be an important side effect of neuroleptics (Anonymous, *Lancet*, 1979) which are used especially in the treatment of schizophrenia. In a recent comprehensive review (Jeste and Wyatt, 1981) the prevalence of TD among chronically ill neuroleptic-treated adult psychiatric in-patients was estimated at 25.7 per cent from studies published between 1976 and 1980. However, due to the impact of community care, in-patients probably now form a small atypical group of schizophrenics (McCreadie, 1982). To assess the magnitude of the problem, community reviews would be more valuable. Out-patient studies of TD in schizophrenia are very few; such studies suggest a prevalence of 30–40 per cent (Chouinard *et al*, 1979; Smith *et al*, 1979; Ezrin-Waters *et al*, 1981).

Parkinsonism, the other principal side effect of neuroleptics, has been recognized for many years but has recently attracted little attention. One study (Johnson, 1978) found the three-monthly prevalence of parkinsonism in patients treated with depot neuroleptics to be 24–29 per cent.

To further our knowledge about prevalence rates for both these movement disorders and to obtain a baseline for follow-up studies, a review of such side-effects in the vast majority of all known schizophrenics, including in-patients, from a discrete geographical area has been carried out.

Method

The geographical area from which the patients were drawn, Nithsdale in Dumfries and Galloway Region, the identification of such patients, and the social, demographic and clinical information obtained have been described elsewhere (McCreadie, 1982). There were 133 schizophrenics, of whom 28 per cent were in-patients, 17 per cent day patients and 32 per cent out-patients; 23 per cent were attending only their general practitioner. All in-patients, day patients and out-patients, and 46 per cent of general practice patients (n = 117, 88 per cent of the total population) were examined for evidence of TD using the Abnormal Involuntary Movements Scale (AIMS) (US Department of Health, Education and Welfare, 1976) and of parkinsonism, using the Targeting Abnormal Kinetic Effects (TAKE) scale (Wojcik *et al*, 1980); both examine individual areas of the body, following which a global assessment is made. The assessments were made during a four-week period by three psychiatrists who took part in several practice sessions before the study began. Forty-one per cent of the subjects were examined independently by different combinations of two of the three psychiatrists to assess inter-rater agreement.

Of those examined, 20 per cent were not currently receiving neuroleptics, but in only seven patients (6 per cent) was there no record of such drugs being prescribed in the past. Thirty-three per cent were receiving anti-parkinsonian drugs. No attempt was made to assess for how long patients had received neuroleptics or how much had been prescribed throughout the course of the illness; such information would probably have been inaccurate, especially for out-patients and patients attending only their general practitioner.

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Differences between groups were tested by the chi-square test (two-tailed tests throughout).

Results

Inter-rater agreement on the five-point global scales (0 = none to 4 = severe) was complete or partial (a difference of only one point) in 90 per cent of assessments for TD and 94 per cent for parkinsonism.

Tardive dyskinesia

The prevalence and severity of TD as shown by the global and individual scales are given in Table I. If patients with at least a rating of 'mild' on the global scale are considered to have definite TD, then the prevalence is 31 per cent. The areas affected most were the lips, jaw and tongue.

When patients with and without definite TD were compared on the basis of demographic, social and clinical data only the following statistically significant differences were found. Patients with TD were older ($P < 0.001$), had been ill longer ($P < 0.02$) and spent a longer time as in-patients ($P < 0.02$). These three factors are no doubt intimately related. More of them showed flattening of affect ($P < 0.05$), were socially withdrawn ($P < 0.05$) and needed supervision of their personal appearance ($P < 0.05$). Trends, which failed to reach statistical significance, were that TD was more common in in-patients than in other groups (45 per cent versus 25 per cent), and in Feighner positive (Feighner *et al*, 1972) than Feighner negative schizophrenics (38 per cent versus 13 per cent).

Parkinsonism

The prevalence and severity of parkinsonism are shown in Table II. When a rating of at least 'mild' on the global severity scale is taken as evidence of definite parkinsonism the prevalence is 31 per cent. Prevalence rates for bradykinesia, rigidity and tremor were broadly similar. When patients with and without definite parkinsonism were compared the only statistically significant difference was that patients with parkinsonism were aware of such side effects ($P < 0.001$).

Twelve patients (33 per cent of both the TD and parkinsonism groups) had symptoms of at least mild TD and parkinsonism. This proportion was similar to that found in the parent group.

