

ORIGINAL ARTICLE

Frequency and clinical profile of movement disorders in a tertiary health care facility in Niger-Delta region, Nigeria

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DISCLOSURES: NONE

ABSTRACT

Background: Movement disorders are common causes of disability, especially in older people. As the practice of neuroscience grows in Delta State, South-South Nigeria, there is need to create a data base on this neurological syndrome.

Objective: The aim of this study is to assess the types and frequency of movement disorders and to determine their age and sex prevalence.

Methodology: The records of all patients diagnosed with movement disorder who attended the Neurology Clinic of Delta State University Teaching Hospital, Oghara, from January 2011 to December 2014 were retrieved from the data base of the clinic and the Health Information Department, and analyzed.

Results: The frequency of the various movement disorders were: Parkinsonism 68 (59.6%), dystonia 21 (18.4%), tremors 15 (13.2%), myoclonus 4 (3.5%), cerebellar ataxia 2 (1.8%), freezing 1 (0.9%), restless legs syndrome 1 (0.9%), hyperekplexia 1 (0.9%) and tics 1 (0.9%). The patients were 90(78.9%) males and 24 (21.1%) females, and their mean age was 58.3 ±19.1years. Of all the patients diagnosed with parkinsonism, 88.2% had Parkinson's disease, and young onset (≤50years) parkinsonism was found in 10.3% of them. Among the patients with dystonia, 71.4% were focal, 19% generalized and 9.52% segmental.

Conclusions: Parkinsonism, dystonia and essential tremors are the predominant movement disorders seen in the clinic. It is not clear why the frequency of dystonia is higher in this study compared to other studies in the country. A population based study is, therefore, needed to establish the true prevalence and burden of movement disorders in the region.

Keywords: Data base, dystonia, essential tremors, neurological syndromes, parkinsonism

Received: 11th March, 2015

Accepted: 3rd April, 2015

INTRODUCTION

Movement disorders are neurological syndromes, characterised by abnormal excessive movement or paucity of voluntary and automatic movements, that are unrelated to muscle weakness or spasticity.^{1,2,3,4} They are common causes of disability, especially in older people.^{1,3} The disorders fall into two categories of either hyperkinetic or akinetic rigid syndromes, respectively.

The act of movement is generally classified into four main components, namely:

- i) automatic movements that involve learned motor behaviour requiring no conscious effort such as walking, swinging of arms, speaking
- ii) voluntary or intentional movements that is planned or self-initiated;
- iii) semi-voluntary movements that are induced by an inner sensory stimulus, unwanted feeling or compulsion and usually suppressible; and
- iv) involuntary movements which are non-suppressible.

The pathology of most of the movement disorders is usually due to lesions of the basal ganglia or its connections.^{2,3}

Epidemiology serves to describe the occurrence of disorders, time trends, and geographic differences in their frequency, risk factors that may give clues to the aetiology and provide information for the planning of health care resources as well as provide estimates for the prognosis of a disorder.^{4,5}

Epidemiological studies of movement disorders are particularly complicated by the lack of diagnostic markers that allow an unequivocal diagnosis, and also, by the differences in diagnostic criteria for most movement disorders. As a consequence,

variations in diagnostic accuracy are reflected in prevalence rates and incidence rates.⁴

There has been paucity of data on movement disorders from the country, particularly the Niger Delta region. Majority of the few studies and the body of knowledge in movement disorders in the country come from the South-West zone of the country.^{6,7,8}

As the practice of neurology grows in this part of the country there is need to establish the database on the types, frequency, and age and sex prevalences of movement disorders. The data on the types and frequency of these disorders will add to the body of growing literature from the country and in sub-Saharan Africa at large. And since medications and other treatment modalities and interventions for movement disorders are not commonly available in Delta State and the country in general, it is hoped that availability of data on these disorders will help in the formulation of a framework for the planning and optimization of scarce health care resources.

AIMS/OBJECTIVES

The aim of this study was to assess the hospital frequency, types and age and sex prevalence of movement disorders as seen in the Neurology Clinic of Delta State University Teaching Hospital, Oghara, Delta State, Nigeria.

METHODOLOGY

This was a cross-sectional retrospective study of movement disorders in the Delta State University Teaching Hospital, Oghara. The hospital was officially opened in June 2010 along with the establishment of the Neurology Unit which is the first neuroscience service within the State. The hospital serves as a referral centre for the entire Delta State and parts of the neighbouring States of Anambra, Bayelsa,

Edo and Ondo, serving a population of about 5million.

The records of all patients attending the Neurology Clinic of the hospital, from January 2011 to December 2014 were retrieved from the data base of the clinic and the Health Information Department of the hospital. Records of patients aged 12years and above were included in the study. Demographic (age, sex, tribe and occupation) and clinical data were obtained from the records. The movement disorders were grouped into hypokinetic (parkinsonism and freezing) and hyperkinetic disorders (tremors, dystonias, myoclonus, restless legs syndrome).

