

Original Research Article

Epidemiologic study of causes of seizure attacks in patients admitted to emergency of Zahedan city hospital, 2015-2016

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ABSTRACT

Background: Seizure is one of the most important cause of admission to the emergency department (ED). The admission rate can be decreased by identifying the etiology of seizure which leads to appropriate treatment and elimination of the underlying cause. The purpose of this study is to survey the etiology of seizure in cases admitted to ED.

Methods: This cross-sectional study was conducted on 150 patients with seizure admitted to Zahedan city hospital in 2015-16. Data were collected by a checklist including demographic, familial history, past medical history of seizure, cause and type of seizure, time of occurrence, status seizure and cause of recurrence which was completed for each patient. The data was analyzed by statistical methods in SPSS.16.

Results: Among all of 150 patients 82 (54.6%) were male and 68 (45.3%) were female. The most common age group was 18-45 years with 114 (76%) patients. 74 (49.3%) patients had PMH of seizure and 15(10%) patients had positive FH of seizure. The most common cause of seizure was idiopathic epilepsy (47.3%), cerebral vascular lesions (14%), withdrawal and poisoning (6.7%). The other causes were paroxysmal non epileptic seizure, primary and secondary brain tumors, metabolic diseases, trauma each with prevalence of (5.3%). Congenital diseases (3.3%), infections (2.7%), demyelinating diseases (2%) and others (2.7%). The most common type of seizures was generalized tonic-clonic seizure (69%). (55.3%) seizures occurred in 6AM- 6PM. (4.6%) patients had status seizure. The most prevalent causes of recurrent seizure was related to inadequate drug use.

Conclusions: The most common cause of seizure was idiopathic epilepsy and the next common causes were cerebral vascular lesion and withdrawal. Regular follow up of epileptic patients and eliminating the underlying cause and social abnormality will be effective in decreasing the occurrence of seizure.

Keywords: Seizure, Epilepsy, Cerebral vascular lesions

INTRODUCTION

Seizure attacks are common causes of referral of patients to emergency of hospitals.¹ Seizure can disrupted the range of activities in the brain. According to records more than 10% of the world's population experience at least one seizure throughout their life. According to the World

Health Organization nearly 80% of people with epilepsy live in developing and middle income countries.²⁻³

Seizure attacks may be symptomatic and caused by primary or secondary disorder of the central nervous system, such as seizures caused by cerebrovascular disease (including thrombotic or embolus infarction or intracerebral hemorrhage) primary or metastatic tumors,

brain trauma and infection of central nervous system, brain dysgenesis and etc.⁴⁻⁸

Seizure attacks may be related to diseases and disorders of other organs such as metabolic disorders, electrolyte disturbances, hypertensive encephalopathy, poisoning, cut of the drug, etc.⁹

Epilepsy is one of the most serious and most common chronic neurological problems around the world and determine with repeated epileptic seizures (2 or more) and without specific cause as a result of severe and sudden disruption of the nervous system in the field of abnormal electrical activities of neurons which can affect the people of all ages, strain and social classes.²⁻³

Some studies showed that about 70% of cases of epilepsy had unknown cause.² According to the statistics epilepsy affects 0.5% to 2% of the general population. The possibility that the first seizure attacks will be epileptic seizures is 30%.¹⁰ Epilepsy effects 50 million people in the world. The incidence, prevalence and burden of epilepsy in developing countries is higher than developed countries.¹¹

Failure to control seizures had dangerous complications that of them, 10% are related to death, 5% are related to events in time of seizure such as head injury, 10% sudden and 7%-22% related to suicide caused by depression.¹²

The aim of this study was to evaluate the epidemiologic causes of seizure in patients referred to the Zahedan city hospital during the 2015-16.

METHODS

This cross sectional study was performed on 150 patients with seizure which had over 18 years of age and referred to the emergency of Zahedan city hospital during the 2015-16.

For each patient information was collected based on demographic, clinical examinations, tests and diagnostic procedures were recorded in a checklist and then analyzed using statistically methods in SPSS 16.

