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ORIGINAL ARTICLE

Epidemiological and Risk Factor Evaluation of Epileptic Patients: A Clinical Study

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ABSTRACT:
Introduction: Epileptic seizures are one of the most emerging neurologic disorders worldwide. A number of etiologic factors are responsible for this. The major risk factors are cerebrovascular accidents and strokes followed by infections and tuberculosis. The goal of this study is to assess the prevalence of different etiologic agents in causation of epilepsy. **Material and methods**: The present prospective study was conducted with a sample size of 200 patients. A written consent was taken from all the patients and complete information was provided about the study. The data was collected from patients and analysis was done using SPSS software. **Results:** In the prospective study, the major cases of seizure patients were of cerebrovascular accident (45%), followed by Idiopathic (27%), Neuroinfection (15%), and alcohol withdrawal (4%). Whereas the stroke cases in elder age group was 62.5%. **Conclusion**: From the study we concluded that cerebrovascular accidents are the major etiologic factor responsible for seizure.
Keywords: Cerebrovascular, epilepsy, neuroinfection, seizure, stroke.

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INTRODUCTION

A seizure is defined as a paroxysmal episode due to abnormal excessive and synchronous neuronal activity occurring in the brain. Epilepsy is emerging as one of the most serious neurological disorders worldwide. It is estimated that 5 to 10% of the overall world population will have atleast one seizure, predominantly occurring in infancy and late adulthood. The average range of epilepsy incidences is 0.3 – 0.5% in various populations throughout the world. These incidences are comparatively higher in developing countries like Africa and latin America than the developed countries like USA and Europe.[1] The all over prevalence of epilepsy incidences has been estimated as 5-10 individuals per 1000[2]. In the year 1997, WHO is association with International league against epilepsy and international bureau for epilepsy started a Global Campaign against epilepsy with noble approach. The chief etiology of epilepsy was cerebrovascular diseases, CNS infections and metabolic abnormalities. The tubercular meningitis; common type of chronic meningitis in India also presents with a manifestation of seizures.[3]The mortality rate of the population is significantly associated with the comorbid conditions. The underlying etiology is signified with the very first attack of seizures.[4]. In southern part of India women usually presenting with headache and low grade fever have a cerebral venous thrombosis. Most commonly the focal seizure occur but they can eventually generalize to status epilepticus.[5] The aids for diagnosis plays a crucial role in the accuracy of made diagnosis. With advancement in technology, convenient and reliable diagnostic aids like magnetic resonance imaging (MRI) and video electroencephalogram (VEEG), are being used and even the smallest of structural abnormalities predisposing to epileptogenic foci are captured[6]. Thus a significant number of cases are found to be symptomatic. Through this hospital-based study we aim to assess the etiologic spectrum of symptomatic epilepsies, also as the hospital based studies are rare in the developing countries and this study will fill the voids in literature.

MATERIAL AND METHODS

This study selected 200 patients newly admitted to the hospital with complain of onset of seizures. Prior approval was obtained from the institutional ethical committee before the start of study. A written consent was also obtained from the subjects after giving them complete information about

the study.The clinical data of these patients were consecutively, systematically, and prospectively recorded in a database. Patients and eyewitness of the seizure episodes were questioned regarding the complete history and clinical examination was also done. Hb level, blood urea, serum creatinine, routine urine, TLC, DLC, ESR, RBS, Na/K/P/Ca were investigated in each patient. Also the MRI brain and CT scan was done in selective cases.

Inclusion Criterion

- Patients presenting with history of new onset seizures were included in the study
- Age of the patients must be above 3 years

Exclusion Criteria

Patients with associated problem of hyperventilation, psychogenic seizures, narcolepsy were excluded from the study

STATISTICAL ANALYSIS

After collecting all the data from patients, SPSS software was used to analyze the data arranged in tabulated form and the results were expressed as percentage of total.

RESULT

The study included of 200 subjects. In our study patient's average age ranged from18-90 years, with mean age of 45.78 years with SD 18.6. The general gender predilection of seizures was seen as male/female = 1.32/1.

