



MEDICATION ADHERENCE AMONG PATIENTS OF EPILEPSY AND ITS ASSOCIATED RISK FACTORS: A PROSPECTIVE OBSERVATIONAL STUDY IN A TERTIARY CARE HOSPITAL ANDHRA PRADESH

¹M. MAHESH, ²M. AMZAD KHAN, ³M. MOHAMMAD ASIF

¹PHARM-D, ²PHARM-D, ³M. PHARMACY

¹Department of Pharmacy practice,

¹Balaji College of Pharmacy, Anantapuramu, Andhrapradesh, India

Abstract :

Introduction: The study has been conducted to evaluate the medication adherence and to identify its associated risk factors in epilepsy patients in a tertiary care hospital.

Objectives: To measure medication adherence among patients suffering from epilepsy. To determine the various risk factors influencing medication adherence. To find out the association of health-related quality of life with adherence to medication.

Methods: A prospective case series study was conducted over six months at Government General Hospital, Anantapuramu, Andhra Pradesh, following Institutional Review Board (IRB) approval. The study included 186 participants, with data collected during routine ward rounds in the General Medicine department through standardized data entry formats, direct patient interviews, and laboratory values extracted from case sheets and reports.

Results: Among the enrolled patients (43% female, 57% male), The current study shows that age and medication adherence was significantly associated. All patients (> 60yrs) were non-adherence to their medications. This may be due to the fact that elderly patients have more difficulty in following the physician instructions due to cognitive impairment or other physical deformities such as problems in swallowing tablet, opening pill bottles or handling small tables.

Conclusion: Thus it can be concluded that provision of proper patient counselling by clinical pharmacist through use of medication aids can improve medication adherence behavior of the patients and there by the therapeutic outcome of the medications can be prevented, thereby enhancing overall patient quality of life through patient counselling, information leaflets, and education.

Key words: Anti-epileptic drugs, Clinical pharmacist, Epilepsy, Adherence and Quality of Life

1. Introduction

Around 400 BC, an ancient Indian medical literature known as the Charaka Samhitha was written. Epilepsy is a brain illness marked by recurrent seizures. The convulsions, complete with blackouts and unconsciousness, were reported accurately. The scientific basis for epileptology was established by John Hugh Lings Jackson (1835–1911), who also investigated the location of lesions that may cause seizures. Before German physician Hauptmann discovered phenobarbital in 1912, the first medication to treat epilepsy was potassium bromide, which was introduced by English doctor "Sir Charles." The name Epi-Upon, Leptis-Seizures is a loanword from Greek. The term seizure disorder is another name for it.

Medication Adherence

Medication adherence is defined by the WHO as "the degree to which an individual's behaviour follows established guidelines from a healthcare provider." Adherence to medicine is essential for the advancement of treatment. There are many layers and complex reasons for non-adherence. Patients may actively stop taking their prescription drugs because they identify particular negative effects, lifestyle choices, or forgetfulness. They may also stop taking them accidentally because they cannot understand the doctor's recommendations. Patients' failure to adhere to their recommended regimen is a common reason why AED treatment fails. One of the main reasons that lead to poor epilepsy therapy and unfavourable results is inadequate medication adherence. As a result, there is an increasing incidence of seizures and death, which raises the entire expense of healthcare and places an economic burden on society. Patients who have a history of prolonged hospital stays, recurrent emergency room visits, persistent absences from work or school owing to seizure-related effects, or anxiety caused by a fear of having seizures are candidates for repeated adherence problems. Due to non-adherence to treatment, almost 50% of individuals with epilepsy experience inadequate control over their seizures. Adherence problems result in significant morbidity, mortality, and preventable healthcare costs.

2. Aims and Objectives

Aim: To evaluate Medication Adherence among Patients of Epilepsy and its associated risk factors in a tertiary care hospital.

Objectives: To improve understanding of epilepsy, emphasizing the importance of consistent medication adherence.

Individualize medication regimens to address patient-specific needs, considering factors such as lifestyle, comorbidities, and potential side effects.

3. Methodology:

S.No	Parameter	Description
1	Study design	Prospective Observational study, case series.
2	Study site	Government General Hospital, Ananthapuramu, Andhra Pradesh.
3	Protocol approval	Institutional Review Board- Balaji College of Pharmacy, Ananthapuramu.
4	Population	Inpatients, Out patients diagnosed with Epilepsy.
5	Data collection	Patient interview & Case sheets from -GGH, Anantapuramu
7	Statistics	Microsoft Excel, Statistical significance will be established at a predetermined alpha level of 0.05. IQR=Interquartile range, Fischer exact test and for the rest of the variables Chi-squared test was applied.

