Assessment of Antiepileptic Agents in Psychiatric Opd at District General Hospital, Amravati

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ABSTRACT

Objective: To study the pattern of antiepileptic agents and drug-drug interactions in the prescriptions and monitor the therapeutic outcome. **Method**: This is a prospective, observational study wherein a total of 100 prescriptions analyzed as per inclusion criteria. **Result and Discussion:** Out of 100 patients were 73% (n=73) male and 27% (n=27) female. A total of 134 antiepileptic agents were prescribed in 100 patients out of this commonly prescribed antiepileptic agent was Phenytoin in 55 (41.04%) number of prescriptions. Antiepileptic agents were distributed among prescriptions as a single-antiepileptic agent (69%), two-antiepileptic agents (28%) and three-antiepileptic agents (3%). Phenytoin was most commonly used in the treatment of generalized clonic-tonic seizures, Sodium valproate in treatment of generalized seizure with myoclonic jerks, Phenobarbitone in treatment of complex partial seizure, Phenytoin in treatment of simple partial seizure, Phenobarbitone in treatment of partial seizure with generalization, Phenytoin in treatment of simple partial seizure without generalization and Clonazepam in treatment of absence seizure. Drug-drug interactions were found in 30 (30%) prescriptions with a total of 37 drug interactions. **Conclusion:** Commonly observed condition was a generalized clonic-tonic seizure and Phenytoin was most commonly used in that condition. The single-antiepileptic agent was commonly preferred for treatment of seizure disorder than polytherapy and Phenytoin was most commonly prescribed as a single-antiepileptic agent. Drug interactions were present in few prescriptions with the moderate class of drug interaction.

Keyword: Epilepsy, Antiepileptic agents, Type of seizure, Drug-drug interaction.

INTRODUCTION

Epilepsy is a condition in which a person has a recurrent seizure episode. A seizure is a transient occurrence of sign or symptoms due to abnormal excessive or synchronous neuronal activity in the brain. Epilepsy is a common disease in the neurological system. The seizure is most occurs in a child than older age population (M. Deepalakshmi et al, 2014). The prevalence rate in Indian is 572.8/100000 population per year (Dr. Yogesh V Mane et al,2015).

In a substantial number of cases, the cause of epilepsy remains unknown. Identified causes tend to vary with patient age as inherited syndromes, congenital brain malformations, infection, trauma, metabolic diseases, and mitochondrial diseases.

Determining the type of seizure is essential for focusing the diagnostic approach on particular etiologies, selecting the appropriate therapy and providing potentially vital information regarding prognosis. A fundamental principle is that seizure may be partial, generalized and unclassified. Partial seizure classified as seizure with intact awareness and seizure without intact awareness. Generalized seizure classified as typical absence seizures, atypical absence seizures, generalized clonic-tonic seizure, atonic seizure, myoclonic seizure (M. Deepalakshmi et al, 2014).

Antiepileptic agents are used for treating seizures. Duration of treatment for epilepsy is required long duration. Hence, the ADR rate is high with antiepileptic treatment and auditing is required to retain the efficacy of antiepileptic agents. It causes a burden on the economic status of the country. The goal of treatment is to achieve complete control of seizure without side effect (M. Deepalakshmi et al, 2014 and (Dr. Yogesh V Mane et al, 2015).

There was no study conducted previously in this hospital regarding the prescription pattern of antiepileptic agents and drug-drug interactions in the prescription of patients in the psychiatric outpatient department. Hence, the present study was undertaken to know the prescription pattern of antiepileptic agents and drug-drug interactions in the prescriptions and monitor the therapeutic outcome.

Objective

1. To study the most common use of the antiepileptic agents in the prescription of patients in the psychiatric outpatient department.

2. To study the most common use of antiepileptic agents according to disease conditions

3. To study the most common drug interactions due to antiepileptic in the prescription of patients in the psychiatric outpatient department.

METHODOLOGY

A hospital-based prospective, observational study was conducted on 100 patients for 4 months at psychiatric outpatients department, District General Hospital, Amravati.

Study criteria

Inclusion criteria

- Patients attended psychiatric out patients department.
- Patients of either sex.
- Patients of any age.
- Patients prescribed with minimum one antiepileptic agent.
- Patients were willing to participate in the study.

Exclusion criteria

- Pregnant and lactating women.