The etiology of epileptic seizures is shown in TABLE 1. 45% of the total episodes of seizures were due to cerebrovascular accidents out of which 14 cases were due to haemorrhage and 8 cases were of infarcts. In 27% of the cases the etiology was unknown, therefore they were entitled as idiopathic. 4 cases were of subdural haemorrhage while 2 cases were of extradural haemorrhage. Neuroinfection was seen in 15% of cases. Out of which, 7% were of meningitis, 2% were of meningoencephalitis. 4 cases were of neurocysticercosis and 8 cases of tuberculosis of central nervous system. 4% seizures were seen in alcohol withdrawal cases. 5% cases were of metabolic causes for seizures. 1% cases of hypoglycemia were seen, 2 case each of uraemia and hyperglycemia were present. There were 4 cases of glioma and 2 cases each of secondaries and meningioma were seen. 4% of cases were of tumor induced seizures.

Fig. 1A shows the frequencies of different etiologies in seizure patients for the youngest age group (<18 years). In this age group CNS infection, MTS and CD were signified as most common causes of seizures. 55% of cases were of viral meningitis, whereas 12% cases were of tuberculosis and nuerocysticercosis. The cases of TBI were accounted for 10.4% cases and 8% cases were of encephalomalacia.

Fig. 1B depicts the frequencies of etiologies of seizures in the second age group of 18–50 years. TBI and infection were the primary causes in 40% of cases. While tuberculosis was seen in 32% of cases. Whereas 25% of cases were of neurocysticercosis.

Fig. 1C shows the frequency of different etiologies in the oldest age group (>50 years). In this age group ischemic stroke accounted as the predominant causes of seizure in whole of the population.

TABLE 1: Distribution of etiologies in patients with seizures (n=200)

Etiology	Number of cases	Percentage
1. Cerebrovascular accident	90	45
Infarcts	08	04
Haemorrhage	18	09
Old CVA with scar epilepsy	32	16
CVT	24	12
SDH	04	2
EDH	04	2
2. Idiopathic	54	27
3. Neuroinfection	30	15
Meningitis	14	7
Meningoencephalitis	04	2
CNS tuberculosis	8	4
Neuroctsricercosis	4	2
4. Alcohol withdrawal seizure	8	4
5. Metabolic	10	5
Hypoglycemia	2	1
Hyperglycemia	4	2
Uraemia	4	2
6. Tumors	8	4
Glioma	4	2
Meningioma	2	1
Secondaries	2	1
7. Miscellaneous	2	1