8	Sample size	186
9	Study period	6 months

Inclusion criteria:

- The patients who were diagnosed with epilepsy for at least one year
- Aged above 18 years
- The patients who were treated for epilepsy with at least one antiepileptic drug
- Patients who are willing to participated in the study and without other severe comorbidities were included in the study

Exclusion criteria:

- Pregnant patients
- Paediatric patients
- Psychiatric patients
- Patients who provide incomplete information about drug use were excluded from the study

4. Results:**GENDER:**

186 patients who were visiting Government General Hospital, Anantapuramu were enrolled in the study. Out of 186 patients 80 (43.01%) were females and 106 (56.98%) were males.

AGE:

Among 186 patients, 28 patients are between the age group of 18-30 years, 54 patients are between the age group of 31-50 years, 77 patients are between the age group of 51-70, 27 patients are between the age group of 71-90 years. In these patients 51-70 years of age group shows dominance.

TYPE OF DRUGS:

Among 186 epileptic patients 41(22.04%) patients are using diazepam 10mg, 3(1.61%) patients are using diazepam 15mg, 27(14.51%) patients are using phenytoin 100mg, 11(5.91%) patients are using phenytoin 150mg, 24(12.90%) patients are using sodium valproate 250mg, 18(9.67%) patients are using sodium valproate 100mg, 2(1.07%) patients are using sodium valproate 150mg, 1(0.53%) patients are using sodium valproate 200mg, 1(0.53%) patients using sodium valproate 500mg, 20(10.75%) patients are using levipil 100mg, 4(2.15%) patients are using levipil 150mg, 10(5.37%) patients are using levipil 250mg, 12(6.45%) patients are using levipil 500mg, 2(1.07%) patients are using lamotrigine 250mg, 10(5.37%) patients are not using any medications. In these patients of using diazepam 10mg shows dominance.

COMPLICATIONS:

Out of 186 patients, 66 male patients are with complications, 45 female patients are with complications. Overall, 111 epileptic patients are with complications. 40 male patients and 35 female patients have complications. Overall, 75 epileptic patients are without any complications

ALCOHOLIC/SMOKERS:

Among 186 patients, 83 male patients are alcoholic/smokers, 23 male patients are non-alcoholic. 8 female patients are alcoholic/smoker, 72 female patients are non-alcoholic. Overall, 91 epileptic patients are alcoholic/smokers out of 186 epileptic patients.

REASONS FOR NON-ADHERENCE

Table 4.1: Reasons for non-adherence

REASONS FOR NON-ADHERENCE	PERCENTAGE (%)
FORGETFULNESS	50%
DUE TO LACK OF SYMPTOMS	14%
RUN OUT OF PILLS	10%
TO AVOID SIDE EFFECTS	6%
AWAY FROM HOME	4%
COULD NOT AFFORD	3%
OTHERS	8%

