



International Journal of Current Trends in Pharmaceutical Research

Journal Home Page: www.pharmaresearchlibrary.com/ijctpr



RESEARCH ARTICLE

Prospective Assessment of Drug Utilization Practice of Anti Epileptic Medications in the Management of Epilepsy Associated Comorbidities in a Tertiary Care Hospital

C.L. Sindhura*, B. Kumar, D. Sujana, M. Bhargavi

Department of Pharmacy Practice, Ratnam Institute of pharmacy, Pidathapolur (V&P), Muthukur (M), SPSR Nellore (Dist) 524346, Andhra Pradesh, India.

ABSTRACT

It is a central nervous system condition where the brain experiences recurrent seizures. A seizure is the outward manifestation of the synchronous and excessive excitement of nerve cells. This is a prospective observational study carried out for a period of 6 months. The study was conducted in neurology department in a tertiary care hospital. Written and informed consent was obtained from the patients who were included in the study. The duration can vary from type of seizure, affects tonic and clonic responses. The prevention of seizures proper diagnosis is essential. In our study 30- 49 age patients were more 94(37.6%) comparing with other age groups. In our study male patients were more 192 (76.8%) comparing with female patients. Our study results complement with study conducted by Henry Daniel raj T et al and indicated that seizures are more common in males comparing with female population. In our study Generalized tonic clonic seizures patients were more 97 (38.8%) comparing with other seizure types. In our study 0-7 days hospital admitted patients were more 92 (36.8%) comparing with other durations. In our study one event frequency of seizure in month patients were more 117 (46.8%) comparing with other frequencies. In our study brain infected etiological factor patients were more 66 (26.4%) comparing with other etiological factors. In our study epilepsy with schizophrenia co morbidity patients were more 82(32.8%) comparing with other disease co morbidities.

Keywords: Anti Epileptic, Drugs, Comorbidities, Tertiary care hospitals and assessment

ARTICLE INFO

Corresponding Author

C.L. Sindhura

Department of Pharmacy Practice,
Ratnam Institute of Pharmacy,
SPSR Nellore-524346, A.P, India.

MS-ID: IJCTPR3725



PAPER QR-CODE

Article History: Received 29 December 2018, Accepted 25 January 2019, Available Online 15 March 2019

Copyright© 2019 C.L. Sindhura, et al. Production and hosting by Pharma Research Library. All rights reserved.

This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

Citation: C.L. Sindhura, et al. Prospective Assessment of Drug Utilization Practice of Anti Epileptic Medications in the Management of Epilepsy Associated Comorbidities in a Tertiary Care Hospital. *Int. J. Curr. Tren. Pharm. Res., Res.*, 2019, 7(2): 45-49.

CONTENTS

1. Introduction	45
2. Materials and Methods	45
3. Results and Discussion.	45
4. Conclusion.	48
5. References	48

1. Introduction

The disorder that causes such an overexcitement is called epilepsy. It is a central nervous system condition where the brain experiences recurrent seizures [1]. A seizure is the outward manifestation of the synchronous and excessive excitement of nerve cells. As a basic overview, a seizure is when someone experiences uncontrollable shaking of the body, loss of consciousness, and more [2]. We'll get into the many different types of seizures later on. People with epilepsy experience recurrent seizures, because a sudden surge of electrical activity in the brain causes a temporary disturbance in the messaging systems between brain cells. If a nerve cell has a defect that causes it to keep firing off an action potential over and over again, a lot of glutamate is released into the surrounding area, causing other cells to begin firing off the action potentials uncontrollably all at the same time [3].

The success in preventing seizures by medication varies depending on type of epilepsy. For example, if no underlying cause can be found for your seizures (idiopathic epilepsy), you have a very good chance that medication can fully control seizures. Seizures caused by some underlying brain problems may be more difficult to control [4]. The study was intended to assess the drug utilization practice of epileptic medications in the management of epilepsy associated comorbidities in neurology department of a tertiary care hospital [5]. The main objective involved in assess the drug utilization practice of anti epileptic medications, identify and evaluate the type of epilepsy and associated comorbidities, evaluate the etiological association in development of seizures, investigate the drug treatment combinations in seizure patients.

