

Original Research Article

Clinical profile of children with epilepsy: a cross-sectional study

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ABSTRACT

Introduction: One of the most common chronic neurological disorders is epilepsy, affecting as many as 45 million individuals worldwide. The occurrence is higher in children below the age of three. Around 60 percent to 70 percent of epilepsy patients have an effective response to treatment with antiepileptic medications. This cross-sectional study aimed to explore the clinical profile of children with epilepsy.

Methods: Total of 100 children with different types of epilepsy was included in this study. After getting informed consent from the parents, all the demographic data, family history, clinical and laboratory investigations were recorded, and the results were statistically analyzed and discussed.

Results: 69 patients had tonic-clonic seizures, 15 patients had a complete partial seizure, 7 patients had absence seizures, 4 patients had unclassified seizures, 3 patients had simple partial seizures, 1 patient had myoclonic seizures, atonic seizures and multiple seizures. Aetiology, 72 patients had an idiopathic cause, 10 patients had hypoxic ischemia, 8 patients had Central nervous system (CNS) infection, 4 patients had cerebral palsy and space-occupying lesion, 2 patients had trauma. Comorbidity, 84 patients had none, 4 patients had mental retardation, 3 patients had eye diseases, cerebral palsy, protein-energy malnutrition, mental retardation with cerebral palsy, 1 patient had a hearing impairment. Drug therapy, 63 patients had sodium valproate, 11 patients had carbamazepine, 2 patients had multidrug treatment, and 1 patient had sodium phenytoin.

Conclusion: A significant amount of the aetiology of the condition is expressed among preventable causes of epilepsy. For generalized tonic clonic seizure, sodium valproate was observed to have more positive effects in paediatric patients.

Keywords: Epilepsy, Cerebral palsy, Seizures, Sodium valproate

INTRODUCTION

Epilepsy is a common paediatric condition characterized as a persistent predisposition to seizures and is heterogeneous. The estimated lifetime prevalence of epilepsy is approximately percent, with onset mainly in early childhood and in the elderly.¹ Epilepsy is a brain condition identified by at least two unprovoked seizures occurring more than 24 hours apart or an epilepsy syndrome diagnosis.² The symptoms of a seizure are determined by the anatomical location and distribution of the irregular neuronal diagnosis. Epileptic seizures may occur spontaneously or be induced by acute cerebral or

systemic insults, such as brain infections of the Central nervous system (CNS), Traumatic brain injury (TBI), cerebrovascular disease, metabolic disorders, and alcohol or drug withdrawal.

It has several causes that have been classified into three large etiological classes by the International league against epilepsy (ILAE): hereditary, structural/metabolic and unknown. The revised classification of epilepsy in ILAE is nuanced, involves multiple rare syndromes and relies on the availability of Electroencephalography (EEG) and neuroimaging, which are difficult to apply outside well-resourced clinics.³ Classification of seizures and epilepsy

depends on clinical requirements as well as EEG where accessible. The ILAE has given a sound system for the classification of seizure types and aetiology.⁴ The classification of seizures is categorized into two major categories: generalized and focal. Generalized seizures are generally categorized into absences and convulsions. Focal seizures are classified as focal motor, dyscognitive, other focal sensory and secondarily generalized seizures (formerly known as complex partial seizures). In tropical countries, this primary classification can be easily used, and history alone can be diagnosed, while EEG data helps distinguish those with focal onset.

Cognitive deficiency or psychological disorders are associated with epilepsy. Nevertheless, it is not clear if the prevalence of these conditions varies from non-tropical regions in tropical areas, given that there is little evidence. It significantly impairs short-term memory, psychomotor pace and sustained attention. Anxiety and depression are the most common conditions, with less reported psychosis. Seizure frequency, polypharmacy and stigmatization are correlated with them.

The EEG can help to determine the type of seizure; demonstrate photosensitivity and help identify the syndrome. This will help educate the prognosis and direct the treatment of epilepsy. The Pleasant guidelines suggest that an EEG should be carried out after the second unprovoked seizure, but in some instances after the first seizure, many clinicians require an EEG. The EEG cannot be used to rule out an epilepsy diagnosis, but if recorded during the recording, it will prove that incidents are epileptic. EEG anomalies in subjects that do not have epilepsy are common. Normal EEG, sleep EEG, outpatient EEG and video telemetry are among the EEG recording forms. Currently, accessible antiepileptic medications will prevent seizures in two-thirds of epilepsy patients and guarantee an almost everyday existence.

Aim

The aim of the study was to explore the clinical profile of children with epilepsy.

