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To Study Clinical Profile and Short-Term Outcome of Pediatric Status Epilepticus at a Tertiary-Care Center in Central India

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ABSTRACT

Objective: To assess clinical profile and short term treatment outcomes of pediatric status epilepticus (SE) at a tertiary - care center in central India

Methods: Prospective observational study. All Patients between age of 01month to 14 year presented as status epilepticus were managed as per IAP protocol of status epilepticus and, data was collected after taking written consent. They were studied for clinical presentation, efficacy of management and short-term outcome.

Results: In our study on maximum age group children between 1-5 year i.e. 72 (68.57%). followed by >5-14 year were i.e. 21(20%) and <12month were 12(11.4%). Preponderance of male 55(52.4%) over female child 50(47.6 %) was observed. Most of 70.5% children present GTCS type of seizure on admission. Most of the cases CNS infections were predominant. In our study, presence of fever was documented in 85 subjects out of 105 cases. Our Study short term overall mortality rate was found to be 20(19) % child. Out of these 17(85 %) deaths belongs to the infectious etiology. Study was found that these 20 children mortality 17 (27.4%) mortality was these children where time taken to controlled seizure(>30 min).and those children start the management delay. in our study maximum number of subjects for termination of seizure lorazepam 65.7 %used as first line and in the remaining 36(34.3%) subjects midazolam was used In our study univariate analysis showed factors associated with a high risk of mortality in status epilepticus are prolonged duration of seizures (p- value, 0.015) time taken to control seizures (p-value <0.0001) nutritional status (p-value 0.008)We conclude that rapid termination of seizure important steps to good outcome in term of mortality and morbidity in SE.

Conclusions: Acute symptomatic etiology, mainly acute CNS infections, is the leading cause of SE in this region. Early and pre-hospital management with benzodiazepines may improve SE outcome. Prolong duration of seizures and not respond to AED were major contributing factors in our study. All efforts to make to diagnose status epilepticus, so that we control seizure early by no delay for treatment.

Key words: Atypical febrile seizures, Meningitis, Status epilepticus

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INTRODUCTION

Status Epilepticus: A seizure lasting more than 30 minutes or recurrent seizures for more than 30 minutes, during which the patient does not regain consciousness [1]. The ILAE defines SE as "a seizure that shows no clinical signs of arresting after a period encompassing the great majority of seizures of that type in most patients or repeated seizures without interictal resumption of baseline central nervous system function [2,3] it is a major medical and neurological emergency. The incidence of childhood convulsive SE (CSE) in developed countries is approximately 20/100,000/year but it depending to socioeconomic and ethnic characteristics of the population [4] A condition can have long haul

outcomes (later time point t2), including, neuronal injury, adjustment of neuronal organizations, & neuronal passing relying upon the sort & span of seizures [5] The final neurological outcome mainly depends on the duration of SE and response to antiepileptic. This was studied extensively and it has been concluded that as the seizures occurring more than 30 min, the mortality was nearly 10-fold higher than the seizure of lower duration [6]. Thus early recognition and prompt treatment/ cessation of seizures is the important strategy to reduce the grave outcomes [7]. Immediate intervention is important whenever the patient has SE [8].

AIMS AND OBJECTIVES

Study factor affecting short term outcome of status epilepticus.

METHODS

Study Type: Prospective Observational Study.

Study Period: March 2017 To August 2018.

Place: Pediatrics ICU, NSCB MCH, Jabalpur (M.P).

Inclusion criteria

Child 1month - 14 year presenting with SE, admitted in PICU N S C B MCH Jabalpur. Status epilepticus were managed as per IAP protocol of status epilepticus & data was collected after taking written approval. Detailed history including past medical & drug history and clinical examinations findings were recorded in a pretested Performa.

Exclusion criteria

Patient whose parents did not give consent. Patients already treated in other hospital as status epilepticus then referred to N S C B MCH. Children admitted for other complaints and developing status epilepticus during the course of their illness.

Sample size-105.

N=Z2pq/l2

RESULTS

In our study we observed that maximum subjects were in age group 1-5 year i.e. 72 (68.57%) followed by in age group >5-14 year were that is 21(20%), and in age group 01month. In our study we found maximum cases in age group of 1-5 yrs. (37) in males whereas in female (34) in 1-5 years (Table 1).

In our study we found 70.5% (GTCS) most common type of seizure. Poor socio economic status (48.6%), most of the presentation with fever (81.0%) (Figure 1). Maximum no of subjects 62 (59%) were presented with duration of convulsion more than 30-60 minutes. Maximum number of subjects as first line that is 66% and in the remaining 36(34 %) subjects midazolam was used because of the unavailability of lorazepam (Tables 2-5) (Figures 2 and 3).

Table 1: Distribution of subjects according to age and gender.

Age		Gender	
		Male (N=55)	Female (N=50)
1 -<12months	(11.40%)	7	5
1-5 yrs.	(68.57%)	37	34
>5-14 yrs.	(20%)	11	10

DISCUSSION

In our study, out of 105 subjects overall mortality rate was 20 (19%). Major factor is long interval between the

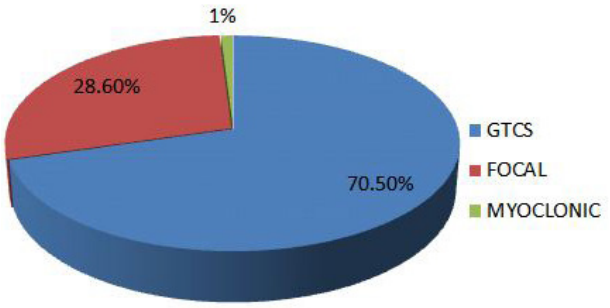

Figure 1: In our study we found 70.5% (GTCS) most common type of seizure. Poor socio economic status (48.6%), most of the presentation with fever (81.0%).

