Original Article

Outcome in Status Epilepticus

Risk Factors & Outcome in Patients Admitted with Status Epilepticus in Tertiary Care Hospital

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ABSTRACT

Objective: To determine the outcome of status epilepticus in patients admitted with seizure in tertiary care hospital.
Study Design: Cross sectional study
Place and Duration of Study: This study conducted at the LGH & JPMC, Karachi from January 2016 to October 2016.
Materials and Methods: Total 108 patients included in the study after informed consent in written form. Patients included in the study who fulfill the inclusion criteria.
Data was collected in preform proforma in 108 cases following the selection criteria. Patients were recruited after informed consent of the patients and ethical approval from the institution. The patients were followed till discharge and all the information collected in preformed proforma.Standard protocol followed for the treatment of status epilepticus. Outcome measured in the form of fully recovered, recovered with neurological deficit & death.
The data were analyzed on version 17. Descriptive statistics was used to summarize the categorical variables such as gender, history of epilepsy, status epileptic in past, drug withdrawal, febrile illness, mortality presented as frequencies and percentages while continuous variable like age was presented as Mean ± SD. Chi-square test p-value ≤ 0.05 was taken as significant.
Results: Among 108 patients 60(56.6%) were male & 48(44.4%) were female, mean age of study group were 31.3 + -13.5 years. The results found that only 2 (1.9%) patients were expired ($p < 0.01$) while 106 patients fully recovered without any neurological deficit.
Conclusion: We concluded after this study that early recognition & prompt treatment of the epileptic patients in status epilticus have better outcome.
Key Words: Status Epilepticus, Convulsive Status Epilepticus, outcome.

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INTRODUCTION

Status epilepticus (SE) is defined as recurrent epileptic seizure without complete recovery in between seizures or continuous seizure activity that lasts 30 minutes or longer whether or not consciousness in impaired[1]. SE is one of the most common neurological emergencies in adults[2]. The annual incidence of SE ranges from 10 to 41 per 100,000 and it is estimated that worldwide there are 3 million cases annually[3].

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SE can be classified on the basis of its clinical characteristic as generalized convulsive, subtle and nonconvulsive[4]. The most common and life threatening form of SE is generalized convulsive SE (GCSE). GCSE is characterized by paroxysmal or continuous tonic and/or clonic motor activity associated with marked impairment of consciousness[5]. Refractory status epilepticus is defined as continued seizures after three antiepileptics had failed whereas nonconvulsive status epilepticus is characterized of typical seizure activity[6].Common precipitants of SE includes central nervous system infection, cerebrovascular accidents (CVA), metabolic derangement and anti-epileptic drugs withdrawal [7] or underlying diseases[8].The morbidity and mortality of GCSE is high and associated with either inappropriate m Status epilepticus (SE) is a common, life-threatening neurologic disorder. It is essentially an acute, prolonged epileptic crisis. Generalized convulsive SE is the most frequent and potentially dangerous type of SE. Generalized refers to the abnormal excessive cortical electrical activity, while convulsive refers to the motor activity of a seizure. SE particularly GCSE is associated with high mortality and

neurological sequelae. Early recognition and proper management not only prevent mortality but also reduced neurological disability. On robust literature search only limited data was found on outcomes of GCSE and studies were carried out in children's. This provides us a strong rationale to conducted the study in adults looking at the outcomes of GCSE is our population so as to reduce the adverse consequences of status of epilepticus.

MATERIALS AND METHODS

This descriptive / cross sectional study was conducted at LGH &JPMC Karachi from 01-01-2016 to 31-10-2016. There was purposive sampling with 108 patients

Inclusion criteria: Patients of either gender with age >15 years with status epilepticus

Exclusion criteria: Patients age <15 years & Non convulsive status epilepticus

Data Collection: This study was conducted after the approval from hospital ethical review committee. Patientswere approached through emergency department, medical wards & neurology department. All the patients who fulfill the inclusion criteria were enrolled in the study after informed written consent and explanation of the study protocol. A detailed clinical history and relevant neurological examination was performed. The relevant biochemical test (CBC, Blood sugar, UCE, S.Ca, S. Mg, LFTs), CT/ MRI & EEG was performed in the study group. Standard protocol followed for the treatment of status epilepticus. All the data collected in preformed proforma. All the patients were observed for one week.

