

A prospective study on medication adherence and factors for non-adherence among epilepsy patients

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ABSTRACT

Background: Medication non-adherence to antiepileptic medications can interfere with treatment and may adversely affect clinical outcomes. Adherence to antiepileptic drugs is vital in maintaining control of seizures. Non-adherence to medication regimen accounts for substantial worsening of disease, death and increased health care costs. **Objective:** The aim of this study is to determine adherence rate to antiepileptic medications and identify the potential factors causing non-adherence. **Materials and Methods:** A hospital based prospective observational study was conducted using 8- item Morisky Medication Adherence Scale. Ethical approval was obtained from the Ethics Committee. A total of 223 patients diagnosed with epilepsy fulfilled the inclusion criteria were recruited in the current study. Informed consent was taken from the patients and Adherence to treatment was evaluated during patients hospital visit in the Department of Neurology between December 2016 and May 2017. **Results:** Majority of the patients were non-adherent to the antiepileptic medication and the factors of non-adherence were forgetting (50.22%) followed by fear of having drug side effect (30.49%). **Conclusion:** In the present study out of 223 study subjects 18 (8.07%) of study populations were having High adherence to antiepileptic medications, 95 patients (42.60%) were moderately adherent, followed by 110 patients (49.32%) have Low adherence. Majority of the patients having low adherence to the treatment (49.32%) and the medication adherence has to be improved for the treatment success.

Keywords: Epilepsy, Medication adherence, Antiepileptic drugs.

1. INTRODUCTION

Epilepsy is the most common neurological disorder and it is one of the most common non-communicable diseases in the world. Epilepsy is also known as a seizure disorder. Seizures are characterized by an excessive, hyper synchronous discharge of cortical neuron activity, which can be measured by the electroencephalogram (EEG). The onset of seizures is greatest during the first year of life; this probability decreases each decade after the first year until age 60.^[1] Epilepsy is a major public health concern in terms of the burden of the disease, nature of illness and its impact on individuals and families. The International League

against Epilepsy (ILAE) and the International Bureau for Epilepsy (IBE) define epilepsy as a brain disorder characterized by an enduring predisposition to generate epileptic seizures and by the neurobiological, cognitive, psychological and social consequences of this condition. Epilepsy can be associated with profound physical, psychological and social consequences and its impact on a person's quality of life (QOL) can be greater than that of many other chronic diseases ^[2]. Epilepsy is the second common disease among chronic nervous diseases next to stroke. Worldwide, it is estimated that epilepsy affects about 50 million people, among who 40 million are living in developing countries where 80-90% of people are believed to receive

inadequate/no treatment at all. [3] The major problems encountered by health professionals and people with epilepsy all over the world especially in developing countries include lack of drug supply due to either to logistics or to economy, poor community knowledge and awareness, cultural beliefs, stigma, lack of government resources, poor economy and lack of infrastructure.[3]

Medication adherence or the older term, drug compliance is defined as the extent to which patients follow the instructions they are given for prescribed treatments and persistence as the duration of time from initiation to discontinuation of therapy.[4]

Poor adherence to medication regimen accounts for substantial worsening of disease, death and increased health care cost.[5] The promotion of medication adherence is considered nowadays as an important component of pharmaceutical care practice. Medication adherence should be discussed regularly with the patient, and in particular when a treatment seems to fail.[4] Reasons for non-adherence are complex and multi-layered. Patients can accidentally fail to adhere through forgetfulness, misunderstanding, or uncertainty about clinician's recommendations, or intentionally due to their own expectations of treatment, side-effects, and lifestyle choice. Adherence to medication is crucial in preventing or minimizing seizures and their cumulative impact on everyday life. Non-adherence to AED can result in breakthrough seizures many months or years after a previous episode and can have serious repercussions on an individual's perceived quality of life. Improved adherence can optimize the therapeutic benefits and results in better patient outcomes and substantial cost reductions.[5] In this current study aimed at to determine rate of medication adherence to AED and identify factors for non-adherence.

