

An observational assessment of the prescription pattern of anti-epileptic medications in a tertiary care centre in West Bengal region

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Abstract

Aim: The objective of this study was to study the prescribing pattern of antiepileptic medications in patients with epilepsy in a tertiary care hospital.

Material & Methods: It was an observational study, conducted at Department of Pharmacology, Department of Pharmacology, ICARE Institute of Medical and Research & Dr. Bidhan Chandra Roy Hospital, Haldia, West Bengal, India from December 2013 to November 2014

Results: CNS related effects were seen in 14 patients followed by gastrointestinal disturbance in 8 patients. Out of 69 patients who were on monotherapy, most commonly prescribed AED was phenobarbitone (31) followed by phenytoin (18), levetiracetam (11), and carbamazepine (7), lorazepam (1) and ethosuximide (1).

Conclusion: Majority of the patients were males with age group 20-40 years and most commonly used drugs were conventional AEDs as monotherapy with phenobarbitone, phenytoin and levetiracetam.

Keywords: epilepsy, anti-epileptic drug (AED), monotherapy, combined therapy, prescribing pattern

Introduction

According to the International League against epilepsy, epilepsy is characterized by recurrent two or more seizures unprovoked by any immediate identifiable cause. [1] Epilepsy affects about 0.5% to 1% of the population worldwide. [2, 3] Prevalence of active epilepsy worldwide is 4-5 per 1000 population and in India it is [4-7] per 1000 population.

Prescription pattern monitoring studies are a tool for assessing the prescribing pattern of medicines and they help in promoting appropriate use of drugs and thus reduce misuse of drugs. This study is to assess the standards of medical treatment for epilepsy at tertiary level of health care [5]. Antiepileptic drugs (AEDs) are the mainstay of treatment of epilepsy and are prescribed to patients of all ages worldwide mostly as monotherapy. The prescribing pattern of Antiepileptic drugs has changed over the last decade with the development of newer drugs which have improved safety, tolerability and patient acceptability [6, 7]. In a study conducted by Thasni *et al*, they concluded that newer AEDs were commonly used as compared to Conventional AEDs and the most commonly used AED was Levetiracetam [8].

With the advent of newer antiepileptic agents, there have been major changes in prescribing pattern in epilepsy. By assessing the current pattern of prescription in the country based on the age, mono/polytherapy, use of newer AED's can ensure the rational use of medication and improve patient compliance [9]. The aim of this study was to analyze use of various AEDs and type of epilepsy prevalent in our population.

Material and Methods

It was an observational study, conducted at Department of Pharmacology, ICARE Institute of Medical and Research & Dr. Bidhan Chandra Roy Hospital, Haldia, West Bengal, India from December 2013 to November 2014. Adult

outpatients who have been diagnosed to have epilepsy were identified and prescribing pattern was studied.

Inclusion Criteria

1. More than 15 years of age.
2. Both sex (male and female)
3. Idiopathic epilepsy.

Exclusion Criteria

1. Pregnant and lactating woman

Methodology

Totally 120 prescriptions were collected randomly over a period of months. Patients demographic details, clinical diagnosis, type of epilepsy, type of AED used, drug dose and frequency will be recorded. Average number of drug per prescription was calculated. Prescription of all patients was entered in a preformed proforma and was analyzed using descriptive statistics.

Statistical Analysis

An observational study was done. A descriptive statistical analysis was applied in the present study.

Results

In the present study, out of 120 patients 76 patients were male and 44 patients were females. Epilepsy was more commonly seen in the patients of age group of 20-40 years. (Table 1)

71 patients were educated and 69 patients were employed (Table 2).

Family history of epilepsy was seen in 36 patients. (Table 3) CNS related effects were seen in 14 patients followed by gastrointestinal disturbance in 8 patients. [Table 4]

Among the total prescriptions analyzed, 91 patients were diagnosed as GTCS, 15 patients as partial seizure, and 5 as

myoclonic seizure, 7 as secondary seizures and 2 with Absence seizure. (Table 5)

Out of 69 patients who were on monotherapy, most commonly prescribed AED was phenobarbitone (31) followed by phenytoin (18), levetiracetam (11), carbamazepine (7), lorazepam (1) and ethosuximide (1) (Table 6)

In combination therapy, most commonly used two drug combination was phenobarbitone with phenytoin and three drug combination was with phenobarbitone, phenytoin and carbamazepine which is depicted in Table 7.

