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Clinical profile of childhood epilepsy in Nigerian children seen in a tertiary hospital

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ABSTRACT

Background: Epilepsies are the most common conditions encountered in most paediatric neurology clinics in many parts of the developing world. In sub-Saharan Africa epilepsies are secondary, reflecting persistently high risks at birth, and the adverse neurological sequelae of CNS infections during and beyond childhood. The study was designed to determine the clinical pattern of childhood epilepsies, probable aetiologies and associated comorbidities of the disease children.

Methods: The study was conducted within an 18 months period among children having established epilepsy attending the Neurology Clinic of University of Calabar Teaching Hospital (UCTH). The children and or care givers were interviewed by the authors and the following data were obtained and recorded in a questionnaire; bio data, age at onset of seizure. History was obtained to determine the possible cause of the seizure, type of epilepsy and associated comorbidities. The data obtained was analysed with SPSS version 20. P-value <0.05 was considered significant.

Results: Of the one hundred eighty children seen with various neurological morbidities during the study period, one hundred and seven had epilepsy which constitutes 59.4%. Generalized tonic clonic epilepsy was the commonest type of epilepsy found in 66 (61.1%) of the children with epilepsy, followed by simple partial and myoclonic epilepsy in 18.5% and 6.5% respectively. Severe birth asphyxia was responsible was the commonest identifiable cause of epilepsy in 19 (17.8%) of cases while central nervous system infection accounted for 14 (13.1%). Cerebral palsy was the commonest comorbidity in 20 (18.6%) followed by mental retardation in 17 (15.9%) of the children.

Conclusions: The study showed epilepsy to be the commonest neurological presentation among children presenting at the paediatric neurology clinic of our facility. Primary generalised tonic clonic epilepsy was the commonest type of epilepsy seen, followed by simple partial seizures. Cerebral palsy and mental retardation were the main associated comorbidities. Birth injuries mainly severe birth asphyxia and CNS infection were the major causes of epilepsy in our study. In conclusion, epilepsy is the commonest neurological morbidity in our environment, limited facilities and resources still militate against identifying the actual aetiology in most children with the disease. Effort should be intensifying to eradicate the preventable causes of the disease.

Keywords: Clinical, Childhood, Epilepsy, Profile

INTRODUCTION

Epilepsies are common childhood morbidities worldwide and they are associated with significant sociocultural, economic and health implications in the developing countries. L4 Studies have shown that

epilepsies are the most common conditions encountered in most paediatric neurology clinics in many parts of the developing world.⁵⁻⁷ Eighty per cent of epilepsies in children are said to live in developing countries.⁸ A Nigerian study by Izoura put the prevalence of childhood epilepsy at 60% among children attending the paediatric neurology clinic.⁵ Similarly, epidemiological surveys in

some communities in Bangladesh by Durkin et al confirm that seizure disorders are common, one study showing a prevalence rate of 68 out of every 1000 for any seizure history and 9 out of every 1000 for any unprovoked seizure, in children aged 2 to 9 years.⁹

Epilepsy in sub-Saharan Africa is mainly secondary, reflecting persistently high risks at birth, and the adverse neurological sequelae of viral, bacterial, malarial and other parasitic infections during and beyond childhood.¹⁰

However, there is very little information on the types of epilepsy or on their clinical presentations and clinical outcomes. These are important for planning management and for developing wider services within the country. The objective of this study was to obtain the clinical pattern of childhood of epilepsies, probable aetiologies and associated comorbidities of children with epilepsy in Calabar.

METHODS

The study was conducted between January 2015 to June 2016 among children having established epilepsy attending the Neurology Clinic of University of Calabar Teaching Hospital (UCTH). The UCTH patient population is largely composed of people from Cross River and Akwa Ibom States in South-Eastern Nigeria. Ethical approval for the study would be obtained from the UCTH ethical committee. A questionnaire with openended responses was administered on the epileptic children. The children and or care givers were interviewed by the authors and the data recorded into the form by the latter. These include; age of patient, sex, age at onset of seizure, history was also obtained to determine the possible cause of the seizure, type of epilepsy and associated comorbidities.

Selection criteria included all children presenting with epilepsy whose parents or care givers gave consent and the willingness of the children to participate after due explanation by the authors.

Diagnosis of epilepsy was made on clinical grounds, based on detailed history obtained from both the parents and the patients in most cases confirmed by electroencephalography. Neuroimaging was carried out where necessary.

Clinical diagnosis of epilepsy was established based on history of two or more unprovoked seizures witnessed by a responsible adult or the authors and sometimes by video recording of seizure event. Where there were doubts with verbal description, the parents or guardians would be requested to mime what they observed during attacks so that accurate seizure types were then recorded.

General physical examination was carried out on all the children and a detailed neurological assessment was also carried out to detect other neurological comorbidities.

The data obtained was entered into microcomputer running software, checked for accuracy, and analysed with SPSS version 20. P-value <0.05 was considered significant.

RESULTS

Of the one hundred eighty children seen with various neurological morbidities during the study period, one hundred and seven had epilepsy which constitutes 59.4%. Seventy-eight (72.9%) of the children with epilepsy were males while 29 (27.1%) were females giving a male: female ratio of 2.7:1. The age range 1-5 years had the highest number of children with epilepsy followed by those aged 6-10 years (Table 1).

Table 1: Age sex distribution of children with epilepsy.

Age (year)	Sex		Total
	Males	Females	
<1	9	2	11
1-5	27	11	38
6-10	22	7	29
11-15	17	7	24
>15	3	2	5
Total	78	29	107

Generalized tonic clonic epilepsy was the commonest type of epilepsy found in 66 (61.1%) of the children with epilepsy, followed by simple partial and myoclonic epilepsy in 18.5% and 6.5% respectively (Table 2).

