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Pattern of Neurological Disorders in an Adult Neurology Clinic at Abakaliki Nigeria

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Abstract

Background: Neurological disorders are common with increasing prevalence worldwide. The pattern of their presentation at Abakaliki Nigeria is not known. It is against this background that we embarked on this retrospective observational study on the pattern of neurological disorders in an Adult neurology clinic at Abakaliki Nigeria.

Method: This is a retrospective observational hospital based study where the attendance registers of the 2 neurology clinics were used to extract demographic and clinical information of patients seen at the clinics from January 2019 to June 2020.

Results: A total of 1910 (72%) patients (Male- 1063, Female- 847) had neurological disorders. Common neurological disorders include Stroke, Seizure disorder, Parkinsonism, Dementia, Spondylosis, and headache.

Conclusion: Neurological disorders are quite common in neurology clinics at Abakaliki Nigeria with preponderance of stroke.

Keywords: Abakaliki, neurological disorders, neurology clinic, Nigeria

1. Introduction

Neurological disorders are diseases that affect the brain, spinal cord and the peripheral nerves. Their burden is high and apparently on the increase. Neurological disorders account for more than 6% of the global burden of diseases with a greater proportion of mortality and disability- adjusted life years (DALY) represented in low- and middle income countries (Lopez et al., 2006). According to the Global Burden of Disease Study 2016, neurological disorders were the leading cause of DALY and second leading cause of death globally after cardiovascular diseases (2019). Their burden is even higher in Sub-Saharan Africa and other developing world and evidence has shown an increasing trend (Burton & Allen, 2003). The common neurological disorders seen in neurology clinics in Nigeria and other developing countries include stroke, headache disorders, seizure disorders, parkinsonism, and dementias with male predilection (Komolafe et al., 2018; Onwuekwe & Ezeala-Adikaibe, 2011; Awan et al., 2017). There has not been any study on the pattern of neurological disorders seen at Adult Neurology clinics of the Alex Ekwueme Federal University Teaching Hospital Abakaliki. It is against this background that we embarked on this study of the pattern of Neurological disorders seen at Adult Neurology clinics of a tertiary hospital at Abakaliki Nigeria. The findings in this study will constitute data base for future reference and for health planning purposes.

2. Methodology

This is a retrospective observational hospital based study undertaken at the Adult Neurology Outpatient clinics of Alex Ekwueme Federal University Teaching Hospital Abakaliki, a tertiary hospital in Abakaliki Nigeria. The hospital is a referral hub for Ebonyi state, and the surrounding states. The clinics hold on Tuesdays and Thursdays and they are run by teams made up of the consultant Neurologist, and resident doctors. The patients seen are mainly referrals from peripheral hospitals, other outpatient clinics within the hospital and those discharged from the wards on follow-up visits. The attendance registers of the clinics were used to extract information on biodata (age, sex) and diagnosis, from January 2019 to June 2020 (18 months). The diagnoses were made by consultant Neurorogist with additional confirmatory laboratory investigations as required. The data were analyzed with Statistical Package for the Social Sciences (SPSS) version 25. The categorical variables were presented as

proportions and percentages while numerical variables were presented as means and standard deviations.

3. Results

A total of 2661 patients were seen over the study period of 18 months in the neurology clinics and 1910 (72%) had neurological disorders. They were 1063 males and 847 females with sex ratio of about 3: 2. The age range was 18 to 89 years with mean age of 56.29±16.42 years. The details of age and sex distributions are shown in table 1. Stroke constituted 57.1% of the neurological disorders, while Seizure disorder (14.1%), Parkinsonism (6.8%), Dementia (6%), Spondylosis (4.6%) and Headache (4.1%) were other predominant neurological conditions in descending order of magnitude.The details are shown in Table 2.

Table 1. Age and sex distribution

Age range	Male (%)	Female (%)	Total (%)
18- 29	57(3)	105(5.5)	162(8.5)
30- 39	90(4.7)	47(2.5)	137(7.2)
40- 49	131(6.9)	147(7.7)	278(14.6)
50- 59	290(15.2)	172(9)	462(24.2)
60- 69	338(17.7)	210(11)	548(28.7)
70- 79	139(7.3)	158(8.3)	297(15.6)
80- 89	36(1.9)	8(0.4)	44(2.3)
Total	1063(55.7)	847(44.3)	1910(100)

Table 2. Disease distribution

Rank	Disease	Male (%)	Female (%)	Total (%)
1.	Stroke	635(33.2)	457(23.9)	1092(57.1)
2.	Seizure disorder	143(7.5)	127(6.6)	270(14.1)
3.	Parkinsonism	85(4.5)	44(2.3)	129(6.8)
4.	Dementia	48(2.5)	67(3.5)	115(6)
5.	Spondylosis	54(2.8)	34(1.8)	88(4.6)
6.	Headache	24(1.2)	55(2.9)	79(4.1)
7.	Polyneuropathy	20(1)	15(0.8)	35(1.8)
8.	Bell's palsy	5(0.3)	20(1)	25(1.3)
9.	Anxiety disorder	15(0.8)	8(0.4)	23(1.2)
10.	Myelopathy	13(0.7)	2(0.1)	15(0.8)
11.	Multiple sclerosis	3(0.2)	7(0.4)	10(0.5)
12.	Essential tremor	7(0.4)	1(0.1)	8(0.4)
13.	Others	14(0.7)	10(0.5)	24(1.2)
Total		1063(55.7)	847(44.3)	1910(100)