Source of data

Prescriptions of patients diagnosed with epilepsy attending psychiatric opd.

RESULT AND DISCUSSION

Demographics of patients

A total of 100 patients were included in the study, among them antiepileptic agents were prescribed in 73 (73%) male and 27 (27 %) female. When observed on the basis of age, it was found that the majority of the age group of 16 to 30 years of patients. This was followed by the age group of 31 to 45 years, 46 to 60 years, above 60 years and then 0 to 15 years. Demographics of patients are shown in Fig. 1. In the study, the prevalence rate of a male was greater than compared to female patients in the age group 16-30 years. Similar results were found in a study conducted at Karnataka by Shilpa BN et al. (2018) and at Bhubaneswar by Abhisek Pal et al. (2011)
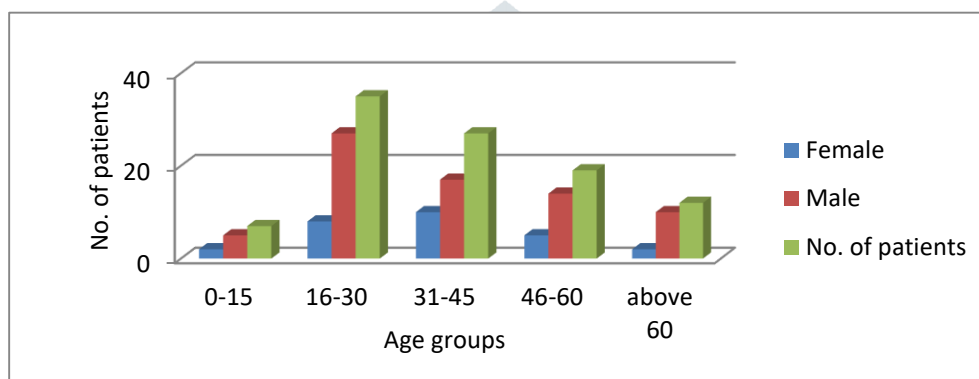

Figure 1: Demographics of patients.

Locality

Out of 100 patients involved in the study, observed that patients belong to rural were 54 (54%) and patients belong to urban was 46 (46%) shown in Fig. 2. Patient from a rural area was greater than urban. It is may be due to more precautions taken in the urban group.
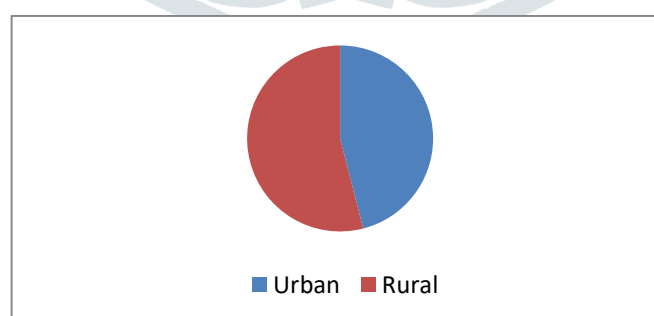

Figure 2: Locality.

Social history

Out of 100 patients, 56 (56%) patients were having a social history of smoking, tobacco chewing, and alcohol drinking. Out of which 35 (62.5%) patients had a history of smoking, 38 (67.85%) patients had a history of tobacco chewing and 27 (48.21%) patients had a history of alcohol drinking as shown in Fig. 3.

Average half of patients were having a social history. Among them, tobacco chewer was mostly occurred follow by smoker and alcohol.
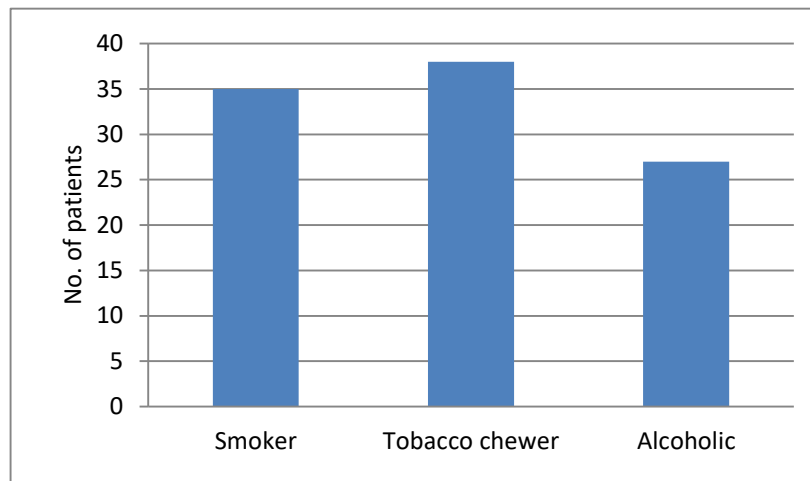

Figure 3: Social history.