2.1. MATERIALS AND METHODS

The prospective observational study was conducted during a period of 6 months (December 2016- May 2017) at two tertiary care hospitals at Palakkad. This study was approved by the Institutional Ethics Committee. Patient data collection forms were prepared based on the study objectives. A total of 223 patients diagnosed with epilepsy fulfilled the inclusion criteria were recruited in the current study. The patients included in the analysis were, Both inpatients and out patients with Epilepsy with or without co morbidities, patients with age greater than 18 years and patients on both sex. Those who excluded from the analysis were patients below 18 years, pregnant women and patients who are

not willing to participate in the study. The data collection forms are filled which included all the demographic and relevant clinical information like Name, age, gender, marital status, epilepsy diagnosis, antiepileptic medications, duration of therapy etc. The medication adherence was assessed using 8-item Morisky medication adherence scale (MMAS-8), the scale is composed of 8 items. Item 1-7 are yes/no questions, item 8 measured based on (1-5) Likert scale. The total scores range between 0 and 8, where 0 was regarded as High adherence, 1-2 was moderate adherence and more than 2 was Low adherence. Later data was recorded and managed using Excel spread sheet. All the entries were double checked for any possible error.

3. RESULTS

A total of 223 epilepsy patients were enrolled in this study. The patient's medical record and prescription were reviewed for counseling and medication adherence was measured. Among the 223 patients, 61.43% (n=137) of patients were female and 38.56% (n=86) of patients were male and it shows that females are more affected than males.

Table - 1: Socio-Demographic Characteristics

Socio-demographic characteristic	Number (n=223)	Percentage (%)
Age in years		
18-29	110	49.32
30-39	39	17.48
40-49	26	11.65
50-59	28	12.55
≥60	20	8.96
Gender		
Male	86	38.56
Female	137	61.43
Marital Status		
Married	98	43.94
Unmarried	125	56.05
Occupation		
Employed	70	31.39
Unemployed	117	52.46
Student	32	14.34
Retired	4	1.79
Educational Status		
Illiterate	41	18.38
Primary school	46	20.62
Secondary school	8	3.58
Middle school	18	8.07
Intermediate	26	11.65

Graduate	20	8.96
Learning difficulty	16	7.14
Special school	15	6.72
Left school	33	14.79

Among 223 patients diagnosed with Epilepsy, 49.32% (n=110) of patients were in the age group of 18-29years, followed by 17.48% (n=39) of patients were in age group 30-39 years, 12.55 % (n=28) were in the age group 50-59 years, 11.65% (n=26) were in the age group 40-49 years, and 8.96 % were in age group of ≥ 60 years. The majority of the patients were in the age group between 18-29 years. In this study population, most of the patients around 56% (n=125) patients were unmarried and remaining 44% (n=98) were married.

The Majority of the respondents (59.64% (n=133)) has completed education at primary school level or secondary school or graduate level, followed by 18.3% (n=41) of patients were illiterate. Among the study population 14.7% (n=33) patients were left school and 7.14% (n=16) patients were having learning difficulties, because of epilepsy.

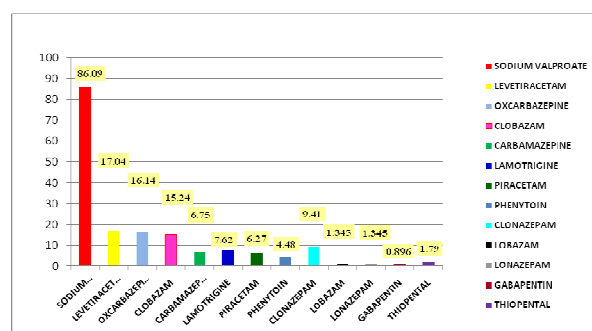


Figure - 1: Distribution of antiepileptic drugs.

Anti-epileptic drugs (AEDs) are the main form of treatment for people with epilepsy. And up to 70% (7 in 10) people with epilepsy could have their seizures completely controlled with AEDs. There are around 26 AEDs used to treat seizures, and different AEDs work for different seizures. Here we explain what the different AEDs are, what type of seizures or epilepsy they are used for, as well as some essential information about average doses and common side effects.

A total 223 respondents, 86.09% of the Epilepsy patients were prescribed with Sodium valproate, 17.04% were prescribed with Levetiracetam, 16.14% were prescribed with Oxcarbazepine, 15.24% were prescribed with Clobazam followed by Carbamazepine (6.75%), Lamotrigine (7.62%), Piracetam (6.27%), Phenytoin (4.48%), Clonazepam (9.41%), Lorazepam (1.345%), Gabapentin (0.896%), Thiopental (1.79%). The

current study reveals that majority of the patients were prescribed with Sodium valproate (86.09%).

