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Original Research Paper

Medicine

THE PRESCRIBING PATTERN OF ANTI-EPILEPTIC DRUGS IN A TERTIARY CARE HOSPITAL IN CENTRAL INDIA

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ABSTRACT

Aim: To study the prescribing pattern of antiepileptic drugs in a semi urban area by general practitioners

Materials and Methods: This is an observational study wherein patients suffering from epilepsy attending general practitioners in a tertiary care hospital were analyzed. Totally 100 prescriptions were analyzed.

Results: 100 patients were included in the study out of which 51 were males while 49 were females. Eighty two patients were used only older/conventional AEDs. GTCS was the predominant form of seizure type presented (88%) followed by other types. A total of 280 AEDs were prescribed to a total of 100 patients. The pattern of AEDs prescribed is presented in Table 2 of 100 patients, 80 patients were prescribed only conventional / older AEDs. Only 5 patients were on newer AEDs monotherapy. Newer AEDs were used as add on-therapy in 6 patients. Monotherapy (52%) was prescribed more than the polytherapy (48%). Phenytoin was the most commonly prescribed drug as monotherapy followed by phenobarbitone.

Conclusion: Our study revealed that the conventional AEDs are still most commonly used AEDs and use of newer AEDs is still low even at tertiary level. This may be because of lack of experience in using newer AEDs and cost factor as most of the population attending epilepsy clinic is from lower socioeconomic group.

KEYWORDS : antiepileptic drugs, prescribing pattern, Tertiary care hospital.

INTRODUCTION

Epilepsy is the most common among neurological disorder characterized by spontaneously recurring seizures. An epileptic seizure is a transient occurrence of signs and / or symptoms due to abnormal excessive synchronous activity in the brain.[1] Epilepsy affects 50 million people worldwide which accounts for 0.5 to 1% of the population.[2] Epileptic convulsions have negative consequences on the patient's life both in psychological and social parameters such as relationships, education and employment. While uncontrolled seizures leads to physical and psychosocial morbidity, dependency, poor quality of life and an increased risk of sudden unexpected death. Therefore, it is mandatory to treat epilepsy with antiepileptic drugs (AEDs) as soon as diagnosis is made for the same.[3]

A large number of drugs are currently available for the treatment of epilepsy. Older/conventional drugs like phenytoin, carbamazepine, valproic acid and ethosuximide are commonly used as first line drugs. They are relatively less expensive than the newer antiepileptics. Drugs like gabapentin, lamotrigine, vigabatrin, topiramate, tiagabine and zonisamide are the newer ones and currently used as add-on or alternative therapy and have lesser or few adverse effects.[4,5]

Prescription pattern monitoring studies are a tool for promoting appropriate use of the drugs and reduction of abuse or misuse of the drugs and also improve the prescribing practices and thus the standards of medical [7]. anti-epileptic drugs (AED) are increasingly being prescribed to patients of all ages in populations worldwide either as monotherapy or polytherapy [8]. Attempt to control epilepsy is done with mono and polytherapy.[7] The prescribing of first-choice AEDs, in particular, has changed over the last decade, with prescribers tending to prescribe newer AEDs (e.g. gabapentin, lamotrigine, levetiracetam, and pregabalin) to patients due to their improved tolerability.[8,9]

The goal of treatment should be to maintain a normal a life style through complete seizure control with no or minimal side effects.[4] Thus present study was planned to assess the prescription pattern of anti-epileptic drugs at tertiary care hospital.

MATERIAL AND METHOD

The study was an observational study conducted by analyzing prescriptions prescribed to patients suffering from epilepsy, at Out Patients Department of General medicine, L. N. Medical College and J. K. Hospital and Research Centre, Bhopal. Hundred prescriptions of all patients diagnosed with epilepsy being treated with one or more AEDs were included in the study. The demographic data like patient's name, age, gender, address, background, socioeconomic status; Data about disease like Seizure type, etiology and frequency, age of onset of seizure, duration, control of seizures, time since last seizure, and family history of epilepsy and presence of other co-morbidities; Details of treatment including generic names of drugs/s, daily doses, duration of treatment, past treatments, and whether monotherapy or polytherapy, were recorded. In the study conventional drugs were phenytoin, phenobarbitone, carbamazepine and valporate were AEDs while Levetiracetam, oxcarbazepine, clobazam, clonazepam, topiramate, zonisamide and gabapentin were grouped in "Newer" AEDs.

RESULTS

Out of the 100 patients, 51 were male and 49 were females. Of these 37 were newly diagnosed patients and 63 patients were on treatment for more than one year. The mean age of the study patients was 29.6 years with 50% of patients between 18 and 30 years. Majority of patients belonged to the poor and lower middle socioeconomic status.

As far as pattern of diagnosed epileptic disease is concern (Table 1) patients 88 patients had generalized seizures whereas 6 had complex partial seizures, 3 had generalized seizures with myoclonic jerks, 2 had simple partial seizures and only one patient had absence seizures.

