

Pattern of Neurological Disorder Presenting At a Paediatric Neurology Clinic in Nigeria

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Abstract

Background: Neurological diseases account for more than 20% of the world's disease burden with majority of affected people living in Africa. However there is a paucity of literature on neurological disease in Africa.

Methods: A retrospective review of 114 children with neurological problem seen at a paediatric neurological clinic in a 2-year.

Results: Delayed developmental milestone, convulsion and inability to walk were the 3 most common reasons for referral to our Paediatric neurology clinic. Cerebral palsy (55.3%), Seizure disorder (26.3%) and postmeningitic complications (6.2%) were the common neurological disorder seen at our neurology clinic. The Paediatric outpatient department (POPD) of our hospital was the main source of referral for most cases (83.2%) and 71.1% of all patients resides within Zaria metropolis. The default rate from follow-up was higher among children with cerebral palsy compared to children with seizure disorder (58.7% vs. 13.3%, $P < 0.001$).

Conclusion: Lack of adequate facilities for proper rehabilitation of children with cerebral palsy could have been the main reason for the high default rate from follow-up.

Key words: Children, neurological disorders

Résumé

Introduction: La maladie neurologique constitue plus de 20% de problème de la maladie mondiale avec la majorité du peuple impliqué vivant en Afrique.

Méthodes: Une rétrospective de 114 enfants avec des problèmes neurologiques vus au centre médical neurologique pédiatrique pendant 2 ans.

Résultats: Développement retardé d'événement important, convulsion et l'impulsance de marcher étaient les trois raisons les plus ordinaires pour envoyer un malade dans un centre médical neurologique pédiatrique. Palsie cérébrale (55,3%), Trouble d'attaque (26,3%) et des complications postmeningitiques (6,2%) étaient des troubles neurologiques ordinaires vus dans notre centre médical neurologique. Le service pédiatrique des consultations externes (SPCE) de notre hôpital était la source majeure de renvoi pour la plupart des cas (83,2%) et 71,1% de tous les patients qui habitent dans un rayon de la métropole du Zaria. Le taux de défaut à partir des soins post-hospitalier était élevé parmi des enfants avec la palsie cérébrale par rapport aux enfants avec le trouble d'attaque (58,7% Vs 13,3%, $P < 0,001$).

Conclusion: La pénurie des aménagements adéquats pour une rééducation propre pour des enfants atteints de la palsie cérébrale pourrait être la raison majeure pour un faux de défaut élevé à partir des soins post-hospitalier.

Mots-clés: Enfants, troubles neurologiques

Introduction

Neurological diseases account for more than 20% of the world's disease burden with a greater majority of people affected living in Africa.^{1, 2} However, there is a paucity of literature on neurological disease in

Africa.^{3, 4} Although Hospital medical statistics do not reflect the true prevalence of a particular disease in the developing countries, they serve as an important source of information about any disease. This is a report on the pattern of neurological diseases as seen at a paediatric neurology clinic in Zaria, Nigeria.

Materials and Methods

The paediatric neurology clinic of Ahmadu Bello University Teaching Hospital (ABUTH), Zaria, Nigeria is run once a week (Mondays) by a consultant paediatrician assisted by paediatric registrars. The patients consist of referrals from the paediatric out-patient department (POPD), discharges from admission of the same Hospital, as well as referrals from hospitals outside ABUTH set-up. The case records of new patients registered over a two year period, 1st January 2002 to 31st December 2003 were reviewed. Data retrieved included the patient age at first contact, sex, the diagnosis, source of referral and area of domicile. The Chi-square test (X^2) for comparison of rates was used where necessary

Results

During the two years under review, 114 new cases were referred to the paediatric neurology clinic giving an average of 57 new cases with neurological diseases per year. There were 68 boys and 46 girls, M: F ratio of 1.5:1. The ages at first contact and sex distribution of the 114 children is presented in table 1. Out of the 114 children, source of referral were identified for 107 of them. Most of the patients (83.2%) were referred from the POPD of the same hospital, while 11 (10.3%) were referred after discharge from admission in the same hospital and only 6.5% were referred from elsewhere outside this hospital set up. Of the 114 children, 81 (71.1%) reside within Zaria metropolis while 13 of them (11.4%) reside outside Zaria metropolis but within Kaduna state. Eleven (9.6%) reside outside Kaduna state. The areas of domicile were not recorded in 9 cases.

Delayed developmental milestone, convulsion and inability to walk were the 3 most common reasons for referral to the paediatric neurology clinic (Table 2). The clinical diagnosis of the 114 children is displayed in table 3. Cerebral palsy and seizure disorder constituted 81.6% of all cases. Out of the 63 cases of cerebral palsy, spastic quadriplegia was found in 13 (20.6%), spastic diplegia in another 13 (20.6%), atonic cerebral palsy in 12 (19.1%) and spastic hemiplegia in 8 (12.7%) cases while in 3 (4.8%) of the cases the diagnosis was mixed cerebral palsy. The type of cerebral palsy was not stated in 14 (22.2%) of the children with cerebral palsy. Speech impairment was the commonest associated disorder in children with cerebral palsy, occurring in 22.2% of them. At the time of this review, 37 of the 63 children with cerebral palsy (58.7%) had defaulted from follow-up.