METHODS

This cross-sectional single institutional study was conducted from the January 2019 to December 2019 to in a Government Headquarters Hospital, Ramanathapuram, Tamil Nadu. Total of 100 children with different types of epilepsy was included in this study. After getting informed consent parents were interviewed in person for detailed history about the age of onset of seizures, type of seizures, frequency of seizures, family history of seizures disorders, presence of a neurological abnormality, birth history, history of meningitis and trauma. Then careful, all general and neurological examination was done for all the children's and EEG tracing had done, and the results were statistically analyzed and discussed.

RESULTS

Out of 100 children, 62 were males, and 38 were females.

Table 1: Sex distribution.

Sex	Number of children
Male	62
Female	38
Total	100

Out of 100 children, 62 were males, and 38 were females. Mean age was 5.4±2.9 years.

Table 2: Age distribution.

Mean age	5.4±2.9 years
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Out of 100 children based on types of epilepsy 69 patients had tonic-clonic seizures, 15 patients had a complete partial seizure, 7 patients had absence seizures, 4 patients had unclassified seizures, 3 patients had simple partial seizures, 1 patient had myoclonic seizures, atonic seizures and multiple seizures.

Table 3: Seizure types.

Seizures type	Frequency	Percentage
Simple partial seizure	3	3
Complex partial seizure	15	15
Absence seizure	7	7
Myoclonic seizure	1	1
Tonic clonic seizure	69	69
Atonis seizure	1	1
Unclassified seizure	4	4
Multiple seizure	1	1
Total	100	100

Table 4: Etiology of seizure.

Etiology	Frequency	Percentage
Idiopathic	72	72
Hypoxic ischemia	10	10
CNS infection	8	8
Cerebral palsy	4	4
Space occupying lesion	4	4
Trauma	2	2
Total	100	100

Out of 100 children based on etiology 72 patients had an idiopathic cause, 10 patients had hypoxic ischemia, 8 patients had CNS infection, 4 patients had cerebral palsy and space-occupying lesion, 2 patients had trauma.

Out of 100 children based on comorbidity 84 patients had none, 4 patients had mental retardation, 3 patients had eye

diseases, cerebral palsy, protein-energy malnutrition, mental retardation with cerebral palsy, 1 patient had a hearing impairment.

Out of 100 children based on drug therapy, 63 patients had sodium valproate, 11 patients had carbamazepine, 2 patients had multidrug treatment, and 1 patient had sodium phenytoin.

Table 5: Co-morbidity associated with the seizure.

Comorbidity	Frequency	Percentage
None	84	84
Mental retardation	4	4
Mental retardation with cerebral palsy	3	3
Cerebral palsy	3	3
Eye diseases	3	3
Protein energy malnutrition	3	3
Hearing impairment	1	1
Total	100	100

Table 6: Drug therapy.

Drug	Frequency	Percentage
Sodium valproate	63	63
Carbamazepine	11	11
Phenytoin sodium	1	1
Multi drug therapy	25	25
Total	100	100

DISCUSSION

In our research, the number of males compared to females was high, and the ratio proportion was higher in males compared to females. This is similar to the survey performed in his research by Mac et al.⁵ Also, relative to females, the male ratio was greater.

Most of them were children with a median age of 5.4±2.9 years in our study. In his research, Marsi et al reported that children with afebrile seizures were in a control group of healthy children between 1 and 12 months to determine risk factors for epilepsy.⁶

Most children in our study had tonic-clonic seizures followed by complicated partial seizures, absence of seizures, unclassified seizures, simple partial seizures followed by myoclonic seizures, multiple seizures and atonic seizures. This is comparable to the research carried out by Marsi et al, Aicardi et al and Liou et al.⁶⁻⁸

Most of the idiopathic causes in our study were accompanied by hypoxic ischemia, CNS infection, cerebral palsy and trauma. In his research, Sridhar et al.⁹ stated that 35% of seizures were due to perinatal asphyxia. In his research, Miller et al and Gunn et al claimed that the

most common cause of seizures was the perinatal cause.^{10,11}

In the majority of infants, EEG suggests epileptiform shifts. A research conducted by Baheti et al and szhuraj et al showed that epileptiform improvements are seen in 14-18 percent of EEG performance.^{12,13}

Most had no comorbidity in our study, accompanied by cerebral paralysis, mental retardation, eye disorders, and hearing impairment. Russ et al. stated in his research that the majority of seizures are associated with cerebral palsy Kolk et al.^{14,15} Children diagnosed with epilepsy indicated that concentration impairments, short-term memory, were seen.

The first line of the medication was sodium valproate followed by multidrug therapy, carbamazepine and sodium phenytoin in our study for the majority of children. Phenobarbitone was the first-line drug in the shorvon research, and carbamazepine was the first-line drug followed by valproate in the Bassali trial.^{16,17}

CONCLUSION

A significant amount of the aetiology of the condition is expressed among preventable causes of epilepsy. For generalized tonic clonic seizure, sodium valproate was observed to have more positive effects in paediatric patients.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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