4. Discussions

The number of patients seen over the study period of 18 months was 1910 and it reflects the high burden of neurological disorders (Burton & Allen, 2003). This is similar to the findings of other hospital based studies within Nigeria and Africa (Komolafe et al., 2018; Onwuekwe & Ezeala-Adikaibe, 2011; Awan et al., 2017). The reported high disease burden is multi-factorial in origin and sterns from increasing longevity (Jamison et al., 2006), improved diagnostic tools, epidemiologic transition (Olagundoye & Olufunmilayo, 2016) and improved healthseeking behavior due to grassroot health education (Brieger et al., 2000).

There is a reported male preponderance and it sterns from more prevalent risk factors for neurological diseases like

hypertension (Choi et al., 2017), and head injury (Vagnerova et al., 2008) in male folks and also a better male healthseeking behavior due to cultural and economic reasons (Adam & Aigbokhaode, 2018).

The mean age of 56 years reflects the fact that neurological disorders are disease of middle age and elderly. This results from decreased levels of cholinergic receptors, reduced synthesis and release of acetylcholine, and a marked decrease in the number of muscarinic cholinergic neurons, all which may be linked to the age-related memory deficits as seen in Alzheimer's disease patients (Kowalska et al., 2017). Moreover, decrease in the levels of dopaminergic neurons of upto 40-50% may be observed in the substantia nigra and of dopamine in striatum at the end of the sixth decade of life, which is seen in Parkinson's disease patients (Kowalska et al., 2017). The prevalence of hypertension, diabetes, obesity and disorders of the cardiovascular system increases with age (Kowalska et al., 2017). The above listed factors contribute to higher prevalence of neurodegenerative and cerebrovascular disorders in the elderly folks.

Stroke, Seizure disorder, Parkinsonism, Dementia and Spondylosis were the most prevalent neurological conditions seen over the period in descending order of magnitude. This is similar to the report of other studies (Komolafe et al., 2018; Onwuekwe & Ezeala-Adikaibe, 2011; Awan et al., 2017). There is increasing prevalence of above conditions in Africa due to increased longevity of the population (Jamison et al., 2006).

Stroke constituted about 57% of the total patients seen and it underscores high burden of stroke as previously reported in the same centre (Eze et al., 2013; Eze & Kalu, 2014; Eze et al., 2020). This high prevalence could stern from high prevalence of CVDs risk factors and also from chronic consumption of salty water in Ebonyi state (Odikamnoro et al., 2014).

Seizure disorder was the second most common condition and constituted 14.1% of the neurological disorders with male preponderance. This is similar to other hospital based studies in Nigeria and Africa (Komolafe et al., 2018; Onwuekwe & Ezeala-Adikaibe, 2011; Awan et al., 2017). The male preponderance reflects higher risk factors for seizure disorder like traumatic brain injury in male folks (Vagnerova et al., 2008).

Parkinsonism accounted for 6.8% of the neurological conditions with male preponderance. The male preponderance is inkeeping with previous studies which reported 1.5 to 2 times risk in men than women (Wooten et al., 2004; Cerri et al., 2019). The above reflects higher prevalence of potential risk factors for parkinsonism such as chronic stress (Hemmerle et al., 2012) and exposure to pesticides, solvents and metals in farmers, woodworkers, painters, and medical workers (Teschke et al., 2014) in male folks. Furthermore, the neuroprotective effect of female sex hormones (Inestrosa et al., 1998) through the activation of the mitogen activated protein kinase pathway (Singer et al., 1999), modulation of Bcl-x (L) expression (Singer et al., 1998), and synergy with the free radical scavenger glutathione (Green et al., 1998) account for gender disparity.

Dementia accounted for 6% of the neurological disorders with female preponderance. This is in keeping with previous studies (Liu et al., 2019; Beam et al., 2018). Female preponderance could be accounted for by women's survival to longer ages, selective attrition of men due to early mortality attributable to cardiovascular risk factors with a competing risk of death or dementia, and lower thresholds of disease pathology required to produce symptoms (Beam et al., 2018; Chêne et al., 2015).

5. Conclusions and Recommendations

Neurological disorders are quite common in neurology clinics at Abakaliki Nigeria with preponderance of stroke.

There is need to have a dedicated stoke clinic to care for the numerous stroke patients. This will improve the service delivery and also address their peculiar challenges and foster formation and maintenance of stroke support groups.

There is also a need to train and retrain the medical personnel on the current stroke management protocols.

Finally, efforts should be channeled towards activities to ensure prevention of stroke as it is potentially preventable.

Competing Interests Statement

The authors declare that there are no competing or potential conflicts of interest.

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