Type of seizure

Among 100 patients involved in the study, 28 patients have generalized clonic-tonic seizure whereas 3 have a generalized seizure with myoclonic jerks, 25 have a simple partial seizure, 26 have a complex partial seizure, 16 have absence seizure, 1 have a simple partial seizure with generalization and 1 have a simple partial seizure without generalization as shown in Fig. 4. Most commonly seizure type was found to be generalized clonic-tonic seizures with 28 numbers of patients. Similar results were found in a study conducted by Dr. S Vijayarangan et al. (2016) and Dr. Pritesh Goutam et al. (2018)
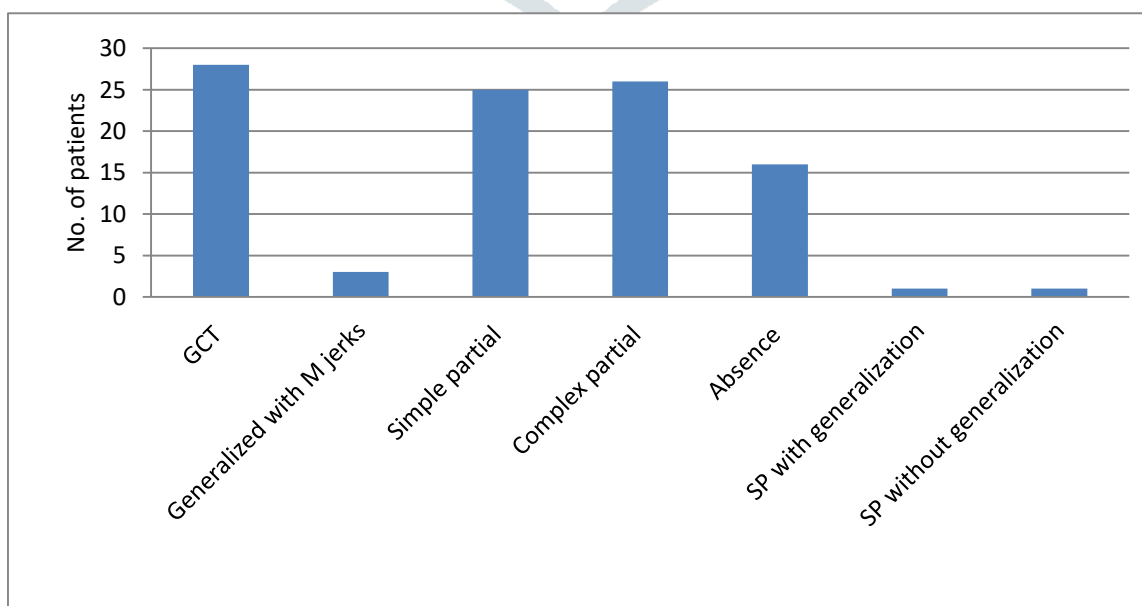

Figure 4: Type of seizure.