Data Analysis Procedures: All the collected data was entered and analyzed in SPSS version 17.0. Descriptive statistics was used to summarize the categorical variables such as gender, history of epilepsy, status epileptic in past, drug withdrawal, febrile illness, mortality presented as frequencies and percentages while continuous variable like age was presented as Mean ± SD. Stratification was done to control the effect of modifier like age, history of epilepsy and status of epileptic in past on outcome variable through Chi-square test p-value ≤ 0.05 was taken as significant..

RESULTS

A total of 108 patients were included in this study who fulfilling the inclusion criteria. The overall mean age of these patients was 31.3 ± 13.5 years as shown in figure I. The age range of these patients was 16 to 76 years. Seventy six (70.4%) patients had age between 16 to 35 years as shown in figure 2.

Table No.I: Status epilepticus Risk factors & outcome

Risk factors	No: of patients	Percentage %	Outcome
Drug with drawl	56	60.4%	Improved
CNS Infections	2[illegible]	28.8%	Improved
CVA (Ischemic Stroke)	[illegible]	4.3%	Improved
CVA Hemorrhagic stroke	O2	2.1%	Expired
Hypoglycemia	05	5.4%b	Improved
SOL	04	4.3&	Improved
Electrolyte imbalance	04	4.3%	Improved
HTN encephalopathy	03	3.2%	Improved
Alcohol overdosage	02	2.1%	Improved
Hypocalcaemia	02	2.1%	Improved

Table No.2: Distribution of patients according to various parameters& Outcome

Variables	Expired Fully improved		p-values
Gender	**Yes**	**No**	
Male	2 (3.3)	58 (96.7)	0.20
Female	0	48 (100)	
Age Group			
16 – 35	0	76 (100)	<0.01
36 – 55	0	25 (100)	
56+	2 (28.6)	5 (71.4)	
History of epilepsy			
Yes	2 (2.0)	99 (98.0)	0.71
No	0	7 (100)	
Status of epilepticus in past			
Yes	2 (2.3)	86 (97.7)	0.49
No	0	20 (100)	

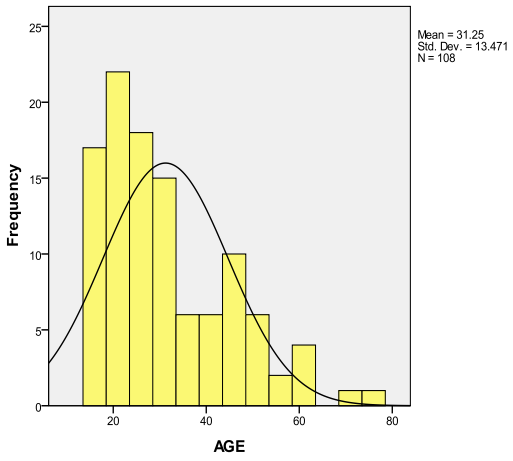

Figure No.1: Distribution of patients

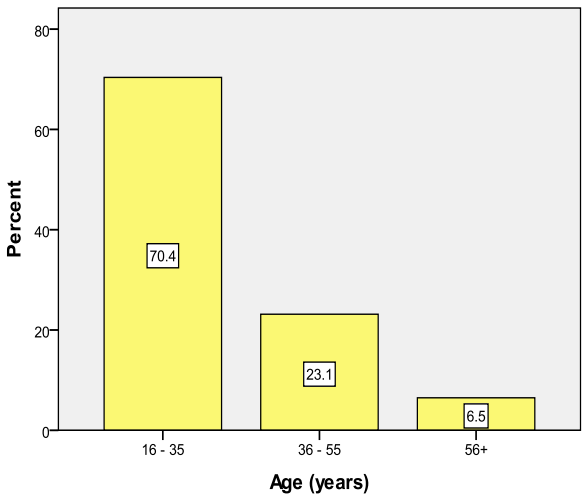

Figure No.2: Distribution of Age Group

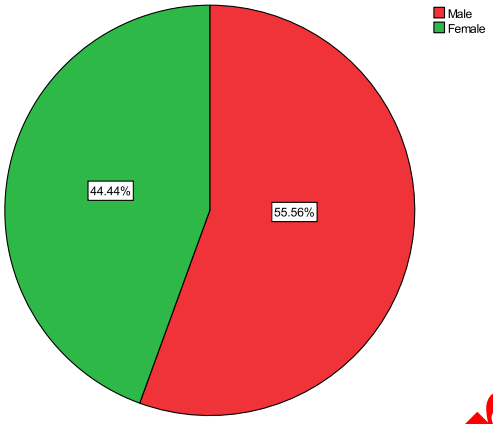

Figure No.3: Distribution of gender (N=108)