Seizure diagnosis based on the patient's biography and his fellows, clinical and neurological examinations of patients, tests and other diagnostic and complementary activities, such as brain bar, CT scan, MRI and finally was confirmed by the neurologist.

RESULTS

Of the patients, 82 (54.6%) were male and 68 (45.3%) were female. Of the patients, 74 (49.3%) had a history of seizure and 15 (10%) had history of seizure in their family. The most common cause of seizure was idiopathic with 71 (47.3%) (Figure 1).

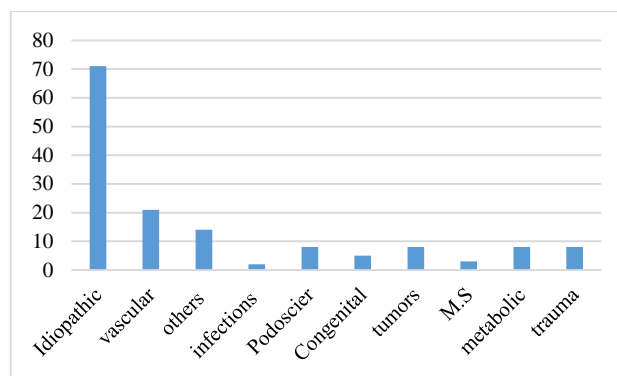


Figure 1: The frequency of seizure attacks in patients.

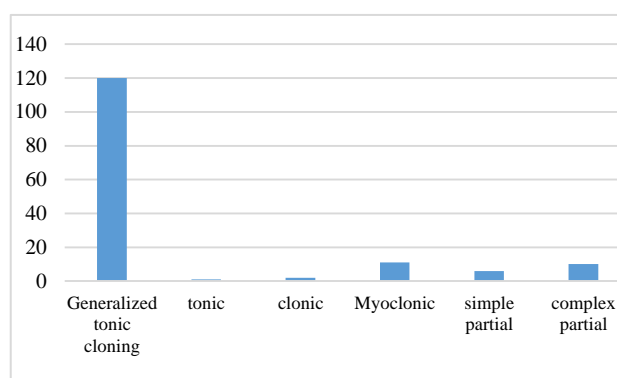


Figure 2: The frequency of seizure types in patients.

The most common type of seizure was generalized colonic tonic with 120 (80%) (Figure 2). The incidence rate of status seizure was reported in 7(6.4%) of patients. There were 83 (55.3%) of seizure attacks had been occurred between the 6AM and 6 PM (at night) and other cases during day. The most common cause of relapses was irregular drug use with 32 (43.2%) (Figure 3).

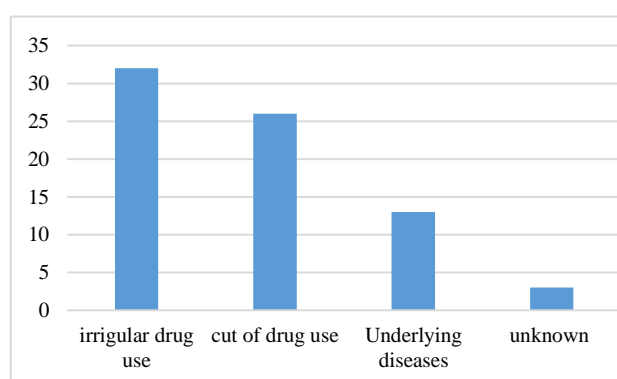


Figure 3: The seizure attacks relapse causes in patients.

Idiopathic epilepsy was in first ranked among men and women with 39 (47.6%) and 32(47.1%), respectively (Figure 4).

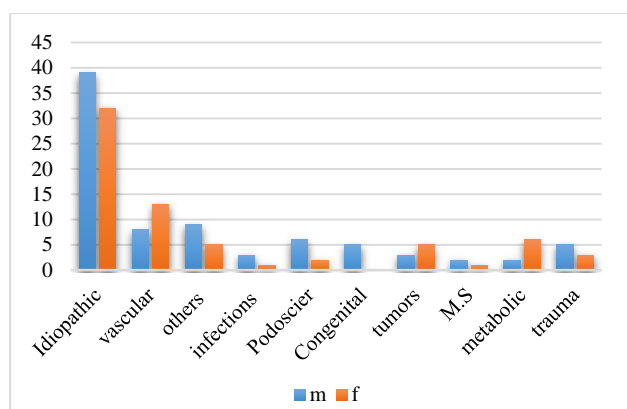


Figure 4: The frequency of seizure attacks in patients by sex.