Of the 30 children with seizure disorder, 28 (93.4%) had generalized seizure disorder, 1 (3.3%) each had partial seizure and complex febrile seizure. Generalized tonic-clonic seizure was the most predominant form of generalized seizure, found in 24 of the cases (88.9%) while the remaining 4 (11.1%) cases had generalized atonic seizures. In 5 of the children with generalized seizure, there was obvious

preceding history of meningitis while in another 5 of the children there was a history of trauma mainly road traffic accidents (RTA). In the remaining 18 children, there were no obvious preceding histories of cerebral infections or trauma. Because this hospital does not have facilities for detailed neurological examination such as computerized tomography scan (CT scan) and magnetic resonance imaging (MRI), the exact causes of seizure disorder in these children are not clearly available, as such there was no attempt to define the aetiology of the seizure disorders. In contrast to children with cerebral palsy, only 4 of the 30 children with seizure disorder (13.3%) defaulted from follow-up ($p < 0.001$).

Table 1: Age and sex distribution of 114 children seen at paediatric neurology clinic in Zaria

Age at first contact (years)	Sex		Total (%)
	M	F	
0 – 12months	21	10	31(27.2)
≤5	34	27	61(53.5)
≤10	11	9	20(17.5)
≤15	2	-	2(1.8)
Total	68	46	114 (100)

Table 2: The main complaints at presentation of 114 children seen at paediatric neurologic clinic in Zaria

Complains	No. (%)
Delayed developmental milestones	64 (56.1)
Convulsion	33 (28.9)
Inability to walk	4 (3.5)
Hearing impairment	3 (2.6)
Hyperactivity	3 (2.6)
Delayed speech	3 (2.6)
Abnormal facies	2 (1.8)
Microcephaly	1 (0.9)
Fainting attack	1 (0.9)
Enuresis	1 (0.9)

Table 3: Clinical diagnosis in 114 children seen at paediatric neurology clinic in Zaria

Clinical diagnosis	No. (%)
Cerebral palsy	63(55.3)
Seizure disorder	30(26.3)
Post meningitis complications	7(6.2)
Chromosomal abnormality	3(2.6)
Attention deficit hyperactivity disorder	3(2.6)
Flaccid poliomyelitis	3(2.6)
Degenerative brain disease	1(0.9)
Sciatic nerve injury (intramuscular injection)	1(0.9)
No diagnosis stated	3(2.6)
Total	114 (100)

Discussion

This review has highlighted the spectrum of neurological disorders as seen at our paediatric neurology clinic. The predominance of boys with neurological disorders in this study is similar to other reports from Nigeria^{4, 5} and elsewhere.¹ This is in agreement with the general observation of higher incidences of epilepsy and other neurological disorders in males.⁵ The generally acknowledged likelihood of a male child being brought to the hospital for medical attention than the female has been speculated as a probable reason for this finding especially in the developing countries.⁴ Most of the children came from within Zaria metropolis or the immediate vicinity with only a small proportion travelling long distances to reach the clinic. This may be explained by the fact that of recent, federal medical centres, which are tertiary health facilities with specialist doctors, were established across the country.

A delayed developmental milestone was the single most common presenting complaint. This is different from other reports where convulsion is the most common complaint.^{1, 4, 6}

Cerebral palsy, seizure disorders and post meningitic complications constituted 87.8% of the total principal diagnoses at first attendance. This is similar to other reports from other parts of the country^{4, 6} and elsewhere in Africa.¹ However, while seizure disorder or epilepsy is the single most common of the principal diagnoses in the other reports, cerebral palsy was the single most common diagnosis in this report. This is similar to the report by Asindi⁷ from Calabar, south eastern part of the country, where cerebral palsy was the most common neurological problem seen. The differences may be explained by the socio-cultural differences of the population studied. Zaria is located in the Northern part of Nigeria which consists predominantly of Hausas/Fulani ethnicity. By tradition, the females are married out in their early teens, when the pelvic outlet is still inadequate and tend to have their babies at home. This tends to predispose them to obstetric complications during the natal and perinatal periods which are factors associated with increased incidences of birth asphyxia and consequent cerebral palsy. In previous reports from the same centre,^{8, 9} birth asphyxia ranked highest among causative factors for cerebral palsy.

We found that more children with cerebral palsy tend to default from follow-up visits compared to children with seizure. This is different from the report from Enugu,⁶ where the default rate is similar for both cerebral palsy and epilepsy (50% vs. 57%). Giving the poor state of facilities for the rehabilitation of children with cerebral palsy in our Hospital, it is not surprising to find parents defaulting from follow-up programme after few visits to the clinic. On the other hand, with proper choice of anticonvulsants, meaningful control of seizure can be achieved in children with seizure disorder, thereby encouraging parents to continue follow-up visits.

It must be acknowledged that the spectrum of neurological disorders presented in this study could

have been influenced by the investigative facilities available. It is possible that certain type of neurological disorders could have been under-represented because facilities for detailed neurological diagnosis were not available. Also, because correct diagnosis is an indispensable starting point in the proper management of any disease condition, it is possible that optimum management of these children could have been compromised. Obajimi et al,¹⁰ reporting on computed tomography and childhood seizures, showed that 62.3% of abnormal CT scans were amenable to surgery, and without CT scan, these treatable causes of seizures may have been missed.

While lack of adequate facilities for proper rehabilitation of children with neurological disorder appears to be the main reason for a high default rate from follow-up, it is possible that ignorance of the natural history of some of the neurological problems could have significantly contributed to the high default rate from follow-up. There is a need therefore for improved facilities for the proper rehabilitation of these children with neurological disorder and proper counselling of their parents/guardian about the possible natural histories of some of the neurological disorders.

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