There is no single mechanism of action that can explain valproate's broad effects on neuronal tissue. Its pharmacological effects include: Increased gamma-amino butyric acid transmission, reduced release of excitatory amino acids, blockade of voltage-gated sodium channels and modulation of dopaminergic and serotonergic transmission.

Table - 2: Medication Adherence Number of Patients (n=223) Percentage (%)

High	18	8.07
Medium	95	42.60
Low	110	49.32

The outcome variable in this study is the measure of drug adherence as assessed by 8 item Morisky scale scores. The total scores range between 0 and 8, where 0 was regarded as High adherence, 1-2 was moderate adherence and more than 2 was Low adherence. The independent variables that were controlled for include age, gender, the total number of antiepileptic drugs used irrespective of medication class, duration of antiepileptic drug use, educational levels, marital status, and occupation, monthly household income, self-perceived health status. The assessment of medication adherence scale, total study respondents (n=223), 49.32% (n=110) of patients were low adherence to antiepileptic medications, followed by 42.32% (n=95) of respondents having medium adherence to antiepileptic medications and 8.07% of respondents having high adherence to antiepileptic medications.

Table 3: Barriers Affecting Medication Compliance for Non-Adherence

Barriers of Medication adherence	Number of patient (n=223)	Percentage (%)
Forgetting	112	50.22
Fear of side effect	68	30.49
Negative attitude	56	25.11
Lack of information	36	16.14
Away from home	35	15.69
Being busy	29	13
Drugs not in hand	6	2.69
Inability to buy drugs	14	6.27
Multiple drug administration	3	1.34

Among patient-related barriers, forgetfulness were reported by 50.22% (n=112) of patients, followed by fear of side effect (30.49%),

Negative attitude (25.11%), Lack of information 16.14%, away from home (15.69) and being busy 13%. Earlier study reported the majority of respondents are forgetting to take medication 36.527 % [6], followed by depend on others for purchasing drugs.

4. DISCUSSION

In our study, Epilepsy is a neurologic disorder that affects people of all ages. In the present study it was observed that majority of patients in the study population within the range of 18-29 (49.32%) and the gender inequality does not affect the adherence the study shows that 61.43% were female compared 38.56% male as shown in table 1.

A study conducted by Johnbull et al., 2011^[7] shows that non-adherence in patients on AED's is the strongest predictor of failure and more than 95% adherence may be necessary to adequately suppress the seizure, this means that missing more than one dose of a regimen per week may be enough to cause treatment failure and trigger seizures.

In our study we observed that more than half of the patients were non-adherent to the therapy and antiepileptic monotherapy was observed in 12.55% of all patients, 35% people were prescribed with dual therapy (2 drugs) and 53.81% were prescribed with multiple therapy (≥ 2 drugs). Most of the patients are treated and managed with multiple drug therapy (53.81). A study conducted by Bababajide Farounbi demonstrated that adherence is even more difficult when taking multiple drugs with different dosing requirements and severe unpleasant side effects. Social and psychological factors influence adherence. Mental health issues (such as depression or psychological distress), attitudes toward treatment and toward epilepsy and support from health care workers family and friends are key to adherence. Positive responses promote adherence and negative responses (lack of support, pessimism etc.) can make it more difficult to adhere to treatment regimens.

In other research study carried out by kyngas^[8] only one-fifth (20%) of the patients were adherent to the treatment and in our present study out of 223 study subjects 18 (8.07%) of study populations were having High adherence to antiepileptic medications, 95 patients (42.60%) were moderately adherent, followed by 110 patients (49.32%) have Low adherence. Majority of the patients having low adherence to the treatment. The study also assess the factors of non-adherence from the results, it shows that out of 223 patients the factors causing non-adherence were found to be forgetting 112 (50.22%)

followed by fear of having side effect 68 (30.49%), Negative attitude 56 (25.11%), lack of information 36 (16.14%), away from home 35 (15.69%), being busy 29 (13%), drugs not in hand 6 (2.69%), multiple drug administration 3 (1.34%) etc. Majority of patients were non-adherent to the medication due to forgetfulness.

5. CONCLUSION

Our study population with epilepsy has demonstrated rate of medication adherence was low and it has to be improved. Medication adherence was often a challenge in the management of epilepsy. Non-adherence in patients on AED's is the strongest predictor of failure and more than 95% adherence may be necessary to adequately suppress the seizure, this means that missing more than one dose of a regimen per week may be enough to cause treatment failure and trigger seizures.

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