Table 1: Profile of type of seizures

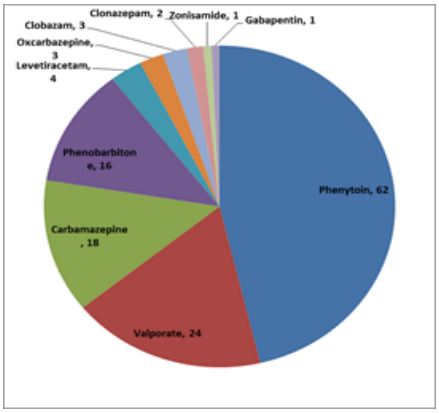
Type of seizure	No of Cases (n=100)
GTCS	88
Complex Partial Seizures	6
Generalized seizures with Myoclonic jerks	3
Simple partial Seizures	2
Absence Seizures	1

GTCS: Generalized tonic clonic seizures.

Overall AED utilization was 280 Phenytoin was used most commonly (52%) as monotherapy drug followed by Carbamazepine

(18%). Phenytoin + phenobarbitone combination was most commonly used dual therapy (16%) followed by phenobarbitone + sodium valproate (14%) combination.

Graph 1: Overall AED utilization



Phenytoin was the most commonly used AED for treatment of GTCS and simple partial seizures with secondary generalization. Carbamazepine was the most commonly used drug in complex partial seizures. In case of generalized seizures with myoclonic jerks, sodium valporate was the most commonly used drug.

Table 2: Commonly prescribed AED according to type of seizure

Type of seizure	Preferred drug
GTCS	Phenytoin
Complex Partial Seizures	Carbamazepine
Generalized Seizures with Myoclonic Jerks	Sodium valproate

The pattern of AEDs prescribed 100 patients, 80 patients were prescribed only conventional / older AEDs. Only 5 patients were on newer AEDs monotherapy. Newer AEDs were used as add on-therapy in 6 patients.

DISCUSSION

General population in India has a prevalent of Epilepsy is 0.5-1%, mostly affecting individuals of younger age. Effective treatment is necessary as early as possible due to morbidity and social stigma attached to the disease.10 Although it is possible to have an effective control of epileptic seizures with currently available AEDs but total relief from symptoms still remains elusive till now.

The ideal aim to treat epilepsy is to make the patient completely seizure free, or to reduce seizure frequency and severity if complete abolition of seizures is not possible. The standard treatment involves optimal use of AEDs. Efficacy of an AED refers to its effectiveness in preventing or reducing the recurrence of a particular seizure type. Potential AED side effect profile of an AED and their incedence in population is not only choice of an AED but also determine the adherence to drug by the patient.

Prescribing physician is corner stone in decision making for use of particular AEDs. For example, in primary and community health centres the practicing docters may not be very familiar with using newer antiepileptics where availability of specialists are also limited. Cost of AEDs and affordability of patients is one of the most important factors in deciding which drug to prescribe in a given patient. Though newer AEDs are more efficacious and less toxic than conventional AEDs, there are presently costlier.

This study analyzed utilization of AEDs in 100 adult patients observed and followed up at tertiary care level. The present study was an observational and descriptive study. Similar to earlier studies generalized tonic clonic seizures (GTCS) were the most common type of seizures affecting approximately 88% of the patients followed by complex partial seizures affecting 6% of the patients.[11,12] Generalized seizures with myoclonic jerks accounted for 3%. While Only two case of simple partial seizures and one case absence seizures (AS) were seen in this study. Therapy of epilepsy requires lot of clinical and therapeutic skill. It is important to maintain patients on monotherapy where compliance is better, side effects are less and there is no possibility of drug-to-drug interactions. If the dose titration is individualized for every patient by gradually increasing the dose to maximum tolerated dose, seizures can be controlled in many patients by monotherapy alone. Every patient has his/her own optimum dose of AED.[13]

In this study, monotherapy was prescribed more frequently than polytherapy and the results are comparable to earlier

Studies.[14] Phenytoin alone was most commonly used as monotherapy prescribed to 36 patients followed by phenobarbitone in 6 cases. Only 2 patients received a newer AED as monotherapy. Clobazam and oxcarbazepine was used as monotherapy in 1 patients each. In rest of the patients clobazam and clonazepam were used as add-on therapy. These findings are in accordance with guidelines for the management of epilepsy in India which recommends that it is preferable to use a conventional AED as the initial drug since these are less expensive and the side effects with long-term use are well known.[15] Sodium valporate was used in 7 patients and carbamazepine in 3 patients as monotherapy. Among the 45 patients on polytherapy, majority received two drugs (81%) followed by triple therapy in 19% of patients. Eight different combinations were used in dual therapy, most common being phenytoin and phenobarbitone followed by a combination of phenytoin and valporate.

CONCLUSION

Our study revealed that the conventional AEDs are still most commonly used AEDs and use of newer AEDs is still low even at tertiary level. This may be because of lack of experience in using newer AEDs and cost factor as most of the population attending epilepsy clinic is from lower socioeconomic group.

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