Exclusion criteria:

Patients with aging above 18 years, It having epilepsy symptoms, Patients treated with anti seizure drugs, Patients diagnosed with epilepsy associated clinical co morbidities, The Patients who are willing to participate in the study [6]. The Patients who are not willing to give consent, Pregnancy, Improper diagnosis, Lactation, Cancer Patients. It will be Prospective observational study [7]. The Present study was conducted for a period of six months from December 2017 to may 2018. The Present study was conducted in outpatient department of neurology at tertiary care hospital. It was 250 Patients.

2. Materials and Methods

This is a prospective observational study carried out for a period of 6 months. The study was conducted in neurology department in a tertiary care hospital. Written and informed consent was obtain from the patients were included in the study. During the study period drug utilization practice of anti epileptic drugs was analyzed. A Total of 250 patients were selected in the study [8]. The patient data collection form was created to collect the Patient demographic details include name, age, sex, date of admission, height and details like past medical history, past medication history, treated drugs information was obtained from medication chart [9].

Institutional ethics committee consideration: The research protocol was prepared and submitted to ethical committee and ethical Committee clearance was obtained from institutional human ethics committee permitted to perform the research in the neurology department [10].

Patient data collection and management:

The patient data collection form was created with assistance of physician, teaching faculty of pharmacy practice to collect the data from medication charts [11]. The data collection tool includes information regarding age, sex, height, weight, BMI, diagnosis, past medical history, laboratory data, and diagnostic results. The information about causative factors, epileptic drugs dose and frequency of administration and duration of therapy was collected from treatment chart [12].

Statistical analysis:

The Statistical Package for Social Science software was used for analysis and measurement data are expressed as the mean \pm standard deviation. Comparisons between groups were analyzed using the Student's t-test. Measurement data are expressed as a percentage, the comparison of sample rates was performed by the 2 test. $P < 0.05$ was considered to indicate a statistically significant difference [13].

3. Results and Discussion

The study was carried out for a period of six months in a tertiary care hospital total 250 patients was diagnosed with epilepsy and associated co-morbidities in department of neurology in a tertiary care teaching hospital [14]. The drug utilization details were collected from the patient treatment chart and data was evaluated.

Table 1: Age wise distribution

S.No	Age	Total (N=250)	Percentage (%)
1	0-18	31	12.4
2	19-29	75	30
3	30-49	94	37.6
4	50-69	50	20
	Total	250	100

This table shows age wise distribution of patients includes total 250 enrolled in the study. 31 patients were in the age group of 0-18, 75 patients were in the age group of 19-29, 94 patients were in the age group of 30-49, 50 patients were in the age group of 50-69.

Table 2: Gender wise distribution

S.No	Category	Total (N=250)	Percentage (%)
1	Male	192	76.8
2	Female	58	23.2
	Total	250	100

This table shows Gender wise distribution of patients includes, total of 250 patients were selected for the study includes 192 patients were male patients, 58 were in female patients.

Table 3: Type of epilepsy wise distribution

S.No	Category	Total (N=250)	Percentage (%)
1	Focal seizures	52	20.8
2	Generalised tonic clonic seizures	97	38.8
3	Febrile seizures	54	21.6
4	Absence seizures	19	7.6
5	Myoclonic seizures	28	11.2
	Total	250	100

This table shows the Type of epilepsy wise distribution include focal seizure patients were 52, Generalized tonic clonic seizures were 97, febrile seizures patients were 54, Absence seizures patients were 19, Myoclonic seizures were 28.

Table 4: Length of hospital admission wise distribution

S.No	Length of hospital admission	Total (N=250)	Percentage (%)
1	0-7	92	36.8
2	7-15	55	22
3	15-20	85	34
4	20-30	18	7.2
	Total	250	100

This table shows Length of hospital admission wise distribution include 0-7 days stayed patients were 92, 7-15 patients were 55, 15-20 patients were 85, 20-30 patients were 18.

Table 5: Frequency of seizures wise distribution

S.No	Frequency of seizures	Total (N=250)	Percentage (%)
1	One event in month	117	46.8
	Two events in month	83	33.2
2	More than two events in month	50	20
	Total	250	100

This table shows the Frequency of seizures wise distribution include one event in month patients were 117,

two events in month patients were 83, more than two events in month patients were 50.

Table 6: Etiological factors wise distribution

S.no	Etiological factors	Total (N=250)	Percentage (%)
1	Blood Infections	50	20
2	Brain infections	66	26.4
3	Family history	39	15.6
4	Head injury	59	23.6
5	Metabolic disorder	36	14.4
	Total	250	100

This table shows that Etiological factors includes blood Infections patients were 50, brain infections patients were 66, family history patients were 39, head injury patients were 59, metabolic disorder patients were 36.