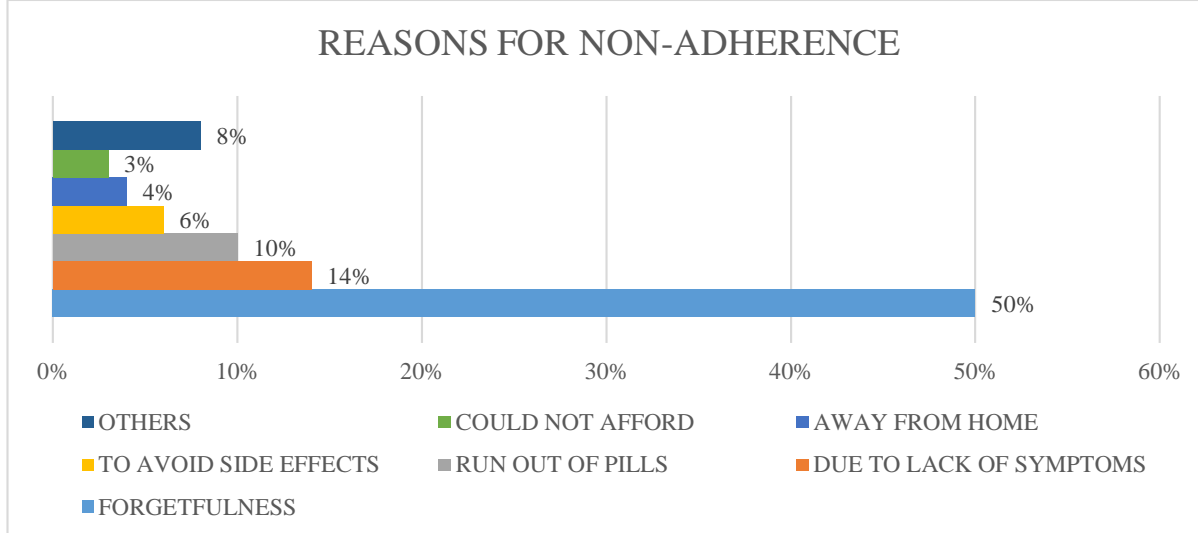


Fig 4.1: Reasons for non-adherence

Table 4.2: Association of socio-demographic factors and adherence to medications in the study Population(N=186)

Variables	Poor adherence to medication	Good adherence to medication	Total	P- value
Age median (IQR)	54.5(27.25)	54(27.25)	54(28.75)	0.05
Gender n (%)				
Male	72	34	106	0.2634
Female	48	32	80	
Residence n (%)				
Urban	84 (70)	49 (74)	133 (72)	0.539
Rural	36 (30)	17 (26)	53 (28)	
Occupation (%)				
Unemployed	58 (48)	29 (44)	87 (47)	0.565535
Gianfully employed	62 (52)	37 (56)	99 (53)	
Education n (%)				
Up to high school	26 (22)	8 (12)	34 (18.3)	0.2677319
Intermediate	71 (59)	43 (65)	114 (61.3)	
Graduate and above	23 (19)	15 (23)	38 (20.4)	
Marital status N (%)				
Married	112 (93)	64 (97)	176 (95)	1.848
Un married	8 (7)	2 (3)	10 (5)	
Family size n (%)				
<5	84 (70)	39 (59)	123 (66.1)	0.132
>5	36 (30)	27 (41)	63 (33.9)	

5. Discussion

This study was conducted to measure adherence to medications among Epilepsy patients and explore the determining factors as well as to associate it with quality of life. Many studies have been conducted in different parts of the country but adherence measured in all other settings was different owing to measure the same. Motivational interviewing can be effective in clinical practice to improve medication adherence in patients with epilepsy. And action planning, coping planning and self- monitoring with

motivational interviewing can promote the effectiveness of the medical treatment for epilepsy by improving adherence reported by Maryam Gholami, Gerard J Molloy et al [2015].

That there is a need for support and encourage positive beliefs, and discourage myths against AEDs in order to increase patient's adherence reported by Archana Verma et al [2018].

They concluded that assessing for specific adherence barriers over time may lead to identification of interventions that results in improved adherence and care reported by Rachelle R et al [2018].

They concluded that people with epilepsy were found to have low medication adherence and a high tendency to conceal epilepsy. Furthermore, the tendency to conceal epilepsy had a negative effect on medication adherence reported by Meyrem Aksoy et al [2023].

Particularly, this study was helpful in identifying the importance of clinical pharmacy services in the pharmaceutical care and overall quality of life of epilepsy patients since clinical pharmacy services are on its infancy stage at GGH, Anantapuramu. This study outcome will assist with showing the benefit of executing a clinical pharmacist-led educational intervention at neurology department settings to improve self – care practices and clinical outcomes among GGH, Anantapuram epileptic patients.

This study has some confinements such as, self- reporting was the only technique utilized in this study which is subjective in nature and may have under estimated the status of non-adherence such as pill count and prescription refills. However, it was been reported that the self-report approach as estimating adherence is basic, modest and valuable method for distinguishing non- adherence in the clinical setting.

6. Conclusions

This study shows that all patients (age<60yrs) were mostly non- adherence to their medications. In our study, we found that adherence to medications for epilepsy was poor as compared to studies. The factors associated with poor adherence were the presence of any comorbidity, a positive family history of non-communicable diseases and current alcohol consumption, while following a epilepsy diet was associated with better medication adherence. Health education and lifestyle modifications may improve medication adherence as well as it will delay the progression of the disease.

