TD- Elderly

Tardive Dyskinesia: Biological Mechanisms and Clinical Aspects

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Chapter 9

Tardive Dyskinesia in a Psychogeriatric Population

Since the description of tardive dyskinesia (TD) by Schonecker (1), several studies have been conducted to evaluate predisposing factors to its development. The only consistent factor associated with more severe and persistent TD has been age (2). Other factors, including female sex (3–5), organicity (6–8), drug-free periods (9–11), and affective disorders (7, 12–14), have also been reported to contribute to the development of TD. Recently we confirmed earlier observations that late-onset psychosis patients show significantly higher TD prevalence than early onset psychosis subjects (11, 15–18). Several studies have been conducted comparing the prevalence of TD among neuroleptic-treated and neuroleptic-free psychogeriatric patients (3, 19–29). In the neuroleptic-free geriatric patients, the prevalence of abnormal involuntary movements has been estimated to be about 5 percent (2), compared to 40 percent in neuroleptic-treated geriatric patients (23). The present study was conducted to assess the prevalence of abnormal involuntary movements in a psychogeriatric population admitted for the first time to our unit; these same patients were reassessed 2 years later for the presence or absence of TD.

MATERIALS AND METHODS

The patient population consisted of three groups. Group 1 included new admissions (except for first-time hospitalization) to the psychogeriatric unit at the Douglas Hospital Centre during the 2-year period starting September 1, 1984 (n = 120). To this group were added four patients whose charts were reviewed and who were found not to have received neuroleptic since admission. Thus, the total number in Group 1 was 124. The demographic characteristics of this patient population are presented in Table 1. Group 2 included all the psychogeriatric inpatients (five wards) who were available and consented for an assessment of TD. Al the patients were 65 years or older

(n = 146). (For demographic characteristics of this patient population see Table 1.) Group 3 included first-time admissions to the psychogeriatric unit during the period of September 1984 to March 1986 (n = 103).

All the available patients were reexamined during the months of September and October 1986 to assess the presence or absence of TD, blind to their neuroleptic uptake. TD was assessed by the Abnormal Involuntary Movement Scale (AIMS), and the diagnosis of TD was established according to Jeste and Wyatt (4).

RESULTS

Prevalence of Abnormal Involuntary Movements

Of the 124 patients who never received neuroleptics, 5 were found to have abnormal involuntary movements (overall 4 percent; 5.9

Table 1. Demographic Characteristics of the Patient Population

Variables	Group 1 (N = 124)	Group 2 (N = 146)
Mean Age (±SD)		
men	72.7 (±6.8)	73.4 (±4.8)
women	75.6 (±8.5)	76.0 (±4.5)
Primary Diagnosis:		
affective disorder		
men	19	10
women	28	27
paranoid psychosis		
men	6	1
women	10	3
schizophrenia		
men	0	25
women	0	43
senile dementia		
men	19	8
women	25	16
alcoholism		
men	4	2
women	4	9
personality disorder		
men	4	0
women	5	1
mental retardation		
men	0	0
women	0	1

percent of the men and 2.9 percent of the women). The movements were confined to the buccal area and were rated as mild.

In contrast, of the 146 patients treated with neuroleptics, 70 exhibited TD (47.9 percent). The mean age and duration of neuroleptic treatment of the patients without or with TD was 73.3 (SD = ±4.9) and 18.3 years (SD = ±10.1) and 73.5 (SD = ±4.8) and 25.0 years (SD = ±7.7), respectively. The difference in length of neuroleptic treatment was statistically significant ($t < 141$, $df > 4.528$, $p < 0.001$). Thirty-three subjects had mild TD, another 33 had moderate TD, and 4 women had severe TD. All the patients had buccal TD, whereas the limbs were affected in nine patients, and body and limbs in another nine subjects. 58.3 percent of the men had mild TD, compared to 41.3 percent of the women, and the body was affected more in women than in men (32.6 percent versus 12.5 percent, $\chi^2 = 3.34$) but this difference did not reach statistical significance.

Follow-Up of the Newly Admitted Patients

Of the 120 newly admitted patients, 103 had never been admitted for 6 months or more. From the 53 patients who never received neuroleptics, 7 patients were lost to follow-up and 7 died during this period, making the final number of subjects in this group 39. Similarly, 50 patients were found to have received neuroleptics during the study period. From this group, 6 subjects were lost to follow-up and 5 patients died, making the final number in this group 39; the demographic characteistics of the patient population are presented in Table 2. All of the 16 newly admitted patients found to have TD were included in the neuroleptic treated group, showing a TD prevalence of 41 percent. TD affected the buccal area in 15 patients and in addition affected the lower limbs and pelvic area in three and two patients, respectively; one patient had respiratory irregularity and another showed severe foot tapping. TD was rated as mild in 4 patients, moderate in 11, and severe in one subject.

Psychotropic Drug Intake

The details of neuroleptic drug intake are presented in Table 3. Of the various factors compared in Table 3, only the duration of hospitalization was significantly different between TD and non-TD patients ($t < 37$, $df > 3.569$, $p < 0.001$).