Among variables which did not help to differentiate patients with either TD or parkinsonism from others were the patient's sex and current neuroleptic or anti-parkinsonian medication. Thirty-eight per cent of patients receiving anti-parkinsonian drugs had parkinsonism. Seven patients with TD and six with parkinsonism were not receiving neuroleptics; the mean age of the TD group was 75 years, the parkinsonian group 76 years. There was no record of two

TABLE I

Percentage of patients showing tardive dyskinesia (n = 117)

	Absent	Doubtful	Mild	Moderate	Severe
Global rating	48	21	26	4	1
Face	92	4	4	0	0
Lips	69	14	16	1	0
Jaw	71	15	10	4	0
Tongue	67	14	18	1	0
Upper limbs	84	7	8	0	1
Lower limbs	85	9	6	0	0
Trunk	94	2	3	1	0

TABLE II

Percentage of patients showing Parkinsonism (n = 117)

	Absent	Doubtful	Mild	Moderate	Severe
Global rating	39	30	29	2	0
Bradykinesia	54	17	27	2	0
Rigidity	68	11	20	1	0
Tremor	62	15	21	2	0
Akathisia	96	2	2	0	0
Autonomic symptoms (e.g. salivation)	92	4	4	0	0

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patients in the TD group and four in the parkinsonian group ever having received neuroleptics.

Discussion

Although the prevalence figure we obtained for tardive dyskinesia, 31 per cent, compares broadly with findings in other studies, the plethora of rating scales used to assess TD (Gardos *et al*, 1977) makes an accurate comparison impossible. In the present study, patients with tardive dyskinesia include those with withdrawal dyskinesia and those with spontaneous non-drug-related dyskinesia, estimated to be present in one quarter of patients with persistent dyskinesia (Jeste and Wyatt, 1981). Spontaneous dyskinesia is said to be more common in the aged, and it is noteworthy that the mean age of patients in the present study with TD, but not currently receiving neuroleptics, was 75 years.

The findings that the prevalence of TD in in-patients tended to be higher than in other groups suggests that the examination of only in-patients may paint an unduly pessimistic picture. The difference in prevalence rates is probably due to the fact that in-patients are significantly older (McCreadie, 1982); advancing age is one of the few factors shown consistently to produce an increased risk of TD (Smith and Baldessarini, 1980). Also, in-patients are more disabled in terms of the negative symptoms of schizophrenia such as flattening of affect (McCreadie, 1982) which, in turn, were more commonly found in patients with TD. This association between TD and negative schizophrenic symptoms has been reported previously where the factors of age and sex were controlled (Ital *et al*, 1981). The patients with prominent negative symptoms belong to the Type 2 syndrome of schizophrenia (Crow, 1980) where organic brain damage may be an important aetiological factor. Perhaps these patients run a greater risk of developing TD.

The trend towards TD being more common in Feighner positive than in Feighner negative schizophrenics may also be due to the fact that the former were older and had been ill longer (McCreadie, 1982).

Parkinsonism was common in patients receiving anti-parkinsonian drugs. The value of such medication given continuously to patients receiving neuroleptics has long been questioned (Mindham *et al*, 1972). It may be, of course, that the prevalence and severity of parkinsonism would have been even greater if the patients had not been receiving such drugs. Also, parkinsonism was found in a small number of aged patients (average age 76 years) not receiving neuroleptics. It is possible some of these patients had developed idiopathic parkinsonism.

In a small group of patients, parkinsonism and TD co-existed. If parkinsonism is due to dopamine receptor blockade and TD to dopamine receptor supersensitivity (Marsden and Jenner, 1980) it is hard to understand how both conditions can exist in the same patient at the same time, unless the two processes are mediated through different dopamine systems.

The present study will act as a baseline for regular reassessment of the population. The members of the population will change as new patients develop the illness or move to Nithsdale, while others move away from the area or die. It will be valuable to learn whether tardive dyskinesia and parkinsonism will increase further in the community or whether, now that neuroleptics have been available to a generation of schizophrenics, the prevalence of these side effects has reached a plateau.

In conclusion this community survey, the first of its kind, has identified a high prevalence of both TD and parkinsonism. This illustrates well the cost to schizophrenics of taking neuroleptics. Such drugs are effective in controlling the positive symptoms of the disorder (Crow, 1980), but the price to be paid is considerable.

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