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*Research Article*

## **Paediatric Neurological Conditions Seen at the Physiotherapy Department of Federal Medical Centre, Ido Ekiti, Nigeria: A Five Year Review**

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**ABSTRACT:** Paediatric neurological conditions constitute a major cause of disability in childhood. However there seems to be an apparent dearth of published works on the patterns of neurological conditions seen in Nigerian physiotherapy clinics of rural locations. This study aimed at describing the spectrum of neurological conditions among Nigerian children presenting at the outpatient Paediatric Physiotherapy Clinic of the Federal Medical Centre, Ido-Ekiti, Nigeria between January, 2006 and December, 2010. A retrospective case chart review of paediatric neurological cases seen within the study period was done. Data gleaned included: age, gender, source of referral, patient's place of domicile and specific diagnosis. Data were analyzed using descriptive statistics of mean and standard deviation, range and percentages, and the frequency distributions of the various data were calculated and presented in tables. A total number of 124 (72.9 % of total 170 paediatric patients seen) children presented with neurological conditions with mean age  $35.6 \pm 37.5$  months and a 1.3:1.0 male to female ratio. Cerebral palsy (43.6 %) in particular the spastic quadriplegia type accounted for majority of cases seen. Traumatic sciatic nerve palsy (29 %) was the second most common condition. Most of the patients (64.5 %) were referred from the Paediatric Outpatient Department of the same hospital with 56.5 % domiciled outside the hospital location but within Ekiti State. Cerebral palsy and traumatic sciatic nerve palsy are major health concerns among children in this environment.

**Keywords:** *Paediatrics, Neurological Conditions, Ido-Ekiti, Physiotherapy*

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### **INTRODUCTION**

Paediatric neurological conditions constitute a major cause of disability in childhood (Lagunju et al, 2009). These conditions are usually associated with motor impairments which include muscle weakness, abnormal muscle tone, decreased joint range of motion, and

decreased balance and coordination (Peters et al, 2008). Such neurological conditions include cerebral palsy, spina bifida, anterior poliomyelitis, peripheral nerve lesions and post viral polyneuropathies (Thomson et al 1999).

Paediatric neurological conditions often require a rehabilitation team approach for optimum care (Logigian, 1989). According to the Royal College of Paediatrics and Child Health (2004), the Paediatric Physiotherapist is a core member of the multidisciplinary rehabilitation team. Studies have shown that cerebral palsy is a major paediatric neurological condition that physiotherapists battle with in their course of practice (Peters et al, 2008; Al Naquib, 1998; Hayes et al, 1999). In a 5-year (1999-2004) review of acute flaccid paralysis (AFP) cases managed at the physiotherapy clinic of the University College Hospital, Ibadan Nigeria, Sciatic nerve palsy accounted for majority (Hamzat et al, 2006). Other

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paediatric conditions usually seen are epilepsy, neuromuscular disorders and mental retardation (Lagunju et al, 2009).

Although the important role of physiotherapy in the overall management of children with neurological conditions have been reported (Steyer – Acevedo, 1994; Michaud, 2004) and the conditions that constitute the majority of cases seen by physiotherapists in some parts of the world (Hayes et al, 1999, Miles et al, 1990) and a major city in Nigeria (Peters et al, 2008) are documented, what obtains in a Nigerian physiotherapy clinic of rural location was considered to be important and relevant, and was therefore investigated. This study therefore was aimed at describing the spectrum of neurological disorders seen among Nigerian children presenting at the outpatient paediatric physiotherapy clinic of the Federal Medical Centre, Ido-Ekiti, Nigeria. The specific neurological conditions and some demographic variables of the children who presented with the conditions were studied.

**MATERIALS AND METHODS:**

This study was conducted at the Federal Medical centre, Ido-Ekiti, a rural setting in Ekiti state, Nigeria. The hospital was established in July, 1998. As a tertiary health institution, it serves as a referral centre for all other health institutions in Ekiti-State and its environment. Ethical approval was sought and obtained from the institutional review committee of the Federal Medical Centre, Ido- Ekiti. Case files of paediatric outpatients seen in the physiotherapy department between January, 2006 and December, 2010 were retrieved. Subsequently, neurological cases were sorted out. Information garnered included age, gender, source of referral, patient’s place of domicile and specific diagnosis. These were entered into a spreadsheet for

data analysis. Data analysis was done using the SPSS version 16. Data were analyzed using descriptive statistics of mean and standard deviation, range and percentages, and the frequency distributions of the various data were calculated and presented in tables.

