

Determine the Causes of Epilepsy, Types of Seizure, Precipitants for Seizure Attacks and Risk Factors for Poor Outcome of Epilepsy Management

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ABSTRACT

Objective: To determine the causes of epilepsy, types of seizure, precipitants for seizure attacks and risk factors for poor outcome of epilepsy management

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Department of Neurology, Bolan Medical Complex Hospital Quetta from October 2018 to March 2019.

Materials and Methods: One hundred and twenty patients of both genders with ages above 15 years presented with epilepsy were included in this study. Patient's demographic details including age sex, residence and socio-economic status were recorded after informed consent. Patients with autoimmune diseases and patients with serious psychiatric symptoms were excluded. Electroencephalogram, computed tomography brain and magnetic resonance imaging were done in all the patients. Causes of epilepsy, risk factors, types of seizure and outcomes were recorded.

Results: Seventy (65%) were males while 50 (35%) were females. Twenty (16.67%) patients were ages 15 to 25 years, 38 (31.67%) patients were ages 26 to 35 years, 45 (37.5%) patients were ages 36 to 45 years, 17 (14.17%) patients were ages 46 to 60 years. The most common etiology of epilepsy was idiopathic and found in 102 (85%) patients. Tonic clonic was the most frequent types found in 79.17% patients. Stress was the most common risk factors found in 43.33% followed by sleep deprivation, excessive screen use. Epilepsy due to structural brain lesion was the most important cause of poor control of fits followed by noncompliance, wrong/suboptimal dose of medications, drug interactions and wrong diagnosis.

Conclusion: Idiopathic was the commonest type and stress was the commonest cause of epilepsy. Structural brain lesion and non-compliance were the commonest risk factors involved in the poor management of epilepsy.

Key Words: Epilepsy, Causes, Types, Management, Risk factors, Uncontrolled fits

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INTRODUCTION

Epilepsy is a chronic neurologic disorder characterized by repeated epileptic seizures attacks which result from paroxysmal uncontrolled discharges of neurons within the central nervous system.¹⁻³ The definition of epilepsy requires the occurrence of at least one epileptic seizure. Epilepsy is a major public health problem that affects more than 50 million people worldwide, of whom, 80% were living in developing countries.⁴⁻⁶ According to the Epilepsy Foundation, epilepsy affects three million

people in the U.S. and 50 million worldwide. Epileptic seizures may be tied to a brain injury or genetics, but for 70 percent of epilepsy patients, the cause is unknown.⁷

Antiepileptic drugs (AEDs) can be indicated for Patients who have had one or more epileptic seizures. The choice of therapy for the management of epilepsy varies depending on the type, frequency, and severity of the seizures.⁸ Making an accurate diagnosis of the type of epilepsy is crucial to select the best therapy.⁹ Majority of epileptic seizures are controlled with the optimal use of the currently available AEDs. However, about one-third remained uncontrolled despite optimal therapy.¹⁰ Although most of the people with epilepsy can become seizure-free with the optimal use of drug therapy, the treatment outcome in the majority of epileptic patients remains unsatisfactory in resources limited countries.⁸ Studies have shown that majority [80-90%] of the patients with epilepsy are not receiving appropriate treatment in developing countries.^{11,12} Several factors have been found to be associated with treatment outcome in epilepsy. These include; gender, age of seizure onset, type of epilepsy, seizure

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frequency, etiology of epilepsy, duration of epilepsy, electroencephalography abnormality and presence of co-morbidities.¹³ Poorly controlled seizure leads to impairment of quality of life, excessive bodily injury, neuropsychological impairment, social stigma, reduced marriage rates, poor education, reduced employment levels, and finally shortened lifespan.¹⁴ The present study was conducted to examine the causes and risk factors associated to poor control of fits in patients with epilepsy.

MATERIALS AND METHODS

This prospective study was conducted at Department of Neurology, Bolan Medical Complex Hospital Quetta from 1st October 2018 to 31st March 2019. A total one hundred and twenty patients of both genders with ages above 15 years presented with recurrent fits following epilepsy were included in this study. Patient’s demographic details including age sex, residence and socio-economic status were recorded after informed consent. Patients with autoimmune diseases and patients with serious psychiatric symptoms were excluded. Electroencephalogram, computed tomography brain and magnetic resonance imaging were done in all the patients. Causes of epilepsy, risk factors, types of epilepsy and outcomes in term of controlled and uncontrolled fits were recorded. Causes of uncontrolled fits were examined. All the data was analyzed by computer statistical software SPSS 24. Chi-square test was applied to examine the causes of uncontrolled fits. P-value <0.05 was taken as significant.

RESULTS

There were 78 (65%) males while 35% were females. Twenty (16.67%) patients were ages 15-25 years, 38 (31.67%) patients were ages 26-35 years, 45 (37.5%) patients were ages 36-45 years, 17 (14.17%) patients were ages 46-60 years. Seventy two (60%) patients had rural residency while 40% had urban residence. Majority of patients 66 (55%) had low socioeconomic status while 45% patients had middle status (Table 1). The most common etiology of epilepsy was idiopathic and found in 102 (85%) patients followed by meningitis 7 (5.83%), 1 (0.83%) patient had trauma, 5 (4.17%) patients had brain tumor and 5 (4.17%) patients were post stroke. According to the types of epilepsy, tonic clonic was the most frequent types found in 95 (79.17%) patients, 5 (4.17%) patients had tonic and 1 (0.83%) patient with clonic generalized type of epilepsy. In partial types, 7 (5.83%) patients had Jacksonian, 7 (5.83%) patients had complex partial and 5 (4.17%) patients had myoclonic (Table 2). Stress was the most common risk factors found in 52 (43.33%) patients followed by sleep deprivation 35 (29.17%), excessive screen use in 17 (14.17%), 10

(8.33%) patients had family history of epilepsy and 6 (5%) patients had alcohol abuse (Table 3).

