

## **CLINICAL PROFILE AND SHORT-TERM OUTCOME OF PEDIATRIC STATUS EPILEPTICUS**

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### **ABSTRACT**

**Background:** Status epilepticus is more frequent in children than in adults and occurs in a variety of settings, especially in children with infections, and patients with previously established epilepsy, cerebral malformations, hypoxia, hypoglycaemia and head trauma. The present study was aimed to study the clinical profile and short-term outcome of pediatric status epilepticus at a tertiary care hospital.

**Keywords:** Status epilepticus, paediatric emergency, febrile seizures, neurological damage.

### **INTRODUCTION**

The new definition of Pediatric Status Epilepticus states a seizure activity lasting for more than 5 min with or without loss of consciousness. This definition makes early treatment assessment and intervention before the seizure becomes refractory to the anti-epileptic drugs.<sup>1,2</sup> It is estimated that 1.3 to 16% of all patients with epilepsy will develop SE at some point in their lives.<sup>3</sup> Approximately 70% of SE occurs in children less than one year, 75% in less than three years of age and the first episode most commonly occurs around 2.5 years after initial diagnosis.<sup>4</sup> It is more frequent in children than in adults and occurs in a variety of settings, especially in children with infections, and patients with previously established epilepsy, cerebral malformations, hypoxia, hypoglycaemia and head trauma. In many cases, SE can be the first unprovoked manifestation of a seizure disorder.

If status epilepticus not controlled can lead to various complications such as cardiac dysrhythmias, metabolic derangements, autonomic dysfunctions, hyperthermia, pulmonary aspiration and permanent neurological damage.<sup>6</sup> Present study was aimed to study clinical profile and short-term outcome of pediatric status epilepticus at a tertiary care hospital.

### **MATERIAL AND METHODS**

Present study was single-center, prospective, descriptive & observational study, conducted in Department of Pediatrics, Yenepoya Medical College, Mangalore, India. Study duration was of 2 years (July 2013 to June 2015). Study approval was taken from institutional ethical committee prior to start of study.

#### **Inclusion criteria**

- Children of age 1 month to 12 years, either gender, admitted with status epilepticus or developed status epilepticus during the course of their illness, willing to participate in study.

#### **Exclusion criteria**

- Neonatal seizures. Seizures in developmentally abnormal children.
- Parents/guardians not willing to participate

Study was explained & a written informed consent was taken from guardians before participation in study. Clinical details such as present complaints, demographic data, past history of seizures, birth history, developmental history, family history, drug history, immunization status were noted. Detailed clinical examination including a complete neurological examination was done. Investigations as complete haemogram, blood sugar, Serum sodium, Serum calcium were done for all patients. Liver function test, chest X-ray, Mantoux test, CSF analysis, EEG antiepileptic drug (AED) levels, toxicological studies, lumbar puncture, electroencephalography, and neuroimaging (Computed tomography [CT] scan and Magnetic resonance imaging [MRI] were done wherever indicated and results recorded.

Treatment details, clinical course, outcome with regard to complete recovery, any neurological deficits, morbidity and mortality were noted.

Data was collected and compiled using Microsoft Excel, analysed using SPSS 23.0 version & data was analysed with descriptive statistics.

**RESULTS**

Table 1 – patient characteristics

Characteristic	Number of Cases
Age distribution (years)	
1 month to 12 months	23
1-3 years	61
4-6 years	11
6-12 years	13
Sex distribution	
Boys	65
Girls	43
Type of seizures	
Generalized tonic-clonic	65
Focal, impaired awareness	22
Focal evolving to bilateral tonic-clonic	12
Generalized tonic	9
Other characteristics	
Pre-existing epilepsy	33
Seizure duration,	17.5 ± 11.7 min

Table 2: Etiology

Suspected etiology	No. Of cases
Atypical febrile seizures	43
Meningitis	17
Cryptogenic	14

Hypoglycemia	13
Encephalitis	9
Head trauma	3
Hypocalcemia	3
CNS tuberculosis	2
Hypernatremia	2
Neurocysticercosis	1
Hyponatremia	1

Table 3: Duration of seizures.

Duration from onset of seizures to arrival in hospital	No. Of cases
< 2 hours	65
2-4 hours	38
> 4 hours	5

Table 4: Other characteristics

Parameter	Mean $\pm$ SD/ Number of cases (%)
Duration in ICU (no. of days)	3 $\pm$ 1.23
Duration of hospital stay (no. of days)	5.43 $\pm$ 2.78
Intubation required	17 (15.74 %)
Required mechanical ventilation	13 (16.25 %)
Length of Mechanical ventilation (day)	1.24 $\pm$ 0.5
Refractory status epilepticus (%)	7 (8.75 %)
General anaesthesia-Thiopentone required	11 (13.75 %)
Mortality	5 (4.63 %)
• Acute CNS injury	3 (2.78 %)
• Progressive encephalopathy	2 (1.85 %)
Median survival time (days)	1.52 $\pm$ 0.67

## DISCUSSION

Status epilepticus is a common pediatric emergency that requires prompt recognition and management. Understanding the clinical profile and factors predicting morbidity and mortality in children with convulsive status epilepticus helps to modulate the management and improve prognosis.

The distribution of etiology for status epilepticus is age dependent in children; febrile or acute symptomatic cause is most common in younger children below 2 years of age; whereas remote symptomatic causes predominate in children above 2 years of age.<sup>5</sup> Past history of seizures and neurological insult was more common in children with SE aged above 2 years than those below 2 years.<sup>5</sup> In contrast to developing countries where CNS infections

are the predominant cause of SE in children, febrile SE and idiopathic (unknown etiology) cause form the majority in developed countries.

Prolonged seizures are associated with increased risk of mortality and morbidity.<sup>15</sup> Unfortunately, due to lack of public awareness, absence of prompt availability of medical care, and lack of infrastructure to transport to appropriate centers there is significant delay in children reaching the tertiary care centers in developing countries.<sup>16</sup> The cause of SE is the most important factor that determines morbidity and mortality. Failure to treat the underlying cause promptly and correctly will preclude seizure control regardless of which anti-epileptic drug one chooses.

## **CONCLUSION**

The longer the SE is present, the more difficult is the control and more is the risk of permanent neurological damage.

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