Left syndrome and poisoning with 9 (11%) are in second place and vascular causes with 8 (8.9%) are in third ranked. Family history was positive in 10% of cases of which about 80% (12 cases) were related to idiopathic seizure. The relationship between family history of seizure in patients and seizure cause wasn't significant. 53 patients (71.6%) had an idiopathic epileptic seizure history. A history of seizure in patients was significantly associated with the cause of seizure.

DISCUSSION

82 (54.6%) of patients were male and 68(45.3%) were female. In the studies conducted by Saeidi and Bahrami et al most of the cases were male.¹³⁻¹⁴

In the present study, 74 (49.3%) patients had a history of seizure which was lower than studies conducted by Ahmadi et al (57.2%) and Nikkhah study (65.8%).¹⁵⁻¹⁶

Family history in the present study was positive in 15 (10%) of cases which was significantly higher than those of Hosseini-nasab (10%), Bahrami (7.7%) and Saeidi et al (8.2%).^{13,14,17}

In this study, the most common cause of seizure was idiopathic epilepsy with 47.3% and vascular causes with 14%. In this study idiopathic epilepsy with 71 (47.3%) was similar between both sexes and the most common cause with 63 (55.3%) and in the age group of 18-45 years had the most frequency. In Saeidi, Ahangar and Bahrami studies, idiopathic causes with 53.5%, 36.2% and 75.6% are the most common cause of seizure.¹³⁻¹⁵

In the present study, vascular causes with 14% was the second leading cause of seizure and in the female group, the prevalence was highest with 19.1% which was lower than Saeidi study with 17.1%, reference books with 15.1%, Tchala with 50.3% and Ahangar study with 9.8%.^{13,15,18-20}

In other reports stroke was the most common cause of first attack seizure at an old ages. (19) In more studies,

the brain tumors were about 3.3% to 10% of seizures and our study with 5.3% was in this range.¹³⁻¹⁶

Metabolic diseases such as hyperglycemia, hyponatremia, hypocalcemia, metabolic acidosis, etc. in the female group with 6 (8.8%) and the age group of 18-45 years with 4 cases (2.7%) had the most frequency. In the Ahangar and Nikkhah studies, this rate was 6.5% and 6% which was in line with our study results.¹⁵⁻¹⁶

Trauma had the most frequency in the male with 5 (1.6%) and the age group of 18-45 years with 8 (7%). In the study of Bahrami, 7.7% of the patients had a history of trauma with the highest frequency in the age group of 10-19 years and in the male in the age group of 30-39 years.¹⁴ In the Saeidi study trauma was the cause of 6.5% of seizures.¹³

The most common type of seizure in the present study was generalized tonic clonic with 80% which was in line with other studies.^{13,15}

In this study, 55.3% of seizures occurred in the period from 6 pm to 6 am and in Saeidi's study the highest rates were at 12 am to 6 am with 31.8% which could indicate that a significant number of seizure attacks occur during sleep.¹³ The most common cause of seizure relapse in this study was related to irregular drug use with 43.2% which was more than other studies in this area.^{16,21-22}

CONCLUSION

Considering that the most common cause of seizure attacks in this study is idiopathic epilepsy and considering the economic costs, psychological and problems due to epilepsy in society, regular control of this disease can be effective in reducing costs, occurrence of seizure attacks and relapse of disease. Recognition of the causes of seizure in any age groups and sex in order to better control, treatment and preparation of medical personnel is necessary in case of referral to emergency and by recognizing the etiology of seizure it is possible to reduce the number of visits to the emergency due to seizure by ready a proper treatment and control of its risk factor and also prevent subsequent attacks, diseases relapses and complications in future.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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