

Experience With Epilepsy in Children

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SUMMARY

Epilepsy is a common disorder among children. In order to determine the spectrum of seizures and epilepsies we studied one hundred children with two or more unprovoked seizures. Besides history and physical examination, all children had an interictal EEG done as well. Out of the hundred children, 54 had focal seizures, 46 had generalized seizures. So partial seizures constituted a higher proportion (54%) of the total seizures which is consistent with other experiences in the developing world.

INTRODUCTION

Epilepsy is the commonest neurological disorder among children. It affects approximately 0.5-1% of childhood population around the world^{1,2,3}. Epileptic seizures account for a large number of paediatric out-patient and emergency room admission⁴. Still there are many others that go undetected and untreated.

During the last 2 decades, numerous significant advances have been made in the field of epileptology. Epilepsies are no longer separated into big and small and terms such as grand mal and petit mal are now becoming obsolete because they are too vague⁵. Currently epileptic seizures are classified according to the scheme proposed by the commission on classification and terminology at the International League Against Epilepsy (ILAE)^{6,7,8}. These classification are based upon clinical description as well as EEG criteria and are being used and accepted allover the world. As a result, communication between medical professionals and researchers has been greatly facilitated. At the individual level, an accurate diagnosis of type of seizures and epilepsy helps in making a more appropriate treatment plan which in turn improves compliance, seizure control and the quality of life for the patient.

So far, data regarding epilepsy in children in Pakistan is scarce and very few studies describe seizures and epilepsies in accordance with the classification given by the ILAE. In this hospital-based study we used both clinical and EEG data to classify epilepsies and to determine the spectrum of

this disorder that is prevalent in our childhood population.

PATIENTS AND METHODS

This study was carried out in the Pediatric Outpatient Department of Shaikh Zayed Hospital, Lahore between January 1995 to October 1996. One hundred consecutive children aged between 4 months to to 13 years who had had two or more unprovoked seizures were included.

Children whose history suggested non-epileptic paroxysmal events were excluded at the outset. Initial evaluation of all children included a detailed medical history and physical examination. An eyewitness account of the seizures was obtained and analysed in each case. In patients with more than one type of seizures, the most frequent type occurring in the past 6 months was taken as the predominant seizure. A thorough physical examination was carried out in each case. Both history and physical examination helped in identifying the etiological factors in some. In cases where an underlying cause was found; were described to have symptomatic epilepsies whereas cases in whom no etiological factor could be determined were described as idiopathic.

A 30 minute interictal EEG using the 10-20 international system of montage placement was obtained in all children. Each record was carefully reviewed for any focal or generalized epileptiform activity and the findings were correlated with clinical data to classify the seizures and epilepsies according to the classification given by the ILAE.

RESULTS

Total number of children in this study was one hundred. Among these sixty seven (67%) were males and thirty three (33%) females, male to female ratio was 2:1. 85% were beyond 1 year of age at presentation (Table 1), the majority (34%) being in the 5-9 year range, although 68% had the onset of seizures prior to one year of age (Table 2).

Table 1: Distribution of patients according to age and sex (n=100).

Age (Years)	No. of patients	Male	Female
4-1	15	11	4
1-4	31	21	10
5-9	34	20	14
10-14	20	15	5
Total	100	67	33

Table 2: Distribution of patients according to the age at onset of seizures (n=100).

Age (Years)	Patients	Percentage
0-1	38	38
1-4	30	30
5-9	22	22
10-14	10	10
Total	100	100

In fifty four (54%) children a previous neurological insult was identified. These children were described to have symptomatic epilepsies. The presumed etiologies in these children included meningitis, encephalitis (16 = 29.5%), mental retardation (15 = 27%) and birth asphyxia (13 = 24%) (Table 3).

Out of the hundred intercal EEG, sixty five (65%) records showed an epileptiform discharge and were considered abnormal, while thirty five (35%) records showed no epileptiform discharge. Out of the 65 abnormal EEG's thirty seven (65.9%) had generalized discharge whereas a focal discharge

was observed in twenty eight (43%) EEG's (Tables 4 and 5). These EEG findings helped in classifying the seizure and epilepsies. These classification are given in Tables 6 and 7.

Table 3: Presumed etiologies of epilepsy in 54 children with symptomatic epilepsy.

