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THE PREVALENCE OF PERSISTENT ABNORMAL INVOLUNTARY MOVEMENTS AMONG PATIENTS IN A NIGERIAN LONG STAY PSYCHIATRIC UNIT

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Summary

Two hundred and twenty-six patients in a Nigerian chronic psychiatric patients' unit were examined for evidence of abnormal involuntary movements. Twenty-one (9.3%) of the patients had the disorder. The prevalence rate was higher among the females (14.5%) than among the males (7%). All the twenty-one patients had the diagnosis of schizophrenia. Also, they were found to be of an older age group than the total population. In comparison with a control group, the development of persistent abnormal involuntary movement was found not to be related to the daily dose of neuroleptic drugs administered or to the duration of the illness. The disorder was thought to be an idiosyncractic reaction.

Résumé

Dans un block Nigerian de malades psychiatriques chroniques, on a examiné deux-cent-vingt-six patients pour la mise en évidence des mouvements anormaux involontaires. Vingt et un (9.3%) des malades souffraient du trouble. Le taux de prévalence était plus élevé chez les sujets féminins (14.5%) que chez les sujets masculins (7%). Tous les vingt-et-un malades avaient des rignes de schizophrénie. De même, on a remarqué qu'ils appartenaient à une classe d'âge plus avancé par rapport á la population globale. Comparativement avec un groupe témoin, on a remarqué que la manifestation d'un mouvement anormal, involontaire et persistant n'était ni en relation avec la dose journalière de produits neuroleptiques administrée ni avec la durée de la maladie. On a pensé que le désordre était une reaction caractéristique.

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Introduction

Dyskinetic syndrome was first reported as a complication of long-term phenothiazine therapy by Schonecker (1957) and Sigwald *et al.* (1959). These reports stressed that dyskinetic movements are often unresponsive to antiparkinsonism agents and sometimes persist after phenothiazine withdrawal. Uhrbrand & Faurbye (1960) described such motor disorder as tardive dyskinesia while Hunter, Earl & Juntz (1964) called it persistent dyskinesia. In a special report, the American College of Neuropsychopharmacology (1973) lucidly described the features of tardive dyskinesia. Such features are facial buccolinguo-masticatory dyskinesia, choreoathetoid movements of the extremities and axial hyperkinesis. The prevalence estimates of this disorder range from 0.5 to over 40% (Crane, 1973). The discrepancy in the prevalence rates has been attributed to the definition of the syndrome, the type of patient population, the methods used in obtaining information and the clinical assessment of symptoms.

In most of the prevalence reports on dyskinetic syndrome, females tend to predominate (Hunter, *et al.*, 1964; Demars, 1966; Turunen & Achte, 1967; Brandon, McClelland & Protheroe 1971). Perris *et al.* (1979) attributed this observation to the type of population studied. Also,

abnormal involuntary movements of the facial bucco linguo-masticatory type were found to be associated with age (Turunen & Achte, 1967; Guttman, Lehman & Ban, 1970; Brandon, *et al.*, 1971). Guttman *et al.* (1970) remarked that older patients receiving high dosages of neuroleptics developed extrapyramidal signs more frequently than younger patients. This observation might have relevance to the increase in brain pathology in the older age group (Edwards, 1970; Hunter *et al.*, 1964; Famuyiwa *et al.*, 1979; Perris *et al.*, 1979). Similarly, Brandon *et al.*'s (1971) finding of facial dyskinesia in patients who had never been exposed to neuroleptics would suggest other possible causes of such dyskinesia. Crane's (1973) inclusion of parkinsonism, basal ganglia diseases and functional psychomotor disorders as possible differentials seems to buttress the observation of Brandon *et al* (1971).

However, recent evidences have further strengthened the belief in a strong association between the use of neuroleptic drugs and the development of dyskinetic syndrome (Perris *et al.*, 1979). No association has been demonstrated between abnormal involuntary movements and the patients' underlying psychiatric disease process, especially the functional psychotic patients. In support of this view, Guttman *et al.* (1970) remarked that it was unlikely that the underlying disease process *per se* contributes to the appearance of extrapyramidal signs.

Though dyskinetic syndrome (tardive dyskinesia) has been widely reported in the Western world, its prevalence is yet to be reported among chronic psychiatric patients in Nigeria.

This report deals with the prevalence rate and the psychosocial characteristics of patients in a long-stay psychiatric unit found manifesting features of abnormal involuntary movements similar to those described as tardive dyskinesia.