7. REFERENCES

1. Falco-Walter J. Epilepsy—definition, classification, pathophysiology, and epidemiology. *Seminars in Neurology*. 2020 Nov 5;40(06):617–23. doi:10.1055/s-0040-1718719
2. Wirrell EC, Nabbout R, Scheffer IE, Alsaadi T, Bogacz A, French JA, et al. Methodology for classification and definition of epilepsy syndromes with list of syndromes: Report of the ilae task force on nosology and definitions. *Epilepsia*. 2022 May 3;63(6):1333–48. doi:10.1111/epi.17237
3. Falco-Walter JJ, Scheffer IE, Fisher RS. The new definition and classification of seizures and epilepsy. *Epilepsy Research*. 2018 Jan;139:73–9. doi:10.1016/j.eplepsyres.2017.11.015
4. Fisher R, Cross J, French J, Higurashi N, Hirsch E, Jansen F, et al. Operational classification of seizure types by the International League Against Epilepsy: Position Paper of the Ilae Commission for Classification and Terminology. *Epilepsia*. 2017 Mar 8;58(4):522–30. doi:10.1111/epi.13670
5. Fisher R, Cross J, D'Souza C, French J, Haut S, Higurashi N, et al. Instruction manual for the ilae 2017 operational classification of seizure types. *Epilepsia*. 2017 Mar 8;58(4):531–42. doi:10.1111/epi.13671
6. Turek G, Skjei K. Seizure semiology, localization, and the 2017 ILAE seizure classification. *Epilepsy & Behavior*. 2022 Jan;126:108455. doi:10.1016/j.yebeh.2021.108455
7. Linehan C, Tellez-Zenteno JF, Burneo JG, Berg AT. Future directions for epidemiology in epilepsy. *Epilepsy & Behavior*. 2011 Sept;22(1):112–7. doi:10.1016/j.yebeh.2011.06.006
8. McHugh JC, Delanty N. Chapter 2 Epidemiology and classification of Epilepsy. *International Review of Neurobiology*. 2008;11–26. doi:10.1016/s0074-7742(08)00002-0
9. Rosenow F, Hamer HM, Knake S. The epidemiology of convulsive and nonconvulsive status epilepticus. *Epilepsia*. 2007 Oct 30;48(s8):82–4. doi:10.1111/j.1528-1167.2007.01359.x
10. Jenrow K, Elisevich K. Pathophysiology of epilepsy. *Understanding Epilepsy*. 2019 Oct 31;1–18. doi:10.1017/9781108754200.002
11. Pedley TA. The pathophysiology of focal epilepsy: Neurophysiological considerations. *Annals of Neurology*. 1978 Jan;3(1):2–9. doi:10.1002/ana.410030103
12. Tran S, Mathon B, Morcos-Sauvain E, Lerond J, Navarro V, Bielle F. Neuropathologie de l'épilepsie. *Annales de Pathologie*. 2020 Nov;40(6):447–60. doi:10.1016/j.annpat.2020.08.001
13. Popkirov S, Asadi-Pooya AA, Duncan R, Giginishvili D, Hingray C, Miguel Kanner A, et al. The aetiology of psychogenic non-epileptic seizures: Risk factors and comorbidities. *Epileptic Disorders*. 2019 Dec;21(6):529–47. doi:10.1684/epd.2019.1107
14. March PA. Seizures: Classification, Etiologies, and pathophysiology. *Clinical Techniques in Small Animal Practice*. 1998 Aug;13(3):119–31. doi:10.1016/s1096-2867(98)80033-9
15. Sartori S, Nosadini M, Tessarin G, Boniver C, Frigo AC, Toldo I, et al. First-ever convulsive seizures in children presenting to the Emergency Department: Risk Factors for seizure recurrence and diagnosis of epilepsy. *Developmental Medicine & Child Neurology*. 2018 Sept 7;61(1):82–90. doi:10.1111/dmcn.14015
16. Peter C, Camfield C. Modes of onset of epilepsy and differential diagnosis. *Handbook of Clinical Neurology*. 2013;447–53. doi:10.1016/b978-0-444-52891-9.00048-8
17. Beydoun A, DuPont S, Zhou D, Matta M, Nagire V, Lagae L. Current role of Carbamazepine and oxcarbazepine in the management of epilepsy. *Seizure*. 2020 Dec;83:251–63. doi:10.1016/j.seizure.2020.10.018

18. Galizia EC, Faulkner HJ. Seizures and epilepsy in the acute medical setting: Presentation and management. *Clinical Medicine*. 2018 Oct;18(5):409–13. doi:10.7861/clinmedicine.18-5-409
19. . Kwan P, Sills GJ, Brodie MJ. The mechanisms of action of commonly used antiepileptic drugs. *Pharmacology & Therapeutics*. 2001 Apr;90(1):21–34. doi:10.1016/s0163-7258(01)00122-x
20. Reynolds EH, Chadwick D, Galbraith AW. One drug (phenytoin) in the treatment of epilepsy. *The Lancet*. 1976 May;307(7966):923–6. doi:10.1016/s0140-6736(76)92709-4

