

Profile of Neurological admissions at the University of Nigeria Teaching Hospital Enugu

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Abstract

Background: The burden of Neurological diseases may be on the increase especially in developing countries. Improved outcome in these settings may require appreciation of the spectrum of Neurological diseases and the impediments to their management. We aim to determine the profile of neurological admissions and the challenges of managing these diseases at the University of Nigeria Teaching Hospital Enugu South East Nigeria.

Methods: Analysis of Neurological admissions into the medical wards of the University of Nigeria Teaching Hospital Enugu from January 2003 to December 2007.

Results: Neurological admissions comprise about 14.8% of medical admissions. There were 640 (51%) males and 609 (49%) females. The spectrum of neurological diseases were stroke 64.9%, central nervous system infections (21.8%), HIV related neurological diseases 3.5%, hypertensive encephalopathy (3.4%), dementia (3%), subarachnoid haemorrhage (2.2%), Guillian Barre syndrome (1.2%), Parkinson's disease (1.1%), myasthenia gravis (1.0%), motor neurone disease and peripheral neuropathy and accounted for 0.8% and 0.6% respectively. Overall, non infectious disease accounted for 78.2% of neurological admissions while infectious diseases accounted for 21.8%.

Conclusion: A wide spectrum of neurological diseases occurs in our setting. The high incidence of CNS infections indicates that efforts should be geared towards preventive measures. A major challenge to be addressed in the management of neurological diseases in our setting is the lack of specialized facilities.

Key words: Profile, neurological admissions, Enugu

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Introduction

Neurological diseases (ND) affect millions of people world-wide¹. There are indications that the burden of such disease may increase as the populations become older. In more developed countries, advances in diagnostic techniques have aided the characterization, and definition of these diseases. In addition, application of recent

therapeutic measures has resulted in significantly improved outcome. Studies from some developing countries, however indicate that the pattern of these diseases as well as the outcome differ significantly when compared with developed countries. With the rising incidence of neurological diseases in many developing countries occasioned by changing life style, increasing incidence of HIV/AIDS, and improved life expectancy, morbidity and mortality directly related to (ND), might also increase². This is premised on the reported challenges of managing these diseases in a resource-limited setting. Appreciation of the burden of ND as well as the factors that may hinder proper management of these cases in any setting might be imperative in developing reasonable initiatives for better treatment outcomes.

This retrospective study aims to evaluate the burden of neurological diseases admitted at the University of Nigeria Teaching Hospital Enugu, south eastern Nigeria

Materials and Methods

The University of Nigeria Teaching Hospital, Enugu (UNTH), is the main tertiary referral health care facility that subserves the south east region of Nigeria. Patients with neurological diseases are referred from the primary and secondary health facilities located in Enugu, Abia, Imo, Ebonyi, Anambara, Rivers, and Kogi states of Nigeria. These cases are admitted into the medical ward either through the emergency, or from the outpatient departments of the hospital. Ultimately, these cases are managed by the neurology unit of the department of medicine. Common laboratory investigations available include complete blood count, routine chemistries, sedimentation rate, thyroid studies, prothrombin and partial thromboplastin time, HIV, Hepatitis and syphilis serologies, blood, urine and stool cultures. Common ancillary investigations available are CT Scan, chest, skull and spine radiography, electrocardiography and 2D Echocardiography. MRI, EEG and EMG were not available in the hospital at the time of study. From January, 2003 to December 2007, a total of 8440 patients were admitted into the medical wards of UNTH.

Of these, 1249 had ND. They were retrospectively analyzed. Data on age, gender, diagnosis, and outcome of treatment were collected from the admission records and discharge summaries.

Data was analyzed using SPSS version 15

Results

There were 1249 Neurological admissions comprising 14.8% of the medical admissions. Of this, 640 (51.2%) were males and 609 (48.8%) females (male female ratio of 1.1:1). Their age ranged from 18years to 83years (mean 45years). Table I show the age and sex distribution of patients.