Table 2: Types of epilepsy.

Types	Frequency	%
Generalised tonic clonic	66	61.1
Simple partial	20	18.5
Myoclonic	7	6.5
Complex partial	6	5.6
Absence	4	3.7
Tonic	2	1.9
Atonic	2	1.9
Focal with secondary generalization	1	0.9
Total	107	100

There was identifiable cause of epilepsy in 72 (67.3%) of the children with epilepsy. Severe birth asphyxia was responsible for 19 (17.8%) of cases while central nervous system infection, mainly meningitis and viral encephalitis accounted for 14 (13.1%). Congenital malformation of the brain and polycythaemia accounted for one (0.9%) case each, respectively. Twenty-two points two per cent of the study population has positive family history of epilepsy.

Fifty-eight (54.2%) of the children with epilepsy had no associated comorbidity, cerebral palsy was the

commonest comorbidity in 20 (18.6%) followed by mental retardation in 17 (15.9%) of the children. Other comorbidities were poor academic performance and abnormal behaviour (Figure 1).

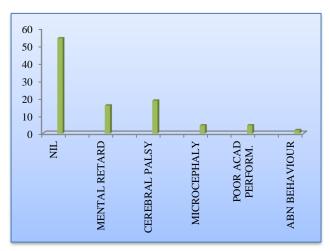


Figure 1: Comorbidities in children with epilepsy.

Thirty-two (30%) of the 107 patients had either received native medication or had been to spiritual houses for care before presentation in the hospital.

Over 75% of children with generalised form of epilepsy were controlled with sodium valproate while the others were treated with phenobarbitone, carbamazepine and clonazepam. Carbamazepine was the drug of choice for

most children with partial forms of epilepsy. (Table 3). There is statistical significant relationship between the type of epilepsy and the drug of choice. (P <0.05). Four children representing 3.7% of those studied had intractable seizures requiring more than one antiepileptic drug.

DISCUSSION

Epilepsy is the most common serious neurological disorder and is one of the world's most prevalent non-communicable diseases. It is estimated that the condition affects approximately 50 million people, around 40 million of them living in developing countries.¹¹

In line with the world trend, the study showed epilepsy to be the commonest neurological presentation among children presenting at the paediatric neurology clinic of our facility. This is also in agreement with previous studies by Izuora in south Eastern Nigerian and a community study by Durkin in Banglabash. ^{5,9} Incident studies performed in developing countries, particularly in Africa, reported a greater proportion of individuals to have epilepsy characterized by generalized onset seizures than epilepsy characterized by partial seizures. ¹² This agrees with findings in the present study where primary generalised tonic clonic epilepsy was the commonest type of epilepsy seen. The findings are similar to that of Aiziz et al in studies of patient with epilepsy in urban centres in Pakistan where 59% was documented. ¹³

Type of epilepsy	Antiepileption	Antiepileptic drug used				
	Na Valp	carbam	clonaz	phenobab	keppra	
Generalised tonic clonic	40	5	7	13	1	66
Simple partial	3	16	-	-	-	20
Myoclonic	7	-	-	-	-	7
Complex partial	-	6	-	-	-	6
Absence	4	-	-	-	-	4
Tonic	2	-	-	-	-	2
Atonic	2	-	-		-	2
Focal with sec gen	1	-	-	-	-	1
Total	61	25	7	13	1	107

Table 3: Relationship between type of epilepsy and antiepileptic drug used.

Parasitic infections, particularly neurocysticercosis, are important etiological factors for epilepsy in many of developing countries. Other reasons for the high prevalence include intracranial infections of bacterial or viral origin, perinatal brain damage, head injuries, toxic agents, and hereditary factors. Many of these factors are, however, preventable or modifiable, and the introduction of appropriate measures to achieve this could lead to a substantial decrease in the incidence of epilepsy in developing countries. ¹⁴ In our study, neurocysticercosis was not an identifiable cause probably because

neuroimaging was not done for most of our patients due to financial constraints and some patients with neurocysticercosis may have been missed, and secondly pork meat which is a main carrier of pork tape worm (Taenia solium) is not widely consumed in our locality. 15,16 However, birth injuries mainly severe birth asphyxia and CNS infection still remain major causes of epilepsy in our study. The high number of unidentifiable cause of epilepsy in the study may be attributed to limited investigations carried out as only about 30% of the

patients have neuroimaging study. Genetic studies could not be done due to financial constraints.

Approximately 30% of patients with epilepsy have significant neurological comorbidity mainly mental retardation, cerebral palsy, autism, prior stroke, major head trauma, encephalitis. Conversely, Epilepsy is more common in those with these neurological impairments or prior neurological insults. The more severe the neurological comorbidity the higher the frequency of epilepsy. In this study, cerebral palsy and mental retardation were the main associated comorbidities. This is not surprising as birth asphyxia; a major cause of epilepsy in childhood was previously documented as main cause of cerebral palsy in the same locality. The strong palsy in the same locality.

About a third of children with epilepsy in this study had either received herbal treatment or has visited healing homes before presentation in our facility which led to delayed presentation and complications. This is not surprising as the age long believe that epilepsy is due to attack by demons or gods is still being held by many people in our community.^{19,20}

CONCLUSION

In conclusion, epilepsy is the commonest neurological morbidity in our environment, limited facilities and resources in our environment still poses a major challenge in identifying the actual aetiology in most children with the disease. Effort should be intensified to reduce or completely eradicate the preventable causes of the disease.

Recommendations

Public enlightenment should be intensified on the need for early presentation to the hospital, with emphasis on the fact that the epilepsy is treatable.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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