Commonly prescribed antiepileptic agents

Among 100 prescriptions, a total of 134 antiepileptic agents were prescribed. Antiepileptic agents were prescribed as Phenytoin 55 (41.04%), Phenobarbitone 34 (25.37%), Clonazepam 14 (10.44%), Sodium valproate 12 (8.95%), Carbamazepine 10 (7.46%), Lorazepam 5 (3.73%), Clobazam 4 (2.98%) as shown in Fig. 5. Most commonly used antiepileptic agents found to be Phenytoin. A similar result was found in a study conducted by Patel et al. (2016). Contradictory results were found in a study conducted at Bhubaneswar by Abhisek Pal et al. (2018) showed Valproate most commonly used for epilepsy.
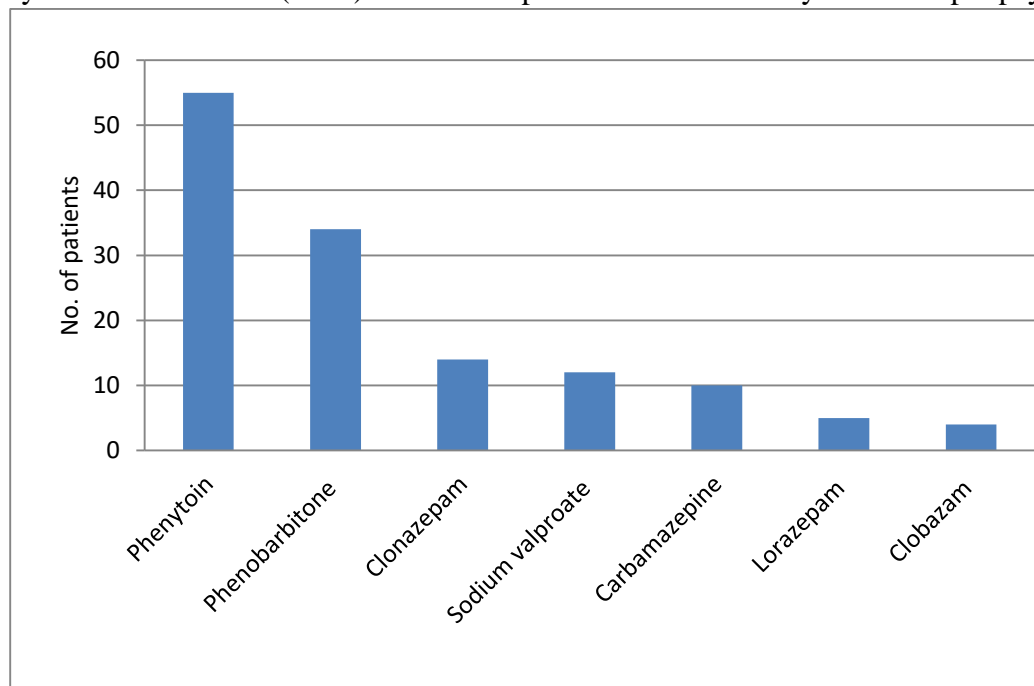

Figure 5: Commonly prescribed antiepileptic agents.

Prescribed antiepileptic agents according to the type of seizures

Phenytoin most commonly used the antiepileptic agents in the treatment of generalized clonic-tonic seizure, Sodium valproate in generalized seizure with myoclonic jerks, Phenobarbitone in complex partial seizure, Phenytoin in simple partial seizure, Phenobarbitone in partial seizure with generalization, Phenytoin in simple partial seizure without generalization and Clonazepam in absence seizure. These antiepileptic agents were more frequently used in that type of seizure. The study conducted by Dr. S Vijayarangan et al. (2016) showed a similar result that Phenytoin most commonly used the drug in the treatment of GCT seizure, Sodium Valproate most commonly used drug in generalized seizure with myoclonic jerks. The complex partial seizure and simple partial seizure with generalization commonly treated with Phenorbitone[5]. Contradictory results were found that Carbamazepine most commonly used the drug in complex partial seizure, Phenytoin most commonly used drug in simple partial seizure with generalization in the study by Dr. S Vijayarangan et al. (2016).

Drug distribution

Among 100 prescriptions, single-antiepileptic agents were found to be in 69 (69%) prescriptions, which are followed by two-antiepileptic agents found to be in 28 (28%) prescriptions, the three-antiepileptic agents found to be in 3 (3%) prescriptions as shown in Fig. 6. The majority of prescriptions contain the single-antiepileptic agents in the study. A similar result was found in a study conducted by Shilpa BN et al. (2011) and Pragna M Patel et al. (2016). The contradictory result was found in a study conducted by Abhisek Pal et al. (2011) showed that two-antiepileptic agents most commonly used in that study.
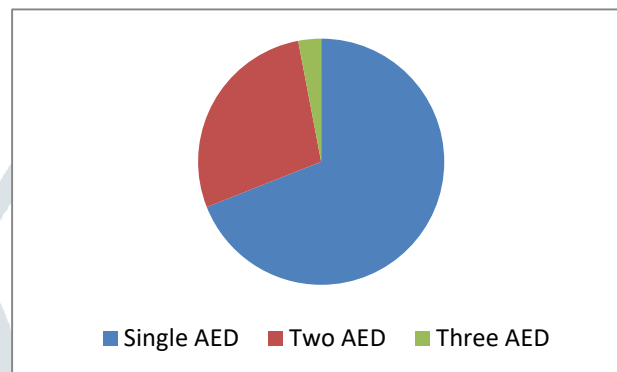

Figure 6: Drug distribution.