Figure 1 A: Etiologic factor at < 18 years of age group

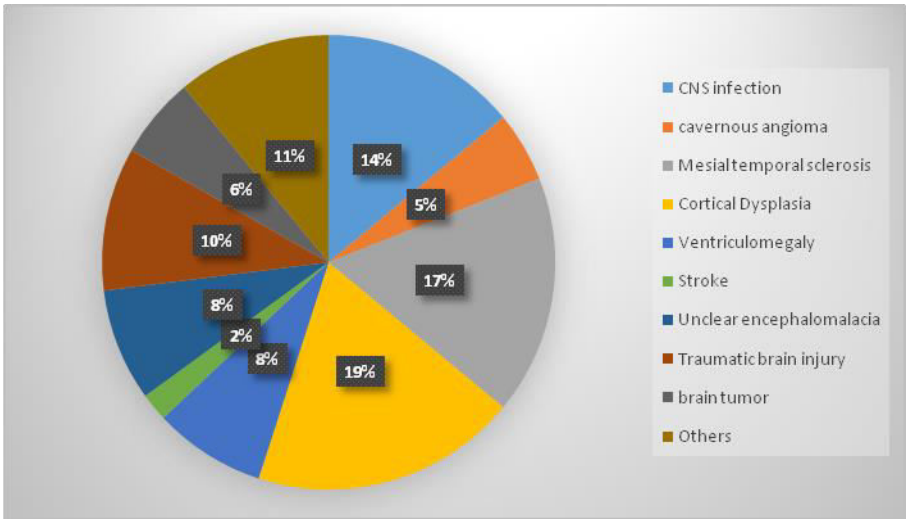


Figure 1 B: Etiologic factors in age group 18-50 years

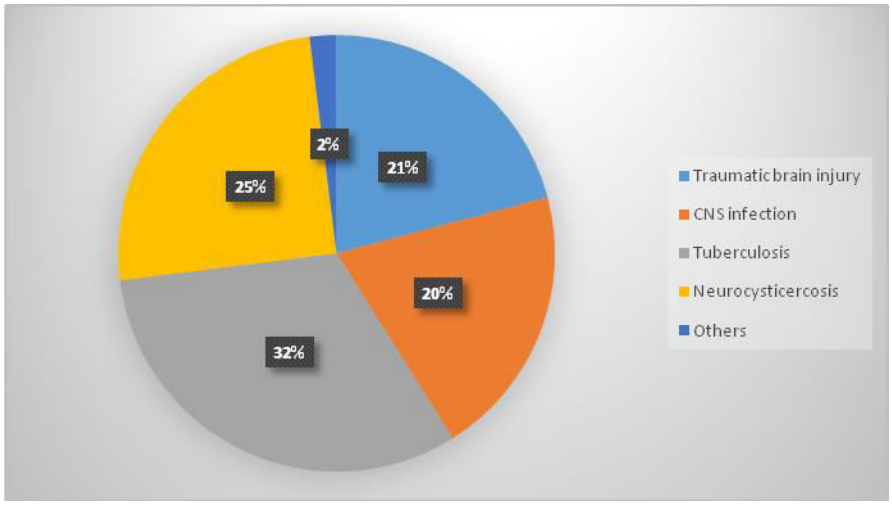
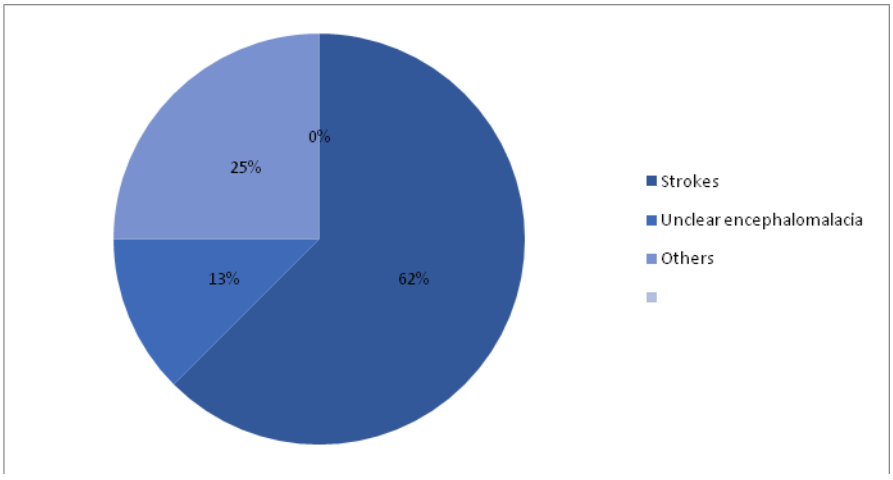


Figure 1C: Etiologic factors in age group of > 50 years



DISCUSSION

Seizures are common disorders found all over the world and are encountered frequently during medical practice in variety ofsettings. Patients from developing countries may represent the majority of all epilepsy cases worldwide because of the large gap in treatment availability and modernity.[7] The etiological spectrum of new onset symptomatic seizures and outcome may be different in developing countries when compared to developed countries. So this study on "seizures" was done to know the various etiologies of new onset seizures in adults in this region.

As compared to the outcomes of our study, in which 45% of seizure cases were due to cerebrovascular etiology, A study done by Sander[8] et al the vascular etiology was found only 15%, and in a study by Hauser[9] et al the figure was seen to be 18%. In our study only 4% of the cases were related to alcohol withdrawal which is less than that of Sander[8] et al study results of 9% and Chalasani S [9] et al results of 11%. According to a study by Shanker P saha[10] the CNS infection percentage was only 15.7% which is comparable to our results of 15%. There were 68.4% idiopathic cases which is more than our study results of 27% cases. Whereas in a study by Sinha S[11] et al the idiopathic cases were only 18.8%.

However it was seen that the most common etiology of seizure in elder age group remained to be stroke which is 62.5% in our study and 56.8% in a study done by Pandey[12] et al. In a study conducted by K. S. Amaravathi et al[13] and Sowndhariyawt al[14] at a tertiary care hospital, the most common aetiology of seizures was Stroke, constituting to 38% of cases.

CONCLUSION

More than one third of newly diagnosed epilepsy cases were shown to be symptomatic via careful history-taking and laboratory examinations. Cerebrovascular accidents and strokes were the most common causes among symptomatic epilepsies in the study region. Given this etiological distribution, prevention strategies tailored to different age groups may be an efficient way for reducing the occurrence of seizures. The government should pay more attention to the social problems that contribute to provide the solutions.

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