

Clinico-Etiological Profile and Outcome of Children with Status Epilepticus Admitted in Pediatric Intensive Care Unit of a Tertiary Care Hospital: A Prospective Observational Study

Reshma Ray¹, Venkata Sai Ravi Teja Mamilla²

¹Junior Consultant, Department of Paediatric, Motherhood Hospital, Gurugram, Haryana, India

²SR, Department of Paediatric, Motherhood Hospital, Gurugram, Haryana, India

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Corresponding Author: Dr. Reshma Ray

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Abstract

Status epilepticus (SE) is a life-threatening neurological emergency in children associated with significant morbidity and mortality if not promptly managed. This prospective observational study aimed to evaluate the clinico-etiological profile and outcomes of children admitted with SE in a Pediatric Intensive Care Unit (PICU). A total of 80 children aged 1 month to 12 years were included over a one-year period. Clinical characteristics, etiological factors, treatment modalities, and outcomes were analyzed. The most common age group affected was 1–5 years, with a male predominance. Generalized tonic-clonic seizures were the most frequent presentation. Central nervous system infections and febrile seizures were the leading etiologies. Majority of patients showed favorable outcomes with timely intervention, while a small proportion developed neurological sequelae or mortality. Early initiation of antiepileptic therapy and identification of underlying cause significantly influenced outcomes. The study emphasizes the importance of prompt diagnosis and management in improving prognosis in pediatric SE.

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Introduction

Status epilepticus (SE) is defined as a prolonged seizure lasting more than 5 minutes or recurrent seizures without regaining consciousness between episodes [5]. It represents one of the most common pediatric neurological emergencies requiring urgent intervention [1]. The incidence of SE is higher in younger children, particularly below five years of age [2]. Etiology varies widely and includes febrile seizures, central nervous system infections, metabolic disturbances, and pre-existing epilepsy [6]. The outcome of SE depends on multiple factors such as etiology, duration of seizures, and timeliness of treatment [3]. Despite advances in intensive care and antiepileptic drugs, SE continues to contribute significantly to pediatric morbidity and mortality [7]. Data from developing countries indicate that infections remain a major cause [6].

This study was conducted to assess the clinico-etiological spectrum and outcomes of children with SE admitted to a tertiary care PICU, aiming to improve management strategies and reduce adverse outcomes [4].

Materials and Methods

Study Design: Prospective observational study.

Study Population: Children aged 1 month to 12 years admitted with status epilepticus in PICU.

Study Period: January 2024 – December 2024.

Place of Study: Motherhood Hospital, Gurgaon.

Sample Size: 80 patients.

Inclusion Criteria

- Children aged 1 month to 12 years
- Diagnosed with status epilepticus
- Admitted to PICU during study period

Exclusion Criteria

- Neonates (<1 month)
- Pseudoseizures
- Incomplete clinical records
- Refusal of consent

Data Collection Tools

- Pre-structured proforma
- Clinical examination
- Laboratory investigations (CBC, electrolytes, CSF analysis)
- Neuroimaging (CT/MRI)
- EEG findings

Data Analysis

- Statistical analysis performed using SPSS software
- Descriptive statistics (mean, percentage)

- Chi-square test for association
- p-value <0.05 considered significant

Results**Table 1: Age Distribution**

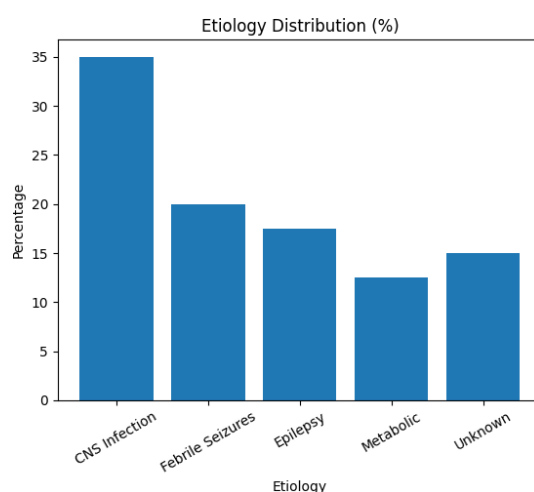
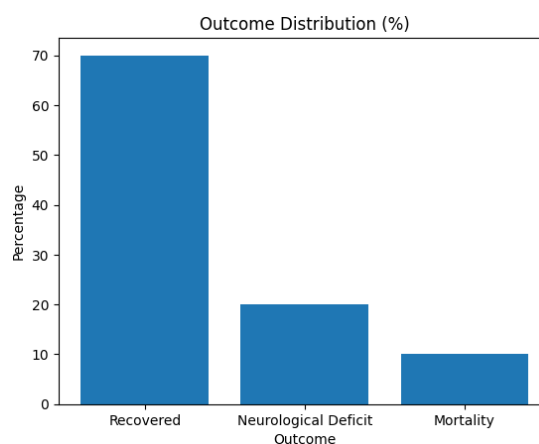
Age Group	Number (n=80)	Percentage
<1 year	20	25%
1–5 years	36	45%
>5 years	24	30%

Table 2: Etiology of Status Epilepticus

Etiology	Number	Percentage
CNS Infection	28	35%
Febrile Seizures	16	20%
Epilepsy	14	17.5%
Metabolic Causes	10	12.5%
Unknown	12	15%

Table 3: Outcome

Outcome	Number	Percentage
Recovered	56	70%
Neurological Deficit	16	20%
Mortality	8	10%

**Figure 1: Etiology Distribution****Figure 2: Outcome**

Discussion

The present study highlights that status epilepticus is more common in younger children, particularly in the 1–5 years age group, consistent with previous studies [1,2]. Male predominance was observed, similar to earlier findings [3]. Central nervous system infections were the leading cause, aligning with studies from developing countries where infections remain a major contributor [6]. Febrile seizures were the second most common etiology, which is consistent with other pediatric SE studies [3].

The majority of children recovered completely, while mortality was observed in 10% of cases, comparable to previous reports [1,3]. Early administration of antiepileptic drugs significantly improved outcomes, reinforcing existing evidence that treatment delay worsens prognosis [4].

Neurological sequelae were seen in a subset of patients, particularly those with prolonged seizures and infectious etiologies. These findings emphasize the need for early recognition and aggressive management in PICU settings.

Conclusion

Status epilepticus remains a significant pediatric emergency with varied etiologies. CNS infections are the leading cause in developing settings. Early diagnosis and prompt initiation of antiepileptic

therapy significantly improve outcomes. Strengthening PICU management protocols can reduce morbidity and mortality.

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