Materials and methods

Materials

The 226 psychiatric patients at the Lantoro (annex of Aro Neuropsychiatric Hospital) long-stay psychiatric unit, Abeokuta, Nigeria on 2 April, 1979 were used for the study. All the 226 patients were screened for abnormal involuntary movements (AIM) since several factors could contribute to the development of AIM. The study was part of a general survey of patients in the institution.

Method

A proforma was designed to collect from the patients' records essential information such as age, sex, diagnosis, duration of current hospitalization, number of previous admissions and the daily dosage of psychotropic drugs prescribed for each patient.

Abnormal involuntary movement scale (AIMS) was used to record in detail the occurrence of dyskinetic movements. This is a 12-item scale designed by the United States of America National Institute of Mental Health (NIMH). The examination procedure as contained in *ECDEU Assessment Manual* (1976) for psychopharmacology was adopted for administering the instrument. Patient's spontaneous behaviour in the ward was observed to see dyskinetic movements that might stop when the patient is aware that he is being observed. Recently, AIMS was shown to be a reliable instrument for assessing tardive dyskinesia. AIMS was administered to all the 226 patients.

Twenty-one patients (eleven males and ten females) had abnormal involuntary movements. A control group with a corresponding number of long-stay patients in the same Lantoro Institution but without the clinical manifestations of abnormal involuntary movements was selected to match the patients with AIMS according to the following criteria: they were to be of the same sex, of a similar age (± 5 years) and they should have a similiar duration of current treatment with neuroleptic drugs (± 6 months).

Analysis

Chi-square and Student's t-test were used as tests of significance.

Results

Out of the 226 patients examined, 157 were male and 69 were female. As shown in Table 1, twenty-one (9.3%) of the patients had abnormal involuntary movements. The prevalence rate was higher among the females (14.5%) than among the males (7%). However, the difference was not statistically significant. All the twenty-

TABLE 1. Prevalence of abnormal involuntary movements among 226 psychiatric patients

	Total	Male	Female
Total no. of patients	226 (100%)	157 (100%)	69 (100%)
Patients with abnormal involuntary movements	21 (9.3%)	11 (7%)	10 (14.5%)

$^{2} = 3.19$ on 1 d.f.<0.05 $P>0.10$ (not significant)
•Column percentages are given.

one patients were diagnosed as chronic schizophrenic patients. There was no clinical evidence of organic brain syndrome in any of the patients.

The total mean age of the 226 patients was 32.3 years and the median 31.5 years. Table 2 presents the age distribution of the twenty-one patients with the abnormal involuntary movements (AIM). Among the eleven males with AIM, seven (63.6%) were below the age of 40 years. Their ages ranged from 30 to 63 years with a mean age of 41 and a median of 38. As for the ten females with AIM, seven (70%) were above the age of 40 years. Their ages ranged from 26 to 66 years with a mean of 44.5 and a median of 43.5. Among the patients with abnormal involuntary movements, the females were of a higher age group than the males though the difference in their means was not statistically significant ($P<0.40$).

TABLE 2. The age distribution of twenty-one patients with abnormal involuntary movements

Age group (years)	Male ($n = 11$)	Female ($n = 10$)	Total ($n = 21$)
7–29	0	1	1
30–39	7 (63.6%)	2 (20%)	9
40–49	2 (18.2%)	4 (40%)	6
50–59	1 (9.1%)	1 (10%)	2
60–69	1 (9.1%)	2 (20%)	3

The item scores on AIMS' ratings (Table 3) shows that in both male and female patients, the least affected area was the trunk (neck, shoulders and hips). The tongue was more affected in males (mean score 1.1) than in females (mean score 0.1). The total mean scores on AIMS for males and females were 5.9 and 6.2 respectively. Also, the mean of AIMS' severity ratings for males and females were 1.64 and 1.8 respectively. All the patients except three had the involuntary movements affecting more than one of the seven areas defined on AIMS.

TABLE 3. Analysis of AIMS ratings of the twenty-one patients showing the total and mean scores for each item and also the total score

Areas of distribution of abnormal movements	Total score for each item		Mean score for each item	
	Male ($n = 11$)	Female ($n = 10$)	Male ($n = 11$)	Female ($n = 10$)
1 Muscles of facial expression	6	10	0.55	1
2 Lips and perioral area	6	8	0.55	0.8
3 Jaw	6	10	0.55	1
4 Tongue	12	1	1.1	0.1
5 Upper (arms, wrists, hands and fingers	24	19	2.2	1.9
6 Lower (legs, knees, ankles, toes)	7	14	0.64	1.4
7 Neck, shoulders, hips	3	0	0.27	0
Total score for abnormal movements	65	62	5.9	6.2

Comparisons between the patients with abnormal involuntary movement group and controls

The characteristics of the patients in the AIM and the control groups are presented in Table 4 (a&b). Sex, age and duration of current treatment with neuroleptics are well matched in the two groups.