Causes	Number	Percent
Previous encephalitis/meningitis	16	29.5
Mental retardation	15	27
Birth asphyxia	13	24
Old head injury	03	5.5
Neurocutaneous syndrome	02	3.7
Development brain anomaly	02	3.7
Degenerative brain disease	02	3.7
Previous stroke	01	1.8
Total	54	100

Table 4: Summary of EEG findings in 100 patients with epilepsy.

Normal	35	
Abnormal	65	
Focal epileptiform discharge	28	43.0%
Generalized epileptiform discharge	37	56.9%
Ratio of abnormal EEG's in symptomatic epilepsies	39/54	72%
Ratio of abnormal EEG's in idiopathic epilepsies	26/46	56%

DISCUSSION

Epilepsy is a chronic condition and thus requires long term management which is mainly based upon accurate diagnosis of the type of epilepsy. Although large population based studies are lacking in the paediatric age group prevalence in Pakistan is estimated to be 2.3% by some⁹.

The incidence of symptomatic epilepsies is higher in the developing world^{2,10,11}, because of high frequency of CNS infections, higher birth trauma and a very high consanguinity rate. In this series of patients as well, symptomatic epilepsy had a higher proportion of the total spectrum of epilepsies. In addition to mental retardation, previous CNS infections and hypoxic ischemic

encephalopathies were the most common predisposing factors.

Table 5: Details of findings in 65 abnormal EEG records.

	Patients	Percentage
Background		
Normal	40	61.5
Generalized slow	23	35.3
Focal asymmetry	2	3.0
Total	65	100
Epileptiform discharge		
Generalized sharp waves	6	9.2
Generalized spike and wave	21	32.3
Focal sharp waves	19	29.2
Focal spike and wave	7	10.7
Multifocal abnormality	3	4.6
Hypsarrhythmias	07	10.7
Total	65	100

Table 6: Classification of seizure type in 100 children with epilepsy.

1. Partial seizure	54
A Simple partial	
A1 Motor	3
A2 Somatosensory or special sensory	-
A3 Autonomic	-
A4 Psychic	-
B Complex partial	
B1 Simple partial onset followed by impairment of consciousness	6
B2 Impairment of consciousness at the onset	28
C Partial with secondary generalization	17
2. Generalized seizures	46
- Tonic clonic	19
- Tonic	3
- Clonic	-
- Myoclonic	14
- Absence	4
- Atonic	3

Table 7: Classification of epilepsies and epileptic syndromes of 100 patients with epilepsy.

1. Partial seizure	54
1.1 Idiopathic with age related onset being childhood epilepsy with centrttemporal spikes	4
1.2 Symptomatic	24
1.3 Cryptogenic	25
2. Generalized epilepsies	46
2.1 Idiopathic	
Absence	4
JME	-
Benign myoclonic epilepsy in infancy	1
Others	14
2.2 Symptomatic and/or cryptogenic	
West syndrome	7
Lennox gastant syndrome	2
2.3 Non-specific with symptomatic Etiology	18

In our study abnormal EEG records were obtained 65% of patients which helped in confirming the diagnosis and in classifying the seizure and epilepsies (together with the clinical data) in all the patients. The rate for positivity for an epileptiform discharge on first interical EEG is well within the previous experiences¹²⁻¹⁵. Contrary to the situation in the developed world^{1,16-18}, partial seizures are more frequently seen in this study. This, however, is consistent with other studies from the developing world^{2,11,19}. Complex partial seizures and partial seizures with secondary generalization are more common where as the ratio of simple partial seizures is low probably because they remain unrecognized or are underreported.

Among generalized seizures, the convulsive seizures i.e. the generalized tonic clonic and generalized tonic seizures represent the most common form. This may be due to their easier recognition and the urgency for medical intervention. Myocloic seizures are similarly more frequent as well and reflects the prepondrance of symptomatic epilepsies in this study population. Absence seizures on the other hand made a small proportion of all generalized epilepsies and one reason for this might be the poor recognition of these seizures by the family and physicians. However a lower incidence of absence seizure has been reported in other studies also¹⁸⁻²⁰.

In conclusion then, our experience of the use of ILAE classification has been useful and like other studies from the developing world, partial seizures were found to be more common than generalized seizures representing underlying neurological insults.

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