Table 1: Age and Sex wise distribution

Age	Male	Female	Total
10-20 Yrs.	10	4	14
20-40 Yrs.	45	31	76
>40	21	9	30
Total	76	44	120

Table 2: Educational and Employment status

Educated	71
Uneducated	53
Employed	69
Unemployed	46

Table 3: Family history

Family History	Present	Absent
	36	84

Table 4: Adverse events

Adverse events	No. of patients
CNS related	14
Gastrointestinal disturbance	8
Gingival hyperplasia	6
Weight gain	2

Table 5: Types of Seizure

Type	Number of patients
GTCS	91
Partial	15
Absence	2
Myoclonic	5
Secondary seizures	7

Table 6: Drug Regime

Drug	Number of patients
Phenytoin	18
Phenobarbitone	31
Levetiracetam	11
Carbamazepine	7
Lorazepam	1
Ethosuximide	1
Total	69

Table 7: Drugs used in monotherapy

Drugs	Number of Patients
Phenobarbitone + Phenytoin	33
Phenobarbitone + Phenytoin + Carbamazepine	8
Phenytoin + Carbamazepine	1
Phenytoin + Topiramate	2
Phenobarbitone + Phenytoin + Sodium Valproate	2

Discussion

The best manner to treat epilepsy is to establish the diagnosis and only initiate treatment once the diagnosis has been confirmed. The aim of treatment is to control seizures with the most appropriate AED without causing any significant side effects [8]. In this study, we observed a trend of prescribing newer antiepileptics, satisfactory use of essential medicines and low generic prescribing of drugs [10]. About 49% of the patients were given monotherapy and 51% of the patients were given combination therapy. In our study, >2 drugs were given to a small minority of patients. Most of these were cases of GTCS, uncontrolled on standard therapy. This was similar to the study conducted by Mane *et al.*, in which 38.4% of patients were prescribed monotherapy and remaining patients were prescribed more than two drugs [11]. According to Indian guidelines on epilepsy, treatment should be initiated with one AEDs without changing the formulation of the brand. If the patient does not respond to monotherapy, then the antiepileptic can be changed and the dose of the drug can be slowly built up till the seizure controlled is achieved. Combination therapy should be considered after two attempts at monotherapy have failed [10].

The study done by Venkateswara Murthy N *et al.*, [12], which showed cryptogenic epilepsy was the most common cause of epileptic seizures, followed by idiopathic. A noticeable increase in the use of levetiracetam (18.6%) was seen during our study, which was found to be consistent with the trend and was in accordance with the results reported by J.E. Machado-Alba *et al.* [13]

Polytherapy has many disadvantages like noncompliance, increased incidence of adverse effects and also quality of life will be affected but it is unavoidable in few set of patients who are not responding to monotherapy [14-15]. In combination therapy, most commonly used two drug combination was phenobarbitone with phenytoin as these drugs are of low cost and easily affordable, followed by three drug combination with phenobarbitone, phenytoin and carbamazepine.

The newer AEDs used in this study are Levetiracetam and Topiramate. Newer AED were not commonly prescribed due to higher cost and non-availability in government supply, as they are still not included in Essential Drug List [16].

Epilepsy is a chronic condition which impairs quality of life due to physical, psychological and socioeconomic consequences. The prime requirements are a complete diagnosis, selection of optimal treatment, and counselling appropriate to individual needs [17].

The aim of treatment is cessation of seizures without side effects. Pharmacological factors influencing the choice of drug include efficacy, toxicity, and ease of use, all of which should be considered with respect to individual patient needs [17].

Meta-analysis of different studies and NICE guidelines showed that carbamazepine and lamotrigine are the most suitable first line options for individuals with partial onset seizures and levetiracetam can also be considered for the same. Results also support the use of sodium valproate as the first-line drug for individuals with generalized tonic-clonic seizures and lamotrigine and levetiracetam were suitable alternatives [18].

Indian guidelines on epilepsy suggests carbamazepine, oxcarbamazepine, phenytoin, valproate and pheno-barbitone

as first line agents for partial seizures and valproate, phenytoin, phenobarbitone and carbamazepine as first line drug for generalized tonic clonic seizures ^[19].

Conclusion

Majority of the patients were males with age group 20-40 yrs. and most commonly used drugs were conventional AEDs as monotherapy with phenobarbitone, phenytoin and levetiracetam.

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