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CLINICAL PROFILE OF CHILDREN PRESENTING WITH SEIZURE

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Abstract

Seizure is a sudden, uncontrolled electrical disturbance in the brain which causes changes in behavior, movements or feelings, and in the levels of consciousness. Suffering from more seizures or tendency to have recurrent seizures that may lead to epilepsy. This study is to describe the clinical profile of children presenting with seizure including common causes of seizure and classify the seizure types.

Methods: Hospital-based, analytic and descriptive study. This study includes all children in the age group 6 months to 12 years who presented in the department of paediatrics with seizure. Demographic analysis and analysis of different seizure types, analysis of patient based on the cause of seizure as well as outcome of patient presented with seizure in relation to demographic, fever diagnosis and status epilepticus.

Results: The total numbers of patients with seizure under study are 100 in which 61 were males and 39 were females. The most common clinical seizure type was generalized tonic- clonic (56.00%).

Conclusions: Seizures are one of the common causes of hospitalization. It can be inferred from this study that CNS infections are the most common cause of acute symptomatic seizure. The improvement in health care facilities like sanitation and immunization is warranted to prevent it.

Keywords: Generalized tonic-clonic seizures, Neurocysticercosis, Encephalitis, Tubercular meningitis

Introduction

Seizures are defined as a transient occurrence of signs and/or symptoms resulting from abnormal excessive or synchronous neuronal activity in the brain. Seizures constitute the commonest neurological problem in children with significant epilepsy having its onset in childhood. A considerable treatment gap exists in developing countries due to poverty, stigmatization, and lack of trained manpower. Evidence-based clinical practice guidelines can improve the quality of care. [1-2]

The common causes of seizures in children include: Neonatal seizures (infections, birth asphyxia, and metabolic causes), febrile convulsions, meningitis, viral encephalitis, neurocysticercosis, cerebral malaria, and epilepsy (symptomatic, cryptogenic, and idiopathic).[3] Between 6 months and 5 years of age, febrile seizures account for 2–5% of all seizures in children experiencing the first episode. Infections remain the major cause of seizures in developing nations.[4]

According to the World Health Organization, of the 50 million people with epilepsy worldwide, 80% reside in developing countries. Seizures account for about 1% of all emergency department visits, and about 2% of visits of children's hospital emergency department visits.[5]

In most of the studies, febrile seizures were reported to be the most common type seen in the pediatric population and account for the majority of seizures seen in children younger than 5 years of age.[6]

Central nervous system (CNS) infections are the main cause of seizures and acquired epilepsy in the developing world.[7] Classification of seizures, including generalized tonic-clonic (GTC), absence, myoclonic, focal, and other seizures types was based on the Commission on Epidemiology and Prognosis, 2010 ILAE.[8]

Material and methods:

Type of Study- This was a prospective, cross-sectional analytical study. Inclusion Criteria

- Children of both genders above the age of 1 year and below 12 years were included.
- Children attending with first - time seizures alone were included.
- Children with a history of fever were included.
- Children with a history of head injury were included.
- Children with acute symptoms and signs of seizures with altered sensorium were included in the pediatric intensive care unit were included.

Exclusion Criteria

- Children after 12 years of age were excluded.

- Children with the previous history of seizures or treatment of seizures were excluded.
- Children with severe head injuries requiring surgical interventions were excluded.
- Children with head injuries but associated with other body injuries were excluded.

A thorough clinical history taking was done to include the information of age (from 1 year to 12 years), gender, type of seizure, loss of consciousness, with or without status epilepticus, associated symptoms (fever, headache, vomiting, and altered sensorium), developmental history, and family history of seizure or epilepsy.

Preliminary investigations such as complete blood count, blood glucose, serum electrolytes, cerebrospinal fluid (CSF) analysis, Malaria parasite test, Chest X-ray, Montoux test, and neuroimaging including computed tomography (CT) scan head or cranial magnetic resonance imaging (MRI), EEG, and other tests were undertaken depending the urgency, availability, and necessity being taken into account.

Data analysis- Analysis of data was made using descriptive statistics and hypothesis testing. The Chi-square test and Fisher test were used to examine the association between different variables and strength of the relationship. $P < 0.05$ was considered as statistically significant.