Table 2: Occurrence of clinical features.

S No	Clinical features	Feature present in No (%)
1	Type of seizures: GTCS	74(70.5%)
2	Focal	30(28.6%)
3	Myoclonic	01(01%)
4	Poor socio-economic status	51(48.6%)
5	Poor nutritional status	32
6	presence of fever	85(81.0%)

Table 3: Distribution of subjects according to nutritional status and social economic their outcome.

Clinical features	Outcome	
	Survived	Death
Lower SE Status (n=51)	34 (32.3%)	17 (16.2%)
Poor Nutritional Status (n=32)	17 (53.3%)	15 (46.8%)

Table 4: Distribution of subjects according to duration of seizures on admission and their outcome.

Duration of seizures on admission	Outcome	
	Survived	Death
>5 min-30 min (n = 38)	36 (94.73%)	2 (5.26%)
>30-60 min (n = 62)	45 (72.58%)	17 (27.41%)
>60 min (n = 5)	4 (80.00%)	1 (20.00%)

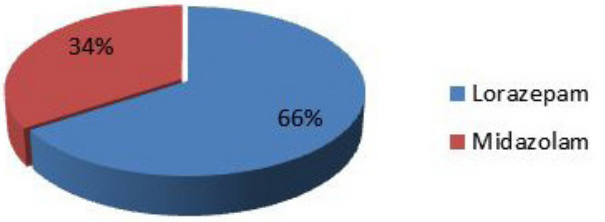

Figure 2: Distribution of subjects according to benzodiazepines used.

Table 5: Distribution of subjects according to time taken to control seizures after started and their outcome.

Time Taken To Control Seizures	Outcome	
	Survived	Death
0-5 min(n=1)	1	0
>5-30 min(n=38)	35	3
>30-60 min(n=47)	45	2
1-24 hours(n=10)	4	6
>24 hours(n=9)	0	9

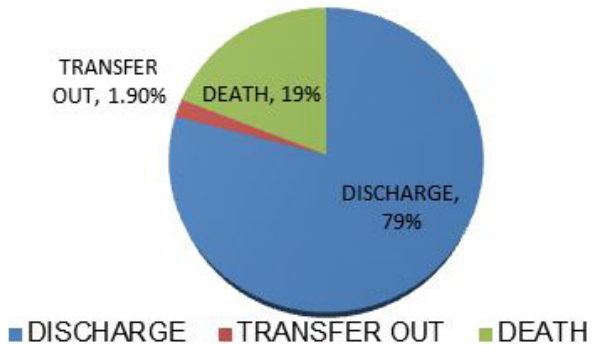

Figure 3: Distribution of subjects (n= 105) according to outcome.

onset of status and initiation of appropriate treatment was noted in the series reported from developing countries. In our study, the most affected children age group was 1-5 years 72 (68.5%) subjects. Similar observations were from Kumar et al. [8] and Selvan et al. [9]. In our study we observed that males were more affected i.e. 55(52.4%) as compared to that of female subjects 50(47.6%).Similar observations were from Kumar M et al [8] and Das et al. [10]. Our study demonstrated that, most common type of seizures noted was generalized tonic clinic seizure (70.5%). subjects results were comparable to the observations from the study done by Das N k and colleagues [9]. In our study, presence of fever was documented in 85 subjects out of 105 cases. As the seizure progresses, the body's core temperature elevates [11] in our study maximum number of subjects for termination of seizure as first line used lorazepam 66 % and in the remaining 36 (34%) subjects midazolam was used [12]. In our study In our study, among 32 subjects had poor nutritional status (<3 SD weight/height, BMI<15) out of which 15 (46.8%) were died compared to the patients not having poor nutritional status. Total 20 death 75% deaths belongs to the poor nutritional status and lower socioeconomic class 51 (48.6%). Among 51 subjects, 34 (66.66%) subjects in Lower SES were survived and 17(33.33%) died.

According to kuppuswami classification [13] Crude OR 0.202 (0.06-0.62; 95% CI) p- value 0.008, which is statistically highly significant. Our study demonstrated that subjects who presented with duration of seizure>30-60min had 17 (27.4%) mortality. Seizures lasting more than 60 minute had 20% mortality Crude OR 6.61(1.76 -43.27 95%CI) p-value <0.015 statistically highly significant. Our study concludes that subjects who presented with more than 30 minute seizure had 6.61 times higher mortality as compare to subjects who had seizures for <30 minute and it is statically significant. In our study, among subjects in which seizures failed to get controlled over 24 hours had mortality of 09 (100 %) subjects. 06 (60%) mortality was seen among subjects with 01 to 24 hour seizure duration.

7.9% mortality in seizure duration of 05 to 30 minute. Crude OR 45.0 (10.25- 273.52 95% CI) p-value < 0.0001is statistical highly significant similar study, So we found that time control the seizure more time taken mortality was high Gulati et al. [14] so we find that immediate intervention to control the seizure more favorable outcome toward the patient and improve the nutritional status also significant to good outcome with children. Our study found that younger age more times of mortality less chance of survival similar to previous studies.

CONCLUSION

In this prospective observational study, we conclude that there is a need to terminate seizure as early as possible prolong duration of seizures and not respond to AED were major contributing factors study. So the duration of SE can be shortened by aggressive management, early referral and pre hospital management, systemic and neurological complications of prolonged seizures may be prevented.

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