The daily dose of oral neuroleptic drugs used for each patient was converted to the equivalent dose of chlorpromazine (Davis & Cole, 1975) for easy comparison. As shown in Table 5, there was no significant difference ($P>0.50$) in the amount of oral neuroleptic drugs taken by the patients in the two groups.

In addition, the number of previous relapses was computed. Since the number was small, the history of previous relapse (Table 6) was collapsed into positive or negative categories. This was used as a rough index of the duration of

TABLE 4 (a). Age and sex distribution of patients with *AIM and the control group

	Total no. of patients	Sex		Ages: Mean		Ages: s.d.	
		M	F	Male	Female	Male	Female
Aim group	21	11	10	41.00	44.50	9.11	13.30
Control group	21	11	10	41.09	44.70	8.90	12.44

Male AIM *vs* control – 0.02, $P>0.50$; female AIM *vs* control – 0.03, $P>0.50$ (not significant).

TABLE 4 (b). Duration of treatment in patients with *AIM and control group

	No. of patients	Duration of treatment (in months): Mean		Duration of treatment (in months): s.d.	
		Male	Female	Male	Female
Aim group	21	383.27	327.20	427.49	400.06
Control group	21	383.18	327.90	431.04	388.54

Male AIM *vs* control 0.00[illegible], $P>0.50$; female AIM *vs* control –0.004, $P>0.50$ (not significant).

TABLE 5. Comparison of AIMS group with the control group on the daily dosage of chlorpromazine or its equivalent (in mg)

	Mean daily dose of neuroleptic		s.d.	
	Male ($n = 11$)	Female ($n = 10$)	Male ($n = 11$)	Female ($n = 10$)
AIMS group	554.55	635.00	375.97	280.1
Control group	495.45	630.00	241.30	292.69

Male AIMS *vs* control 0.44, $P>0.50$; female AIMS *vs* control 0.04, $P>0.50$ (not significant).

TABLE 6. Comparison of the AIMS group with the control group on the history of previous admissions

Previous relapse	Groups: AIMS group	Groups: Control group	Total
None	9	10	19
Yes	18	11	29

^{2} = 1.01 on 1 d.f. $0.30< P<0.50$ (not significant)

illness. The difference between the AIM and control groups was not significant ($P<0.50$).

Discussion

The prevalence rate of abnormal involuntary movements of 14.5% in females and 7% in males among Nigerians in a chronic psychiatric patients' unit compares favourably with reports from the Western world (Edwards, 1970; Brandon *et al.*, 1971; Perris *et al.*, 1979). Similarly, the preponderance of female patients with the disorder in the population, though not to a significant degree, supports the hypothesis of the female's susceptibility to persistent dyskinesia (Ayd, 1967a,b; Di Mascio & Shader, 1970; Brandon *et al.*, 1971).

Apart from sex differences, many reports from the Western world have demonstrated that the variable most related to the incidence of persistent dyskinesia is age (Chouinard *et al.*, 1979; Crane, 1970; Perris *et al.*, 1979). Brandon *et al.* (1971) claimed that the disorder is rare under the age of 50 years when it tends to occur in women with organic disorders and that a progressive rise occurs in its prevalence with

increasing age in both sexes. Contrary to these observations, sixteen (76.2%) of our twenty-one patients with abnormal involuntary movements were below the age of 50 and none of them showed clinical evidence of organic brain syndrome. However, if the mean of the age of the total patient population (32.5) is compared with the means of the ages of patients with abnormal involuntary movement groups (Male = 41, Female = 44.5), it becomes obvious, that the patients with involuntary movement groups are older. This agrees with the findings in other parts of the world (Perris *et al.*, 1979; Chouinard *et al.*, 1979). However, the finding that 76% of the twenty-one patients were below the age of 50 might be a reflection of age distribution in the general population.

Our attempts to find the variables predicting incidence of abnormal involuntary movements using a control group have been inconclusive. The disorder bore no relationships to the amount of oral neuroleptic drugs taken by the patients or the length of history of the illness. Therefore, the development of the disorder seems to be an idosyncractic reaction in which the predisposed group of patients develop persistent extrapyramidal symptoms when maintained on neuroleptic drugs, no matter what dose, over a long period of time.

Conclusion

Despite the constitutional and geographical differences between the negroid race in Africa and the caucasians in Europe and America, abnormal involuntary movements widely reported in chronic psychiatric populations among the caucasians are also found among the negroid race in Africa. Further biological studies are required to find out the nature of the idiosyncractic reaction in Nigerian patients with the disorder.

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