Results:

Table 1: Socio-demographic variable

Variable		No of children	Percentage
Age	6 month- 5 yrs	55	55.00
	6-10 yrs	24	24.00
	>10 yrs	21	21.00
Sex	Male	61	61.00
	Female	39	39.00

Table 2: Type of seizure

Type of seizure	No of children	Percentage
GTC (Generalized tonic-clonic)	56	56.00
Partial	36	36.00
Absence	3	3.00
Myoclonic	2	2.00
Status E	2	2.00
Others	1	1.00
Total	100	100.00

Table 3: Etiology

Etiology	No of children	Percentage
Infection	25	25.00
Febrile	33	33.00
Seizure disorder	14	14.00
Head injury	12	12.00
Space occupy lesion	12	12.00
Metabolic disorder	4	4.00
Total	100	100.00

Table 4: Investigations:

Investigation		No of children	Percentage
CSF	Not done	34	34.00
	Abnormal study	22	22.00
	Normal study	44	44.00
EEG	Not done	76	76.00
	Abnormal study	9	9.00
	Normal study	15	15.00

Table 5: Outcome

Outcome	No of children	Percentage
Discharge without deficit	78	78.00
Discharge with deficit	13	13.00
Referred	6	6.00
Death	3	3.00

Discussion

This was a hospital based retrospective analytic and descriptive study of children presented with seizure. This study aimed to analyse demographics, clinical seizure types, etiologies and outcome of those children. This study excludes neonates and infants under 6 months of age because frequently they comprise one spectrum of diseases like septicemia, hypoxic-ischemic encephalopathy, and metabolic disorders.

Many studies done before shows high incidence of seizure in younger age group of children and a decreasing trend in older ones as well as more common incidence of seizure in males[9] . In our study also most children were younger than 5 years of age, even though not very significant but males had higher prevalence compared to female. Seizures presented with fever in 33.00% of cases. Generalized tonic-clonic seizure was found to be the commonest clinical seizure type and had higher incidence among children presenting with febrile seizure which is in accordance with the previous studies[7,10].

Partial seizures represented 36.00% of children in the current study. In the setting of higher incidence of meurocysticercosis in developing countries partial seizure is common.[8]

First attack of seizure can have many possible etiologies, neurologic/developmental causes, infection, metabolic disturbances, traumatic head injury, toxins, febrile seizure etc[7,8]. One of the most common cause of seizure attack was reported to be due to febrile seizure[4]. In our study febrile seizures constitute 33.00% and was found to be main the etiology of a first attack of seizure in children less than 5 years of age.

In our study the mortality rate during hospital stay among children admitted with acute episode of seizure was found to be similar with the mortality reports from other

developing countries and amounting to 3.00% .[8] There was poor outcome in children diagnosed with encephalitis and status epilepticus[11] there was good outcome in those children diagnosed with febrile seizure and neurocysticercosis.

Conclusion:

We concluded from this study that most of acute symptomatic seizures are caused by CNS infections like meningitis, encephalitis, tubercular meningitis and neurocysticercosis as well as by febrile seizure which can be prevented with improvement in health care facilities like sanitation and immunization and preparedness to deal with acute episodes of seizure.

In this study outcome was defined as mortality during stay in hospital. The details of other causes contributing for seizures could not be specified due lack of investigations (e.g. Inborn error of metabolism). Multicentric prospective study is needed to find out details regarding these problems.

References

1. Friedman MJ, Sharieff GQ: Seizures in children. Pediat Clin North Am 2006, 53:257–277.
2. Martindale JL, Goldstein JN, Pallin DJ: Emergency department seizure epidemiology. Emerg Med Clin North Am 2011 Feb, 29(1):15– 27.
3. Hauser WA: The prevalence and incidence of convulsive disorders in children. Epilepsia 1994, 35(suppl 2):S1–S6.
4. Idro R, Gwer S, Kahindi M: The incidence, aetiology and outcome of acute seizures in children admitted to a rural Kenyan district hospital. BMC Pediatr 2008, 8:5.
5. Chen CY, Chang YJ, Wu HP: New-onset Seizures in Pediatric Emergency. Pediatr Neonatol 2010, 51(2): 103–111
6. Murthy JMK, Yangala R. Acute symptomatic seizures — incidence and etiological spectrum: a hospital-based study from South India. Seizure. 1999;8:162–165. doi: 10.1053/seiz.1998.0251.
7. Huang CC, Chang YC, Wang ST. Acute Symptomatic Seizure Disorders in Young Children-A Population Study in Southern Taiwan. Epilepsia. 1998;39(9):960–964.
8. Basu S, Ramchandran U, Thapliyal A. Clinical profile and outcome of pediatric neuro-cysticercosis: A study from Western Nepal. J Pediatr Neurol. 2007;5:45–52
9. Rayamajhi A, Singh R, Prasad R, Khanal B, Singhi S. Study of Japanese encephalitis and other viral encephalitis in Nepali children. Pediatr Int. 2007;49(6):978–984.
10. Allen Hauser W, Beghi E. First seizure definitions and worldwide incidence and mortality. Epilepsia. 2008;49(Suppl. 1):8–12.
11. Geerts A, Arts WF, Stroink H, Peeters E, Brouwer O, Peters B. Course and outcome of childhood epilepsy: A 15- year follow-up of the Dutch Study of Epilepsy in Childhood. Epilepsia. 2010;51(7):1189–1197.