Onset of TD as Recorded in the Patients' Files

Of the 16 patients with TD, 12 were found to have a recording of TD in their charts. Of these 12 patients, TD was noted in the first

Table 2. Demographic Characteristics of the Follow-up Patients

Variables	Patients Who Never Received Neuroleptics			Patients Who Received Neuroleptics		
	Men (N = 17)	Women (N = 22)	Total (N = 39)	Men (N = 14)	Women (N = 25)	Total (N = 39)
Age	74.5 ± 6.1	73.9 ± 7.2	74.2 ± 6.6	72.4 ± 6.2	77.7 ± 6.4	75.8 ± 6.8
Duration of follow-up (in months)	20.2 ± 6.1	17.7 ± 5.1	18.8 ± 5.7	17.9 ± 6.4	17.0 ± 6.9	17.3 ± 6.6
Duration in hospital (in months)	13.6 ± 7.4	6.3 ± 3.7	9.5 ± 6.6	13.1 ± 6.6	12.2 ± 8.8	12.5 ± 8.0
Diagnosis						
depression	8	12	20	2	6	8
senile dementia	8	5	13	6	11	17
alcoholism	0	2	2	1	2	3
personality disorder	1	3	4	1	0	1
paranoid psychosis	0	0	0	4	6	10

Table 3. Comparative Study Between TD and Non-TD Patients in Neuroleptic-Treated Subjects (Mean ± SD).

Variables	Non-TD Patients (N = 23)	TD Patients (N = 16)	T test (37 df)
Age	76.8 ± 6.4	74.4 ± 7.2	1
duration of follow-up (in months)	16.6 ± 6.4	20.0 ± 4.8	1
duration of hospitalization (in months)	9.0 ± 6.0	16.9 ± 7.8	3.569 $p<0.001$
total neuroleptic time (in months)	12.7 ± 6.8	14.8 ± 8.3	<1
present dose (in mg CPZ equivalents)	96.7 ± 149.2	110.9 ± 147.5	<1
total neuroleptic intake in gms (CPZ equivalents)	59.3 ± 91.5	74.4 ± 83.9	<1

12 months of treatment in five patients. In seven patients, TD was noted between the 13th and 24th months of the study. Thus, 41.7 percent of patients whose TD was recorded developed it within the first year of neuroleptic therapy.

Neuroleptic Discontinuation

Five subjects developed TD after a mean of 7.4 months of continuous neuroleptic treatment. Neuroleptics were discontinued for a mean of 13.5 months (range = 6 to 22 months). Subjects were assessed monthly with the AIMS; no improvement was noted during the observation period.

DISCUSSION

Our study indicates that abnormal involuntary movements occurred in 4 percent of newly admitted non-neuroleptic-treated psychogeriatric patients, which is in agreement with the estimated 5 percent prevalence reported in a recent literature review (2). When compared to neuroleptic-treated patients (Group 2), the difference in prevalence (4 percent versus 41 percent) was statistically significant. The abnormal involuntary movements were mild and localized in the buccal area. TD, on the other hand, was more severe and affected more body areas.

Patients who were started on neuroleptics during the study period (n = 39, Group 3) had a prevalence of TD almost similar to that of

patients who were receiving chronic neuroleptic treatment (41 percent versus 48 percent), in agreement with previous reports indicating that TD is more prevalent when neuroleptics are started late in life (11, 15–18). The findings that TD developed in 39 percent of patients who were started on neuroleptics after age 63 and followed up to 28 months (22) compares well with our 41 percent prevalence of TD after a follow-up period of 24 months. Lieberman et al. (28) found that among 79 subjects with a history of neuroleptic treatment (mean age at first admission, 83; mean duration of neuroleptic exposure, 18 months), 16.5 percent developed TD. Based on a retrospective review of elderly patients, it has been suggested that the incidence of TD among elderly subjects may begin to decline after the first 2 years of neuroleptic exposure (29).

It is of interest that in the control group (those subjects who never received neuroleptics), no patient developed abnormal involuntary movements during the study period, in agreement with the findings reported by other investigators (30, 31). However, Owens et al. describes a similar distribution of abnormal involuntary movements in both treated and nontreated chronic schizophrenic patients (32). Crow et al.(33) have indicated that persistent dyskinesia are more commonly seen in psychotic disorders with poor outcome associated with negative symptoms and cognitive impairment.

Drug factors have been studied extensively to attempt to correlate the present dose, total neuroleptic exposure and duration of neuroleptic treatment, to the presence of TD, without conclusive evidence (4). Our findings that no particular drug factor can be implicated in the development of TD are in agreement with the results of other investigators (4). Aging and female sex have been implicated as factors for the development of TD (2) and abnormal involuntary movements (26). However, in our study these two factors were noncontributory to the development of this side effect.

Organic factors are difficult to assess in a population of geriatric age. We did not measure the subtle elements in each of our patients, but confined ourselves to gross psychopathology. Of the 16 TD patients, 9 had a primary organic diagnosis as compared to 23 who did not (56.3 percent versus 47.8 percent). Thus gross organic psychopathology did not appear to be a factor in the development of TD in our patient population.

Neuroleptic discontinuation was attempted in five patients who developed TD. After a follow up of 13.5 months, none of the patients had a reversal of their TD, in agreement with previous reports indicating that TD in older patients seems to be more persistent than in younger patients (34, 35).

Apart from a longer stay in hospital in TD patients, which may reflect severity of illness, no single factor has been implicated in the development of this side effect. Several studies had indicated that TD may develop in family members who are treated with neuroleptics (36, 37). Thus variations in individual susceptibility, which may be linked to genetic factors, may be of importance in the development of TD and deserve extensive investigation.

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