Table No.1: Baseline characteristics of all the patients

Variable	No.	%
Gender		
Male	78	65.0
Female	42	35.0
Age (years)		
15 – 25	20	16.67
26 – 35	38	31.67
36 – 45	45	37.5
46 – 60	17	14.17
Residence		
Urban	48	40.0
Rural	72	60.0
Socioeconomic status		
Low	66	55.0
Middle	54	45.0

Table No.2: Causes and types of epilepsy among all the patients

Variable	No.	%
Causes		
Idiopathic	102	85.0
Meningitis	7	5.83.0
Brain Tumor	5	4.17
Trauma	1	0.83
Post Stroke	5	4.17
Generalized types		
Tonic clonic	95	79.17
Tonic	5	4.17
Clonic	1	0.83
Partial types		
Jacksonian	7	5.83
Complex Partial	7	5.83
Myoclonic	5	4.17

Table No.3: Risk factors associated to seizures

Risk factors	No.	%
Stress	52	43.33
Sleep deprivation	35	29.17
Excessive screen use	17	14.17
Family history	10	8.33
Alcohol abuse	6	5.00

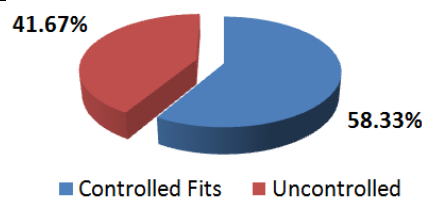


Figure No. 1: Management of outcome

According to the outcomes, we found 50 (41.67%) patients had uncontrolled fits and 70 (58.33%) patients had controlled fits (Fig. 1). Epilepsy due to structural

brain lesion was the most important cause of poor control of fits found in 20 (40%) patients followed by noncompliance 15 (30%) patients, wrong/suboptimal dose of medications found in 10 (20%), drug interactions found in 3 (6%) and wrong diagnosis found in 2 (4%) patients (Table 4).

Table No.4: Risk factors associated to poor control of fits (n=50)

Causes	No.	%
Structural brain lesion	20	40.0
Non-compliance	15	30.0
Wrong dose of medication	10	20.0
Drug interaction	3	6.0
Wrong Diagnosis	2	4.0

DISCUSSION

Epilepsy is one of the most common neurological disorders in all over the world with high rate of morbidity and mortality.¹⁵ Successful management of epilepsy has become a great challenge for specialists due to high rate of uncontrolled fits. Many of factors involved in the poor control of fits in which most common factors are non-compliance by patients, drug abuse and structural brain lesion.¹⁶ The present study was conducted to examine the management, causes, risk factors and outcomes of epilepsy also determine the causes of poor control of fits. In this regard 120 patients were enrolled, in which majority of patients 65% were males while 35% were females. Majority 69.17% of patients in our study were ages between 26 to 45 years. These results showed similarity to many of previous studies in which male patients were predominant 60 to 75% as compared to females and mostly patients were ages above 30 years.^{17,18}

In present study the most common etiology of epilepsy was idiopathic and found in 102 (85%) patients followed by meningitis 7 (5.83%), 1 (0.83%) patient had trauma, 5 (4.17%) patients had brain tumor and 5 (4.17%) patients were post stroke. A study conducted by Naseer et al¹⁹ regarding management and risk factors of epilepsy, in which they reported that idiopathic was the commonest cause of fits 86% followed by meningitis 4% and trauma 4%. In our study we found that tonic clonic was the commonest type found in 79.17% patients. These results were similar to the study by Naseer et al.¹⁹

In this study we found that stress was the most common risk factors found in 52 (43.33%) patients followed by sleep deprivation 35 (29.17%), excessive screen use in 17 (14.17%), 10 (8.33%) patients had family history of epilepsy and 6 (5%) patients had alcohol abuse. These results were comparable to several previous studies in which stress, hypertension and sleep deprivation were the important risk factors of epilepsy.^{20,21}

In present study at final follow up we found 50 (41.67%) patients had uncontrolled fits and 58.33%

patients had controlled fits. The rate of uncontrolled fits in our study was quite high and there were some important reasons behind poor control of fits. We found that structural brain lesion was the most important cause of poor control of fits found in 20 (40%) patients followed by noncompliance 15 (30%) patients, wrong/suboptimal dose of medications found in 10 (20%), drug interactions found in 3 (6%) and wrong diagnosis found in 2 (4%) patients. These results were comparable to some previous studies.²²⁻²⁴

CONCLUSION

Idiopathic was the commonest etiology of epilepsy and tonic clonic was the commonest type. The rate of uncontrolled fits was high due to structural brain lesion, non-compliance by patients, drug abuse, wrong medication and wrong diagnosis. Uncontrolled fits are commonly encountered in epilepsy patients and all possible causes for uncontrolled fits should be promptly identified and corrected.

Author's Contribution:

Concept & Design of Study: Abdul Bari
 Drafting: Nimrah Zafar, Sadia Khan
 Data Analysis: Anum Zahra, Muhammad Saleem Barech
 Revisiting Critically: Abdul Bari, Nimrah Zafar, Sadia Khan
 Final Approval of version: Abdul Bari

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

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