ORIGINAL RESEARCH PAPER

Paediatrics

CLINICAL PROFILE AND OUTCOME OF CHILDREN ADMITTED WITH STATUS EPILEPTICS IN PICU

KEY WORDS: Status epilepticus, mortality, clinical profile

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ABSTRACT

Background- Objective of this study was to study epidemiology and clinical profile of Status epilepticus
Methods- Hospital based cross sectional study conducted on 50 children at Dept. of Pediatrics, Jhalawar Medical College and Hospital, Jhalawar
Results- Among 50 children 56.00 % were in the age group were less than 5 years ,24 % were between 6-10 years ,20.00 % were above 10 yrs. The mean age group was 6.21±1.26 years. Incidence was higher in males (64%) when compared to females (36%). Generalized tonic clonic seizure were observed in 46 (92.00%) and partial seizure was noted in 4 (8%) of the children. About 36 (72%) of the children developed SE for the first time.
Conclusion- Status epilepticus is one of the common neurological emergency which requires admission to PICU. In our study epilepsy is one of the most common causes of status epilepticus. Early and appropriate treatment with anticonvulsants and use of mechanical ventilation may improve the outcome.

INTRODUCTION

Status epilepticus (SE) is a common life-threatening emergency that requires prompt recognition and management.[1] SE can represent an exacerbation of a preexisting seizure disorder, the initial manifestation of a seizure disorder, or an insult other than a seizure disorder resulting in seizures.

The classical definition of SE requires that seizures (continuous or intermittent without return to baseline mental status) last for a minimum of 30 minutes. However, seizures which last longer than 5 minutes are unlikely to stop spontaneously.[2] As part of operational definition put forth within the past few years, status epilepticus is defined as continuous seizure activity or recurrent seizure activity without regaining consciousness, lasting for more than 5 minutes. The use of operational definition allows early treatment before the seizure becomes refractory to antiepileptic drugs.4 Prolonged status epilepticus can lead to various complications such as cardiac dysrhythmia, metabolicderangements, autonomic dysfunction, neurogenic pulmonary oedema, hyperthermia, pulmonary aspiration and even permanent neurological damage. Approximately 4-10% of children experience one episode of seizure within first 16 years of life. Approximately 30% of patients presenting with status epilepticus are having their first seizure. Status epilepticus is most common in children younger than 5 years of age with an incidence of >100 per 100,000 children. Convulsive status epilepticus (CSE) is most common form of status epilepticus and accounts for about 90% of all SE in children. Mortality from status epilepticus varies from 3- 50% in different studies.[3,4]

MATERIAL AND METHODS

Study design: Hospital based prospective study
Study place: Dept. of Pediatrics, Jhalawar Medical College and Hospital, Jhalawar

Study population:
All children aged between 1 month to 12 years who at presentation or during the PICU stay had convulsive status epilepticus - defined as continuous seizure activity or recurrent seizure activity without regaining consciousness lasting for >5 min.

Sample size:
Sample size of 77 patients required at 80% study power and alpha error 5%. Madhu PK et al was found that 100 patients with status epilepticus admitted to PICU and mortality of 30%,

Sampling Method:
Simple random sampling

INCLUSION CRITERIA:
All children aged between 1 month to 12 years who at presentation or during the PICU stay had convulsive status epilepticus - defined as continuous seizure activity or recurrent seizure activity without regaining consciousness lasting for >5 min.

EXCLUSION CRITERIA:
Patients in whom the information regarding seizure duration will be incomplete or unclear.

Data Collection:
Informed consent will be obtaine from parents or guardians of the children included in the study. The duration of status epilepticus will be ascertaine from a reliable patient's relative or attendant, medical records and referring physician's note. After securing airway, breathing and circulation all the patients will be managed with standard treatment protocol.

Once the child will be stabilize, data which included age, sex, duration of seizures before and after admission, type and number of antiepileptic drugs (AEDs) used for control of status epilepticus (SE), history of previous seizure pattern, adherence to treatment, perinatal, developmental, family history and history of coexisting medical conditions will be recorde.

General physical examination and detailed neurological examination will be performe. Investigations like complete blood count, blood chemistries including serum calcium, random blood sugar, serum sodium, urea and creatinine, neuroimaging, CSF examination, Electroencephalography (EEG) will be performe as required to ascertain etiology and guide management. Further, during the hospital stay, recurrence of seizures, subsequent need for intubation and mechanical ventilation and days spent in PICU will be note. Type and etiology of status epilepticus will be classifie as per report of the International League Against Epilepsy (ILAE) task force on classification of status epilepticus.

Refractory status epilepticus (RSE) was defined as seizures which persist despite the administration of two appropriate anticonvulsants at acceptable doses, with a minimum

duration of status of 60 minutes (by history or on observation). Though febrile seizures are a part of acute symptomatic etiology, it has been considered separately for analysis as it is likely to erroneously amplify the severity of febrile seizures and dilute the severity of acute neurological insults.

Data Analysis:

All data were analyzed on EPI-info statistical software. Qualitative data were expresse in the form of proportion. Quantitative data were expresse in mean ± SD. Qualitative data were compare by Chi square test.Unpaired t test will be use to infer the difference in means.

RESULTS

Table 1. Clinico-demographic profile of scrub typhus

		No of cases	Percentage
Age	0-5 Yrs	28	56.00
	6-10 Yrs	12	24.00
	>10 Yrs	10	20.00
Sex	Male	32	64.00
	Female	18	36.00
Seizure type	GTCS	46	92.00
	Partial	4	8.00
Nausea / vomiting		9	18.00
Fever		28	56.00
Faecal and urinary incontinence		7	14.00
Headache		11	22.00
Developmental delay		13	26.00
Respiratory infection		5	10.00
Hospital stay		3.12±2.06 days	
Mortality		3	6.00

Among 50 children 56.00 % were in the age group were less than 5 years ,24 % were between 6-10 years ,20.00 % were above 10 yrs. The mean age group was 6.21±1.26 years. Incidence was higher in males (64%) when compared to females (36%).

Generalized tonic clonic seizure were observed in 46 (92.00%) and partial seizure was noted in 4 (8%) of the children. About 36 (72%) of the children developed SE for the first time.

DISCUSSION

In this study, it was found that children less than five years of age comprised the majority of the cases (56.00%). Other studies have also found a higher prevalence in the younger age group. As the first episode of convulsion has been theorized to be due to the underdeveloped mechanisms for control of seizure activity, there is a disruption of neuronal function with minimal abnormalities in younger children. Also, younger age is more vulnerable to acute etiologies including febrile seizures.[5,6]

In present study, the sex distribution shows slightly higher incidence of status epilepticus in males than females. Although they were almost in equal propotions, many other studies done both in pediatrics and adults shows similar type of results Gulati S observed 22 (70%) patients out of 31 were male.[7]

It was observed that GTCS type of seizure is the commonest of all 4 types similar incidence was observed by Kwong KL[8] and Gulati et al.[7]

CONCLUSION

Status epilepticus is one of the common neurological emergency which requires admission to PICU. In our study epilepsy is one of the most common causes of status epilepticus. Early and appropriate treatment with anticonvulsants and use of mechanical ventilation may improve the outcome.

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