There were 60 (55.6%) males and female 48 (44.4%) patients as shown in figure III.History of epilepsy was found in 106 (93.5%) of the patients. 88 (81.5%) of the patients had status epilepticus in past. 56 (60.4%) of the patients had drug withdrawal. 26 (28.8%) of the patients had CNS infections, Six patients (6.4%) had CVA among them 02 patients(2.1%) had intracereberal bleed & both were expired while 04 patients (4.3%) had ischemic infarct, Five patients (5.4%) had hypoglycemia. Space occupying lesion was seen in 04 patients (4.3%), hypertensive encephalopathy was seen in 03 (3.2%) patients while 02 (2.1%) were alcoholic over dosage& in 02(2.1%) patients hypocalcaemia was seen table I. Two patients (2.1%) had expired as shown in table I& II.There was no statistical significance proportion difference was observed when compared gender, history of epilepsy and status of epilepticus in past by mortality (p-values >0.05). Statistical significance proportion difference (p-value <0.05) was found in age & in hospital mortality as shown in table I.

DISCUSSION

Status epilepticus is the life threatening condition &potentially reversible if early treatment is given to these patients. Previously related studies have been done on childhood group in comparison to adults & with this aim we planned & gather some data in adults to determine the clinical profile, risk factors by whom patients developed this condition & outcome of SE. In our study the mean age was 31.3 ± 13.5 years & the male gender more affected(56.4%, p- 0.2), the mean age smaller than other similar studies[9,10]in which mean age was 37.5 & 39 years but the male gender was predominant in these studies(53.4%)[10]& in other study male to female ratio was 4:1[11]the reason of difference in mean age because of small sample size in our studywhile the other studies done on large scales. Status epilepticus more common we observed in our study was 15- 35 years'age group (70.4%, p <0.01) and the outcome was also better in this age group as compared to the age group more than 56+ years as in our study 02 patients expired(2.1% p- < 0.01) the reason we observed in this age g[illegible] patients usually have comorbidities like DM, HTN, CKD& in our study both patients were hypertensive& had massive intracerebral bleed which also be supported in other studies[12]. Regarding the past history of epilepsy, it was presence in 93.8% patients& 88 patients had past H/O status epilepticus which is slightly higher in comparison to in one previous study that was 80%[13]& in other one it was in 50% patients[14]. The reason of difference in our setup most the patients quit antiepileptic drugs without any consultation or advise which we observed in our study that 60.4% patients had SE because of stop their AED&this also can be seen in other studies[15,16]. The other common cause by which patients developed SE was infections most of the infection were CNS but the other areas of body also susceptible of infections as we observed in 26 (28.8%) patients which also be supported in previous similar study[10] in which it was presence in 32.7%.Stoke [17]was another common risk factor especially in patients who had massive ICB & the outcome is also poor in these patients as 02 patients was expired in our study (2.1% p- <0.01) while small bleed & ischemic infarct has better outcome. Hypoglycemia was also potential risk factor but rapid therapy gives excellent outcome as in our study 05 patients was with hypoglycemia as all the patients fully improved. Among other less common risk factors SOL was also seen in 04(4.3%)patients& after initial therapy & improvement patients was referred to neuro surgical department for specific treatment., electrolyte imbalance especially hyponatremia &hypocalcaemia can cause seizures and need to treated as earlier to prevent permanent hypoxic brain injury. Regarding the outcome of SE after the standard protocol of SE treatment it was 2.1% (p- <0.01) and the age group was above 56+ years & rest of the patients fully improved without any neurological deficit, in other study[10]in which the mortality was 3.4% which is slightly higher & probably the reason were large sample size while in

another study regarding the outcome of SE mortality was observed in 14%, partial recovery in 30% while 35% of patients were fully improved[18]. The predictors of mortality in one study[9] were hypoxic brain injury OR= 9.85, CVA= 2.8, female sex= 1.34 & other comorbidities OR= 6.7.

CONCLUSION

We conclude after this study that it is necessary to properly educate & counsel these patients for strictly adherence to the anti-epileptic drugs as we observed it is the common precipitating factor of status epilepticus, along with this the other potentially reversible risk factors should be addressed & treated promptly for better outcome.

Author's Contribution:

Concept & Design of Study:	Dileep Kumar, Babar Bashir
Drafting:	Dileep Kumar, Babar Bashir
Data Analysis:	Suresh Kumar, Amrat Kumar
Revisiting Critically:	Shahid Iqbal, Dileep Kumar
Final Approval of version:	Munir Hussain Siddiqui

Conflict of Interest: The study has no conflict of interest to declare by any author.

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