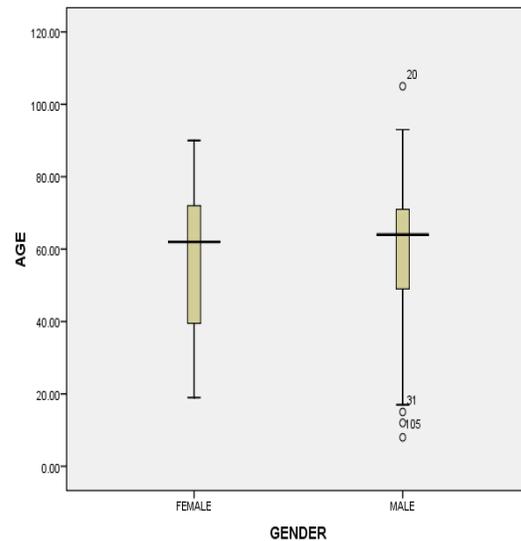
Diagnoses of movement disorders were made by the neurologist, based on the documented clinical and laboratory evidence in the case notes and the use of rating scales and diagnostic criteria.⁹ Parkinsonism was diagnosed in the presence of two or more of the following features: tremors at rest, bradykinesia, rigidity, loss of postural reflexes and flexed posture, with one of the two being rest tremors or bradykinesia. The diagnosis of Parkinson's disease was based on the UK Parkinson's Disease Society Brain Bank's clinical criteria for the diagnosis of probable Parkinson's disease.¹⁰ The data was analysed using descriptive statistics from the SPSS version 16.

RESULTS

A total of 114 patients diagnosed with movement disorder were managed in the Neurology Clinic during the period under review. These were 90 (78.9%) males and 24 (21.1%) females, with a male:female ratio of 3.75:1. There was male preponderance in parkinsonism, dystonia, essential tremors and myoclonus, with male to female ratios of 5.8:1, 2.5:1, 2.75:1 and 3:1, respectively. The mean age of the patients with movement disorder diagnosis was 58.3 ± 19.06 years with

a range of 12 to 105years. The mean age for the males was 58.9 ± 1.88 years and that for females was 56.12 ± 2.0 years, see Figure 1.

Figure 1: Box plot showing age and gender distribution of movement disorders among males



Advancing age was significantly associated with movement disorders ($p=0.00$). There were 45 (39.5%) cases of hyperkinetic disorders and 69 (60.5%) cases of hypokinetic disorders. The frequencies of the various movement disorders were: parkinsonism 68 (59.6%), dystonia 21 (18.4%), essential tremors 15 (13.2%), myoclonus 4 (3.5%), cerebellar ataxia 2 (1.8%), freezing 1 (0.9%), restless legs syndrome 1 (0.9%), hyperekplexia 1 (0.9%) and tics 1 (0.9%), see Table 1.

Among the cases of parkinsonism, 60 (88.2%) were clinically diagnosed with Parkinson's disease, and young onset parkinsonism (≤ 50 years) was found in 10.3% of those with parkinsonism. The mean age of onset of parkinsonism was 67.3 ± 1.17 years, age range of 44 to 105years (CI=64.4%-70.11%). The mean age of onset for parkinsonism was significantly higher than that for other movement disorders ($p=0.04$).

Table 1: Frequency distribution of movement disorders

Movement Disorder	Frequency	Percentage %
Ataxia	2	1.8
Dystonia	21	18.4
Essential tremors	15	13.2
Freezing	1	0.9
Hyperekplexia	1	0.9
Myoclonus	4	3.5
Parkinsonism	68	59.6
Restless legs syndrome	1	0.9
Tics	1	0.9
Total	114	100
Hyperkinetic	45	39.50
Hypokinetic	69	60.5
Total	114	100

And of the 8 patients with other forms of parkinsonism 5 were vascular with either a history of previous stroke and computed tomographic (CT) or magnetic resonance image (MRI) evidence of multiple infarcts within the basal ganglia. Two patients had suspected multiple systems atrophy with marked cerebral atrophy on MRI and initial presenting symptoms of declining cognitive functions, orthostatic hypotension and falls.

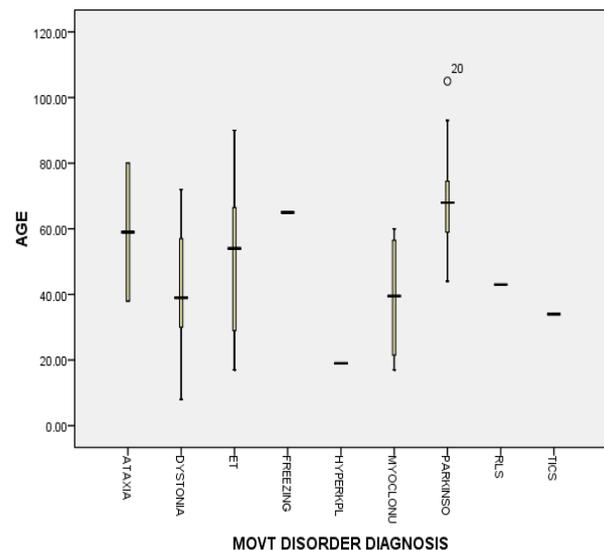
The most common initial presenting symptom of parkinsonism was rest tremors, 65 (95.6%) patients. Unilateral rest tremor was reported in 66 (83.8%) and remained unilateral in 3 (4.41%) patients. The patients with dystonia were classified into: focal 15 (71.4%), generalised 4 (19%) and segmental 2(9.52%). The mean age for those with dystonias was 40.8 ± 1.8 years with age range of 8 to 72 years (95%; CI=32.2%-49.5%), see Table 2 and Figure 2.