The neurological diseases

This is summarized in table II.

Frequency: Stroke was the commonest neurological disorder necessitating admission with a frequency of 64.9% (810patients). This was followed by CNS infections which constituted 18.3% of the admissions. AIDS dementia complex and dementia from other causes accounted for 3.5%(44patients) and 3% (38patients)respectively. Hypertensive encephalopathy, subarachnoid haemorrhage, Guillian Barre, Parkinson Disease, Myasthenia Gravis were responsible for 3.4%(42patients), 2.2%(28patients), 1.2%(15patients), 1.1%(14patients) and 1%(12patients) of the neurological admissions respectively. Motor neurone disease and peripheral neuropathy accounted for 0.8%(10patients) and 0.6%(7patients) of the neurological admissions respectively.

Peak age incidence: The peak age incidence of stroke was 51-60 years for males and 61-70 years for females. CNS infections had a peak age incidence of 31-40 years. AIDS dementia complex, dementia and hypertensive encephalopathy had a peak age incidence of 41-50years, >70years, 51-60years respectively. subarachnoid haemorrhage, Gullian Barre syndrome, Parkinson disease, myasthenia gravis, motor neurone disease and peripheral neuropathy occurred more within the 41-50years, 21-30years, > 70years, 21-30 years, 51-60years, >70years age range respectively.

Gender distribution: Stroke was commoner in males with a male to female (M:F) of 1.03:1, CNS infections, Parkinson disease, dementia, peripheral neuropathy and hypertensive encephalopathy were commoner in males with a M:F ratio of 1.34:1, 2.5:1, 1.5:1, 1.3:1 and 1.1:1 respectively. However AIDS dementia complex, myasthenia gravis, subarachnoid haemorrhage, motor neurone disease and Gullian Barre syndrome were

commoner in females with a male female ratio of 0.7:1, 0.2:1, 0.4:1, 0.7:1, and 0.9:1 respectively.

Tables I: Age and gender distribution of patients

Age range (years)	males	females	Total (%)
< 20	-	2	2 (0.2)
21-30	10	17	27 (2.2)
31-40	101	60	161 (12.8)
41-50	139	83	222 (17.8)
51-60	246	147	393 (31.5)
61-70	99	249	348 (27.9)
>70	45	51	96 (7.6%)
total	640	609	1249 (100%)

Table II- illustrates the diagnosis and age range of the patients

Diagnosis	<20	21-30	31-40	41-50	51-60	61-70	>70	Total (%)
Stroke	-	-	2	83	352	314	59	810 (64.9%)
CNS infections	-	1	117	90	15	6	-	229 (18.3%)
dementia	-	-	-	-	-	11	27	38 (3.0%)
AIDS dementia complex	-	-	39	5	-	-	-	44 (3.5%)
Myaesthesia Gravis	1	11	-	-	-	-	-	12 (1.0%)
Parkinsons Disease	-	-	-	-	-	4	10	14 (1.1%)
Subarachnoid haemorrhage	-	-	2	26	-	-	-	28 (2.2%)
Motor neuron disease	-	-	-	-	5	5	-	10 (0.8%)
Gullian Barre syndrome	1	14	-	-	-	-	-	15 (1.2%)
Peripheral Neuropathy	-	1	1	2	-	3	-	7 (0.6%)
Hypertensive encephalopathy	-	-	-	16	21	5	-	42 (3.4%)
total	2	27	161	222	393	348	96	1249 (100%)

Table III illustrates the neurological diseases when compared with age group and gender