Table 7: Disease co morbidities wise distribution

S.No	Disease comorbidities	Total (N=250)	Percentage (%)
1	Hypertension	30	12
2	Diabetes mellitus	39	15.6
3	Depression	32	12.8
4	Schizophrenia	82	32.8
5	Migraine	20	8
6	Stroke	18	7.2
7	Sleep disorder	29	11.6
	Total	250	100

This table shows that Disease co morbidities include Hypertension patients were 30, diabetes mellitus patients were 39, depression patients were 32, schizophrenia patients were 82, migraine patients were 20, stroke patients were 18 and sleep disorder patients were 29.

Table 8: Total No of prescribed drugs utilization of anti epileptic medications

S.No	Drugs utilization practice	Total	Percentage (%)
1	Single therapy	142	56.8
2	Double therapy	108	43.2
	Total	250	100

This table shows that single therapy drug utilized patients were 142; double therapy utilized patients were 108.

Table 9: List of medications prescribed for Treatment of seizures wise distribution

Type of seizure	Epileptic drugs	Total patients (N=250)	Percentage (%)
Focal seizures	Carbamazepine	27	10.8
	Phenytoin +clobazam	12	4.8
	Phenytoin +valproate	11	4.4
	Total	50	
Generalized tonic clonic seizures	Valproic acid	24	9.6
	Sodium valproate+Carbamazepine	18	7.2
	Phenytoin sodium+Phenobarbitone	28	11.2

	Phenytoin + clobazam	19	7.6
	Phenytoin	16	6.4
	Total	105	
Febrile seizures	Phenytoin +carbamazepine	12	4.8
	Clobazam	20	8
	Sodium valproate	13	5.2
	phenobarbital	9	3.6
	Lorazepam + phenobarbital	8	3.2
	Total	62	
Absence seizures	valproic acid	19	7.6
	Total	19	
Myoclonic	Levetiracetam	7	2.8
	Topiramate	7	2.8
	Total	14	
	Total	250	100

This table shows that medications prescribed for treatment of seizures include focal seizure type 27 patients prescribed with carbamazepine, 12 patients prescribed with Phenytoin +clobazam, 11 patients prescribed with Phenytoin +valproate. Generalized tonic clonic seizures treatment 24 patients prescribed with Valproic acid, 18 patients prescribed with Sodium valproate+Carbamazepine, 28 patients prescribed with phenytoin sodium+Phenobarbitone, 19 patients prescribed with Phenytoin + clobazam, 16 patients prescribed with Phenytoin. Febrile seizures treatment 12 patients prescribed with Phenytoin +carbamazepine, 20 patients prescribed with Clobazam , 13 patients prescribed with Sodium valproate, 9 patients prescribed with Phenobarbital, 8 patients prescribed with Lorazepam + Phenobarbital. Absence seizures treatment 19 patients were treated with valproic acid. Myoclonic seizures treatment 7 patients treated with Levetiracetam, 7 patients treated with Topiramate.

Table 10: Total comparison of epilepsy treatment

Type of seizure	Total treated patients
Focal seizures	50
Generalised tonic clonic seizures	105
Febrile seizures	62
Absence seizures	19
Myoclonic	14
Total	250

This table shows the comparison of epilepsy treated patients include 50 patients treated for focal seizures, 105 patients treated for generalized tonic- clonic seizures, 62 patients treated for Febrile seizures, 19 patients treated for Absence seizures, 14 patients treated for Myoclonic seizures.

Discussion:

Epilepsy is a neurological abnormality may affect the both gender at all ages. Epilepsy condition brain activity becomes abnormal and develops periods of unusual behavior, sensations, and sometimes loss of social response. The duration can varies from type of seizure, affects arms tonic and clonic responses. The prevention of seizures proper diagnosis is essential. In our study 30- 49 age patients were more 94(37.6%) comparing with other age

groups. In our study male patients were more 192 (76.8%) comparing with female patients. Our study results complement with study conducted by Henry Daniel raj T et al and indicated that seizures are more common in males comparing with female population. In our study Generalized tonic clonic seizures patients were more 97 (38.8%) comparing with other seizure types. In our study 0- 7 days hospital admitted patients were more 92 (36.8%) comparing with other durations. In our study one event frequency of seizure in month patients were more 117 (46.8%) comparing with other frequencies. In our study brain infected etiological factor patients were more 66 (26.4%) comparing with other etiological factors. In our study epilepsy with schizophrenia co morbidity patients were more 82(32.8%) comparing with other disease co morbidities. In our study single therapy patients were more 142(56.8%) comparing with other double therapy. In our study generalized tonic clonic seizures treated patients were more 105 comparing with other type of seizures and valproic acid drug was more prescribed comparing with other drugs 24 (9.6%).