Single-antiepileptic agent prescriptions

The single-antiepileptic agent was found to be in 69 (69%) prescriptions. Out of this 69 prescriptions, 27 (39.13%) prescriptions were contain Phenytoin which is followed by 12 (17.39%) prescriptions were contained Clonazepam, 9 (13.04%) prescriptions were contained Phenobarbitone, 8 (11.59%) prescriptions were contained Sodium valproate, 8 (11.59%) prescriptions were contained Carbamazepine, 5 (7.24 %) prescriptions were contained Lorazepam. Distribution of single-antiepileptic agent used prescription as shown in Fig. 7. The majority of prescription contains Phenytoin in a single-antiepileptic agent used. Similar results were found in the study conducted by Pragna M Patel et al. (2016). Contradictory results were found in the study conducted by Shilpa BN et al. (2018) showed that Phenobarbitone used as single-antiepileptic agents. Also study conducted by Abhisek Pal et al. (2011) showed a contradictory result that Sodium valproate more commonly used in a single-antiepileptic agent.
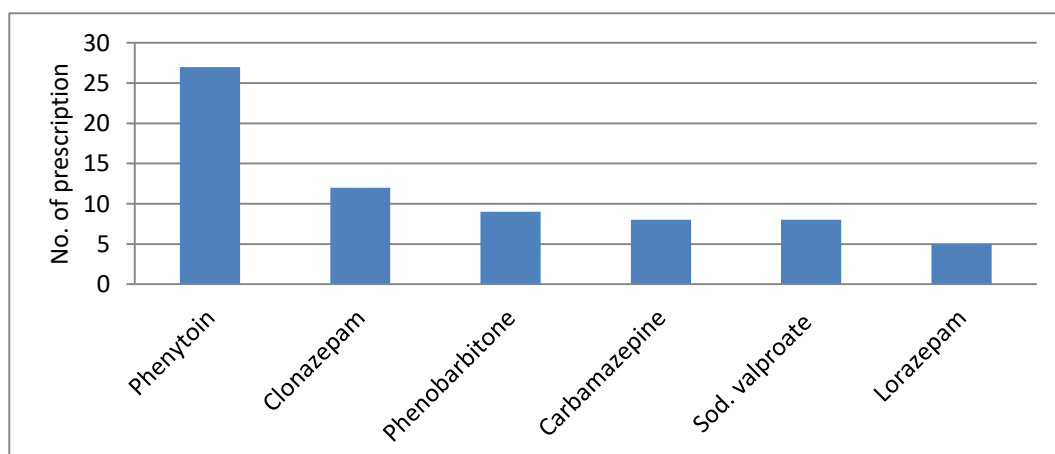
Figure 7: Single-antiepileptic agent prescriptions.

Two-antiepileptic agent's prescriptions

Among 100 prescriptions, two-antiepileptic agents were found to be in 28 (28%) prescriptions. Out of this 28 prescriptions 24 (85.71%) prescriptions were contained Phenytoin+Phenobarbitone which is followed by 1 (3.57%) prescription was contained Phenytoin+Clobazam, 1 (3.57%) prescription was contained Sodium valproate+Clobazam, 1 (3.57%) prescription was contained Sodium valproate+Clonazepam, 1 (3.57%) prescription was contained Sodium valproate+Carbamazepine. Distribution of two-antiepileptic agents used prescription as shown in Fig. 8. The majority of prescriptions were contained Phenytoin+Phenobarbitone as two-antiepileptic agents. Similar results were found in the study conducted by Shilpa BN et al. (2011) and by Dr. Pritesh Gautam et al. (2018) Contradictory results were found in the study conducted at by Abhisek Pal et al. (2011) showed that Sodium valproate+Carbamazepine used commonly in two-antiepileptic agents.
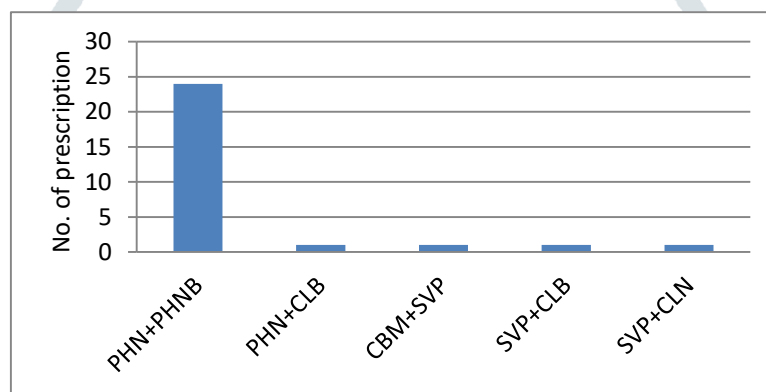