Diagnosis	<20		21-30		31-40		41-50		51-60		61-70		>70		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Stroke			-		2		72	11	229	123	82	232	26	33	411	399
CNS infections			0	1	83	34	41	49	6	9	1	5	0	0	131	98
dementia			-		-		-		-		10	1	13	14	23	15
AIDS dementia complex			-		14	25	4	1	-		-		-		18	26
Myasthenia Gravis	0	1	2	9	-		-		-		-		-		2	10
Parkinsons disease			-		-		-		-		4		6	4	10	4
Subarachnoid haemorrhage			-		1	1	7	19	-		-		-		8	20
Motor neuron disease			-		-		-		3	2	1	4	-		4	6
Gullian barre syndrome	0	1	7	7	-		-		-		-		-		7	8
Peripheral neuropathy			1		1		2		-		0	3	-		4	3
Hypertensive encephalopathy			-		-		13	3	8	13	1	4	-		22	20
total	0	2	10	17	101	60	139	83	246	147	99	249	45	51	640	609

Discussion

The finding from the study, which showed that neurological diseases accounted for 14.7% of all medical admissions, is comparable to the result of previous studies^{3,4}. Stroke was found as the commonest neurological disorder requiring admission as has been documented by previous authors⁵. However, it accounted for 64.9% of all neurological admissions, which is higher than the finding in earlier works done in Nigeria, where stroke was found to account for 0.5%-50.4% of neurological admissions^{5,6,7}. The increasing prevalence of stroke has been documented by previous authors in the continent⁸ and the reason for this increase may be related to the changing life style that occurred in our society in the past few years.

Central nervous system infections accounted for 18.3% of neurological admissions from the study. This finding was similar to earlier work^{9,10} but differs from another study in Nigeria in which CNS infections accounted for 22-26%^{8,11}. Though there is a reduction in CNS infections from this study compared with earlier studies in the country, it is worthy to note that this value is still high. This reduction may be related to improved immunisation strategy in the country in the past few years. However, the poor living conditions in our society, poverty, lack of medical personnel and unorthodox treatments like spiritual/healing homes are still conditions that militate against the drastic reduction of CNS infections in our society.

AIDS dementia complex accounted for 3.5% of neurological admissions during the period under study. In a study among HIV/AIDS patients in Tanzania, AIDS dementia complex occurred in 54% of the patients requiring admission¹².

Parkinsonism, Myasthenia gravis, Guillian Barre syndrome and other peripheral neuropathies, motor neurone disease were not very common as neurological diseases necessitating admission from the study. This finding was similar to that obtained by previous studies^{13,14}.

Also from the study, stroke was commoner in males, in the 6th decade of life and accounted for 64.2% of neurological admissions, while in females, stroke accounted for 65.5% of the neurological admissions and was more prevalent in the 7th decade of life. This finding is similar to earlier work done in the country^{8,9,13,15-19} and in the USA where stroke occurred in males at a mean age of 70.3years and a mean age of 75.1years for females²⁰. This shows that stroke occurs in blacks at a younger age than in whites as has been documented previously¹.

CNS infections were more prevalent in the 4th decade of life and was commoner in males. This is similar to previous reports¹¹. The high prevalence of infections neurological disorders shows that our society is still burdened with common practices that encourage these infections and at the same time, imbibing lifestyle that increase the occurrence of non communicable CNS disorders like stroke. Also the finding of CNS infections in young people, may have a negative impact on the human resources of the society.

AIDS dementia complex from the study occurred in the 4th decade of life with a slight female preponderance. Though there is dearth of information on peak age incidence of ADC in HIV positive patients necessitating admissions, it is important to know that it is frequent in young people who also have a higher incidence of HIV/AIDS. Even though the country has recorded a reduction in the general prevalence of HIV it is obvious that more work needs to be done through public awareness campaigns particularly aiming at young people.

Dementia, Parkinson disease, myasthenia gravis, Gullian Barre syndrome, peripheral neuropathy and motor neurone disease were less common reasons for neurological admission. This is similar to previous reports¹⁴.

Conclusion

The changing life style of the developing society has definitely altered the pattern of neurological diseases with stroke in the forefront. This in addition to the high prevalence of CNS infections has increased the disease burden in these settings. Emphasis should be

placed on life style modification, provision of basic health care facilities, better living conditions and public

awareness as to the cause and effect of neurological diseases.

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