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Original Research Article

A Study on Adverse Effects of Antiepileptic Drugs in a Tertiary Care Hospital

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Abstract

Background: A study was planned to overlook the adverse effects of antiepileptic drugs in tertiary care hospital
Methods: It is a cross sectional study conducted on total of 184 patients in the medical department of tertiary care hospital. The data was entered in Microsoft excel. Inclusion criteria includes patients who are diagnosed with epilepsy and are aged greater than 17 years.
Results: Among 184 patients 56.5% were male and 43.4% were female. About 43% were treated with monotherapy and
And 57% were treated with polytherapy. The most common side effect is sedation. The statistical analysis showed statistically significant between polytherapy and monotherapy patients against sedation (p value < 0.05)
Discussion and Conclusion: Levetiracetam is the safest drug. According to a study, side effects due to polytherapy are more than side effects due to monotherapy. We can reduce adverse effects by reducing the combinational therapy.
Key words: Adverse effects, Antiepileptic drugs

Introduction

Epilepsy is a neurological condition involving the brain that makes people more susceptible to having recurrent unprovoked seizures. Epilepsy comprises 1% of the global burden of diseases [1].

Patients are treated with monotherapy In current practice monotherapy is best therapy. If monotherapy is ineffective then the plan to switch to another drug or drugs are combined for effective treatment [2]. According to a survey conducted among epilepsy expertise, 100% of them preferred to use alternate monotherapy after the failure of initial drug [3].

WHO defines Adverse drug reaction as “any response which is noxious and unintended, and which occurs at doses normally used in man for prophylaxis, diagnosis or therapy of disease or for the medication of physiological function” [4]. Different antiepileptic drugs have different mechanism of action which shows various adverse effects. This study was conducted to assess various side effects related to antiepileptic drugs.

Aims and Objectives:

To study the adverse drug reactions of antiepileptic drugs in tertiary care hospital

Materials and Methods:

Study design: Cross sectional study

Source of data: Data obtained from medical department of tertiary care hospital.

Population: 184 patients from medical department

Study period: May 2022 to April 2023

Inclusion criteria: Patients who are diagnosed with epilepsy and are aged greater than 17 years. Exclusion criteria: Patients who have severe or uncontrolled symptomatic chronic illness.

Study procedure: The study was approved by institutional ethics committee. The data is statistically analyzed and tables were generated using Microsoft excel and word.

Results:

Among 184 epileptic patients, 56.5% were male and 43.4% were female. About 43% patients were treated with monotherapy and 57% were treated with polytherapy. Based on clinical diagnosis 20.6% were diagnosed as focal seizures and 79.4% were diagnosed as generalized seizures. (Table 1)

Table 1: Characteristics of patients

Characteristics	N = 184
Gender Male Female	 104 (56.5%) 80 (43.4%)
Monotherapy Polytherapy	79(43%) 105(57%)
Focal seizures Generalized seizures	38(20.6%%) 146(79.4%)
Duration of epilepsy with medication	6.1 ± 5

Levetiracetam is the most common prescribed drug in monotherapy followed by clobazam, phenytoin, sodium valproate. In polytherapy Levetiracetam combination with clobazam followed by phenytoin, ethosuximide were given.

Sedation is the most common side effect observed, followed by headache. Patients have experienced other side effects like sedation, headache, ataxia, tremors, vision impairment, cognitive impairment, mood disorders, hypersensitivity reactions and gingival hypertrophy. (Table 2)

Table 2: Adverse effects of epileptic patients

Adverse effects	N= 184
Sedation	62(33.6%)
Headache	55(29.89%)
Ataxia	19(10.32%)
Tremors	21(11.4%)
Cognitive impairment	35(19.02%)
Vision impairment	27(14.67%)
Mood disorder	24(13.04%)
G.I disorders	20(10.86%)
Hypersensitivity reactions	12(6.52%)
Gingival hypertrophy	9(4.89%)

Patients with polytherapy medication have more sedation, headache, vision disorders and other adverse effects than patients with monotherapy. The statistical analysis showed statistically significant between polytherapy and monotherapy patients against sedation. A study by Ortinski et al shows cognitive deficits are more in patients receiving polytherapy and patients with high anti-epileptic drug levels in blood than in patients with monotherapy [5]. (Table 3)

Adverse effect	Monotherapy N= 79(43%)	Polytherapy N = 105(57.6%)	P
Sedation	20(25.3%)	42(40%)	0.03
Headache	18(22.7%)	37(35.2%)	0.06
Vision disorders	8(10.1%)	19(18.09%)	0.13
Cognitive impairment	11(13.9%)	24(22.8%)	0.12
Mood disorders	7(8.8%)	17(16.19%)	0.14
G.I disorders	5(6.3%)	14(13.3%)	0.12
Hypersensitivity	3(3.7%)	9(8.5%)	0.19

Discussion:

The main drawback in treating epileptic patients is due to the adverse effects caused by drugs.

Anti-epileptic drugs apart from suppressing excitatory neurotransmission, they also inhibit release of neurotransmitters, several enzymes which are crucial for memory and processing of information in brain.

The commonly used drug in monotherapy in this study is levetiracetam. Levetiracetam is a safe drug which do not cause cognitive impairment in patients. It causes weakness and sleepiness. It is not approved to use in children below 4 years.

In polytherapy, the most common combination is levetiracetam with clobazam followed by ethosuximide or phenytoin. Clobazam is used as an adjunct drug to epileptic patients who do not respond to other drugs. Clobazam causes sedation and dullness in the epileptic drugs. Phenytoin causes gum hypertrophy.

In epileptic patients with psychiatric patients pregabalin and lamotrigine were more effective than phenytoin [6].

According to a past study, side effects due to polytherapy are more than side effects due to monotherapy. We can reduce adverse effects by reducing the combinational therapy [7]. Adverse effects such as sedation, headache, vision disorders and cognitive impairment are more due to polytherapy than monotherapy.

Conclusion:

Patients receiving epileptic treatment has many adverse effects. The main aim of epileptic treatment is to reduce the adverse effects. Sedation is the most common adverse effect followed by headache. Levetiracetam is the safest drug. In this study adverse effects are more with polytherapy than monotherapy.

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