**RESULTS**

A total number of one hundred and seventy paediatric patients were managed at the Outpatient unit of the Department of Physiotherapy Federal Medical Centre between January 2006 and December 2010. Of this number, 124 children (72.9%) presented with neurological conditions with a male: female ratio of 1.3: 1.0. Gender distribution for each condition is presented in Table 1. The mean age of the children was 35.6± 37.5 months with age ranging from 1month to 13 years and highest number of cases recorded in 2008. The ages at first contact and sex distribution of the 124 children is presented in Table 2. Most of the patients (64.5 %) were referred from the Paediatric Outpatient Department of the same hospital, 29 (23.4 %) were referred from other hospitals while 12.1 % came on self-referral. Of the 124 children, 50 (40.3 %) resides in Ido- Ekiti, 70 (56.5 %) outside Ido-Ekiti but within Ekiti State while 3.2 % reside outside Ekiti state. Cerebral palsy (43.6%), predominantly the spastic quadriplegic type was the most prevalent cause of physiotherapy attendance. Table 3 shows frequency distribution of the types of cerebral palsy. Traumatic sciatic nerve palsy accounted for 29.0 % of cases. Central Nervous System Infections accounted for 8.1% of cases and comprised of meningitis, Poliomyelitis and Tetanus out of which meningitis was the condition most seen (Table 4). Only a case of spinal bifida was recorded.

**Table 1:**  
Gender Distribution of Paediatric Neurological Conditions [N=124]

Conditions	Total number n	Total %	Male		Female	
			n	%	n	%
Cerebral Palsy	54	43.6 %	34	63.0 %	20	37.0 %
Obstetric Brachial Plexus Injury	11	8.9 %	4	36.4 %	7	63.6 %
Traumatic Sciatic Nerve Palsy	36	29.0 %	19	52.8 %	17	47.2 %
CNS Infections	10	8.1 %	7	70.0 %	3	30.0 %
Paralysis of unspecified diagnosis	6	4.8 %	2	33.3 %	4	66.7 %
Radial Nerve Palsy	2	1.6 %	1	50.0 %	1	50.0 %
Facial Nerve Palsy	2	1.6 %	2	100.0 %	0	0.0%
Head Injury	2	1.6 %	2	100.0 %	0	0.0%
Spinal Bifida	1	0.8 %	0.0%	0	1	100 %

**Table 2:**

Age and Sex Distribution of 124 Children Seen at the Physiotherapy Department of Federal Medical Centre, Ido Ekiti

Age at first contact (Years)	Sex		Total (%)
	Male	Female	
0-12 months	24	17	41 (33.1)
≤ 5 years	36	29	65 (52.4)
≤ 10 years	6	4	10 (8.1)
≤ 15 years	5	3	8 (6.5)
<b>Total</b>	<b>71</b>	<b>53</b>	<b>124 (100)</b>

**Table 3:**

Types of Cerebral Palsy

Types	N	%
Spastic Quadriplegia	18	33.3%
Spastic Diplegia	4	7.4%
Spastic Hemiplegia	1	1.8%
Spastic Monoplegia	4	7.4%
Hypotonic	1	1.8%
Ataxia	2	3.7%
Mixed	3	5.6%
Normal	7	13.0 %
Unknown	14	26.0 %
<b>Total</b>	<b>54</b>	<b>100.0%</b>

**Table 4:**

Type of Central Nervous System Infections (N= 10)

Types	N	%
Cerebrospinal meningitis	7	70.0
Poliomyelitis	1	10.0
Tetanus	2	20.0
<b>Total</b>	<b>10</b>	<b>100.0</b>

## DISCUSSION

Paediatric neurological conditions constitute a major cause of disability in childhood. Children in the developing countries are disproportionately affected and in addition face the added burden of poverty, inadequate health facilities, stigmatisation and lack of facilities for rehabilitative care. This review has highlighted the spectrum of neurological conditions as seen at the physiotherapy department of Federal Medical Centre, Ido-Ekiti. This study showed that neurological conditions were the most common of all

the cases seen over the five year study period (72.9%). This is in agreement with the findings of Peters et al (2008) which showed that paediatric neurological conditions accounted for 86.3% of the total number of 546 paediatric cases that were reviewed.

The predominance of boys with neurological disorders in this study is similar to other reports from Nigeria (Lagunju et al, 2009; Peters et al, 2008). 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 (Oduori et al, 1973).

Cerebral palsy was the commonest (43.5%) reasons why patients sought for physiotherapy intervention. This is similar to finding of other researchers (Peters et al, 2008; Al Naquib, 1998). Furthermore, spastic quadriplegia found to be the most common type of cerebral palsy presentation. This is contrary to the high prevalence of spastic diplegia reported by Al Naquib (1998). Traumatic sciatic nerve palsy was the second most prevalent neurological paediatric condition seen in the 5 year review. This correlates with the findings of Hamzat et al (2006) and Peters et al (2008). All the cases observed in this study resulted after administration of gluteal intramuscular injection. This result therefore validates the submission of Ezeukwu (2007) that there is a need for public awareness on the dangers of unsafe and unnecessary injection procedures among children.

Majority of the patients with central nervous system infection mainly meningitis (5.6 %) presented with motor disorders and abnormal muscle tone. Also in this study only a case of poliomyelitis was managed. This low prevalence may be as a result of the mass immunization initiative for the eradication of the condition (WHO, 1997).

In conclusion, Children are at high risk of neurological problems with cerebral palsy and traumatic sciatic nerve palsy are major health concerns in this environment.

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