4. Conclusion

The present research study concluded that epilepsy is a neurological abnormality may affect the both genders and it is mostly develops in males. It can make abnormal behavior and complete loss of social response during the seizure event. In our study brain infection is identified etiological factor and seizure developed patients were more in our study generalized tonic clonic seizures patients were more comparing with other seizures. The valproic acid is most commonly prescribed drug in generalized tonic clonic seizures. In our study the single therapy treated patients were more comparing with double therapy. Our study phenytoin, valproic acid drugs were mostly used for treatment followed by Carbamazepine, Levetiracetam, clobazam. Regular health care visit and effective treatment can decrease the seizure occurrence.

5. References

- [1] Charles BH, Linda MS. Opportunities responsibility in pharmaceutical care. American Journal of Hospital Pharmacy. 1990; 47(3):533-4.

- [2] Caprio A, Hauser WA. Epilepsy in the developing world. *Current Neurology and Neuroscience Reports*. 2009;9(4):319-26.
- [3] Hanssen Y, Dxlue D, Al Balushi K, Al Hashar A, Al Zakwani I. Drug utilisation pattern of antiepileptic drugs: A pharmacoepidemiologic study in Oman. *Journal of clinical pharmacy and therapeutics*. 2007;27(5):357-64.
- [4] Lim SH, Tan EK. Pattern of anti epileptic drug usage in tertiary referral hospital in Singapore. *Neurological Journal of South East Asia*. 1997;2(24):77-85.
- [5] Mac TL, Tan DS, Quet F, Odermatt P, Preux PM, Tan CT. Epidemiology, etiology and clinical management of epilepsy in Asia: a systematic review. *The Lancet Neurology*. 2007;6(6):533-543.
- [6] Radhakrishnan K, Pandian JD, Santhoshkumar T, Thomas SV, Deetha TD, Sarma PS. Prevalence, knowledge, attitude and practice of epilepsy in Kerala, South India. *Epilepsia*. 2000;41(8):1027-35.
- [7] Irrational drug use causing rise of anti-microbial resistance. Geneva, World Health Organization, 2005.
- [8] Mathur S, Sen S, Ramesh L, Kumar S. Utilization pattern of antiepileptic drugs and their adverse effects, in a teaching hospital. *Asian journal of pharmaceutical and clinical research*. 2010; 3(1):55-9.
- [9] George J et al. Evaluation of Drug Utilization and Analysis of Anti Epileptic Drugs at Tertiary Care Teaching Hospital. *Ind J Pharmacy Practice*. 2017; 3:189-94.
- [10] Meenakshi B. An analysis of prescription pattern and adverse drug reaction profile in children treated with antiepileptic drugs in a tertiary care teaching hospital. *Int J Basic Clin Pharmacol*. 2016; 5(2):389-93.
- [11] Guidelines on the use of international nonproprietary names (INNs) for pharmaceutical substances. Geneva, World Health Organization, 1997
- [12] Daniel. HL. Seizures and epilepsy. In: Fauci SA, Bruanwald E, Kasper LD, Hauser LS, Longo LD, Jameson LJ, et al., editors. *Harrison's Principles of Internal Medicine*. 19th ed. Vol. 2. New York: The McGraw-Hill Companies, Inc.; 2015. p. 2542.
- [13] Daniel BD, Anthony AA. Myasthenia gravis and other diseases of the neuromuscular junction. In: Fauci SA, Bruanwald E, Kasper LD, Hauser LS, Longo LD, Jameson LJ, et al., editors. *Harrison's Principles of Internal Medicine*. 19th ed. Vol. 2. New York: The McGraw-Hill Companies, Inc.; 2015. p. 2701.
- [14] Rajoor UG, Seema BN. Cerebral venous thrombosis in women: A study from teaching hospital in North Karnataka. *Int J Sci Stud*. 2015;3(5):179-82.