Figure 8: Two-antiepileptic agents prescriptions.

Three-antiepileptic agent's prescriptions

Among 100 prescriptions, three-antiepileptic agents were found to be in 3 (3 %) prescriptions. Out of these 3 prescriptions, 1 (33.33%) prescription was contained Phenytoin+Phenobarbitone+Clonazepam which is followed by 1 (33.33%) prescription was contained Phenytoin+Clobazam+Carbamazepine, 1 (33.33%) prescription was contained Phenytoin+Sodium valproate+Clobazam. Distribution of three-antiepileptic agents used prescription as shown in Fig. 9. Three-antiepileptic agents prescriptions contain only in 3 prescriptions and each combination of antiepileptic agents was different.
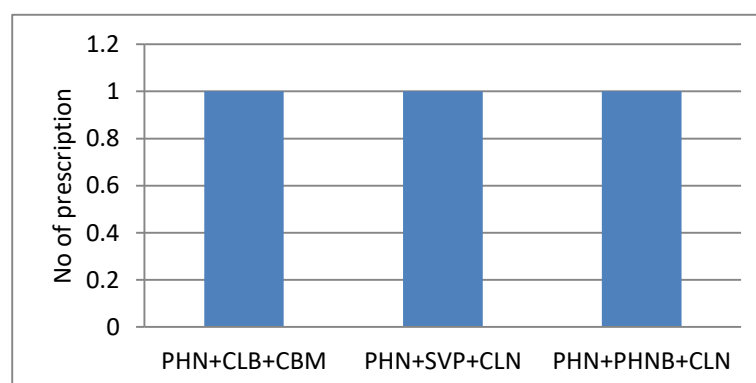
Figure 9: Three-antiepileptic agents prescriptions.

Type of drug interactions

The results revealed that there were about 37 interactions were observed in 30 (30%) prescriptions and remaining 70 (70%) did not have any interaction at all. Out of this 37 interactions were minor and moderate drug interactions observed. Type of interaction showed in table 1. More prescriptions were having no drug interactions. Prescriptions in which drug interactions found, drug interactions were more observed moderate as compared to a minor. Drug-drug interactions were checked by Medscape database.

Table 1: Type of Drug Interactions

Sr. No	Type of interactions	Drugs interacted	Number of interactions
1	Minor	Phenytoin+Folic acid	2
		Phenobarbitone+Clonazepam	1
		Phenobarbitone+Folic acid	1
2	Moderate	Phenytoin+Phenobarbitone	25
		Sodium Valproate+Clobazam	1
		Phenytoin+Trihexyphenidyl	1
		Phenytoin+Trifluoroperadine	1
		Carbamazepine+Olanzepine	1
		Carbamazepine+Clobazam	1
		Carbamazepine+Risperidone	1
		Carbamazepine+Sodium Valproate	1
		Olanzapine+Risperidone	1
			Total: 37

CONCLUSION

The prevalence rate of epilepsy was more common in male in the age group 16-30 year from a rural area. Social history with a smoker was more commonly observed as compared to tobacco chewer and alcoholic. Generalized clonic-tonic type of seizure was commonly observed in a study with Phenytoin antiepileptic agents. Single antiepileptic agents were prescribed frequently with Phenytoin. Drug interactions were present in few prescriptions with moderately.

ABBREVIATIONS

ADR- Adverse drug reaction

CBN- Carbamazepine

CLB- Clobazam

CLN- Clonazepam

GCT- Generalized clonic-tonic

Opd- Outpatient department

PHN- Phenytoin

PHNB- Phenobarbitone

SP- Simple partial

SVP- Sodium Valproate

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