Table 2: Mean age distribution of the movement disorders

Movement Disorder	Mean Age (years)	Age Range (years)
Movement disorders	58.30 ± 19.06	12 - 105
Ataxia	59.00 ± 2.96	38-80
Dystonia	40.80 ± 1.89	12-72
Essential tremors	51.73 ± 2.14	17-90
Hyperekplexia	19.00 ± 0.00	
Freezing	65.00 ± 0.00	
Myoclonus	39.00 ± 2.07	17-60
Parkinsonism	67.27 ± 1.17	44-105
Restless legs syndrome	43.00 ± 0.00	

$p < 0.05$

Figure 2: Box plot showing age and frequency distribution of movement disorders



Blepharospasm was seen among 7 (33.3%) patients, one of whom had psychogenic blepharospasm. There were more females 4 (57.1%) with blepharospasm compared to males 3 (42.9%), and there were 5 cases of cervical dystonia and 3 cases of orolingual and mandibular dystonia. The mean age for patients with tremors (excluding

parkinsonian tremors) was 51.7 ±2.14years and age range of 17 to 90years. Among the patients that met the criteria for tremors, 10 (66.7%) had positive family histories; with alcohol responsive tremors. There were 2 cases of cerebellar tremors and one case of dystonic tremors.

DISCUSSION

The findings in this study revealed that a variety of movement disorders were seen, varying in frequency from parkinsonism to dystonias, essential tremors and myoclonus, among others. The observation is similar to the findings of most authors in the country.^{6,7,8,11,12} Parkinsonism was the most common movement disorder seen in the clinic as revealed by our study, constituting 56.9% of all the cases. This observation again supports the findings made by many authors from within and outside the country.

Whereas Okubadejo, *et al*, reported 54.9% cases of parkinsonism from the Movement Disorder Clinic in Lagos, South-West Nigeria which was very similar to our findings, Okpara, *et al*, reported 41% from Calabar, South-South Nigeria.^{6,12} Worldwide, essential tremors is reported to be the most common movement disorder, but in this survey, the frequency of parkinsonism was higher, just as in most hospital-based studies. This is likely to be connected to the disabling nature of parkinsonism compared to essential tremors for which most patients may never present to the hospital.

Contrary to observations from other hospital based studies in the country the frequency of dystonia in this study was higher than essential tremors.^{6,7,12} Whether this occurrence is a true reflection of the burden of the disease or an increased awareness of patients and health care personnel of the disorder, or both, is not clearly understood, and so, it calls for the need for a door-to door study of the

community in order to establish the true prevalence.

The findings in this study revealed a male preponderance of the frequency of movement disorders with a male to female ratio of 3.75:1. This higher male occurrence supports the findings of other studies within the country.^{6,7,12,13} The male preponderance of parkinsonism recorded in this study supports the reports from other authors within and outside the country.^{7,8,12,14,15,16} A potential protective effect of oestrogens has been suggested as the possible reason for the relative reduction of risk seen in women as supported by data from a large cohort study of women who had their ovaries removed surgically for gynaecological reasons.¹⁶

It is unclear whether the male preponderance of the frequency of parkinsonism, dystonias, tremors and myoclonus as seen in this study is due to the cultural practice of males assessing health facilities than females in Africa as reported by some authors or due to a protective effect of oestrogen in females or even some unknown factors in the male population.¹⁷

Increasing age was significantly associated with development of a movement disorder particularly parkinsonism ($p<0.05$). This observation is comparable to the findings of other authors across the country.^{6,7,8,12,13}

Despite the increasing frequency with age as noted in our study we also observed that the frequency of parkinsonism declined at the very old age. This observation supported the reports of other authors who reported increasing risk of developing Parkinson's disease with age in hospital-based or multi-source prevalence studies but a fall for the oldest age-groups.⁵ Though population-based door-to-door studies outside the country has consistently shown that prevalence rates increased continuously in an exponential

pattern, it is not clear whether this observation in our study is due to the effect of mortality from the disease or other associated co-morbidities at the advanced age compounded by the generally low life expectancy in the country.¹⁸

CONCLUSIONS

The predominance of parkinsonism, dystonia and tremor is similar to the findings in most movement disorder clinic reports except for a higher frequency of dystonia, more than tremors. This observed frequency of movement disorders may be a reflection of the population prevalence, burden of the disorders, level of awareness of neurological service or level of recognition of the disorders among the population and the referring medical practitioners.

It is, also, not clear why the hospital prevalence of dystonia is higher in this study compared to tremors. Therefore, a population based study is needed to establish the true prevalence and burden of movement disorders in the region.

Equally, there is a need for increased public awareness and education on movement disorders, and the establishment of dedicated movement disorder clinics and provision of essential medications for treating these disorders.

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