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Evaluation of Risk Factors, Clinical Spectrum and Management of New Onset Seizure

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Abstract

A seizure is a brief deviation from the brain's regular electrical activity that alters awareness and behavior. Seizures are brief burst so fun controllable movement that can affect either a piece of the body (partial) or the full body (generalized) and are frequently followed by a loss of awareness and control over bowel or bladder function. Epilepsy is distinguished by recurring seizures. Epilepsy is a neurological disorder marked by sudden recurrent episodes of sensory disturbance, loss of consciousness, associated with abnormal electrical activity in the brain. The goal of the study is to find out risk factors and prescribing pattern of antiseizure drugs in different types of seizure disorder. An educational observational study was carried out among 42 samples in the In-patient Department of General Medicine, ESI MC- PGIMSR, and Rajajinagar. The data was collected using self-designed data collection form. All information's were processed and analyzed by using Microsoft excel.

It was observed that a majority of the subjects involved in the study was prescribed with Levetiracetam (69.81%). A high prevalence of New onset seizure with risk factor of CVS causes (36.92%) and Alcohol withdrawal (20%) was observed. In CVS cause, stroke was prominent. From this study, generalized tonic clonic seizure was most commonly observed type of seizure and Levetiracetam was most frequently prescribed drug to them. Majority of patients were given mono therapy to achieve seizure control.

Keywords: Antiseizure drugs, Risk factors, Prescription pattern.

Introduction

A seizure is a brief deviation from the brain's regular electrical activity that alters awareness and behavior. Seizures are brief bursts of uncontrollable movement that can affect either a piece of the body (partial) or the full body (generalised) and are frequently followed by a loss of awareness and control over bowel or bladder function. Epilepsy is distinguished by recurring seizures. Epilepsy is a neurological illness in which the brain's abnormal electrical activity results in unconsciousness, and other unusual feelings and behaviors. A new-onset seizure (NOS) is characterised as the patient's first seizure within a 1- week period. The onset of epilepsy might begin with a first seizure. Only about 2% to 3% of people with epilepsy experience a seizure during their lifetime, compared to the overall population's 8% to 10% they eventually develop epilepsy. Epilepsy affects one in every 26 persons. Each year, epilepsy is diagnosed in about 48 out of every 100,000 persons. Any age can have epilepsy

onset. Children are most likely to get epilepsy for the first time, especially between birth and age one. Epilepsy incidence declines from age 1 to age 10, after which it roughly stays the same in adolescence and adults. Adults 55 years of age and older also have a greater rate of new epilepsy cases. This group is more susceptible to epilepsy-related conditions including stroke, brain tumours, Alzheimer's disease.

Purpose of the study

The objectives of the present study are:

a) To identity the risk factor of new onset seizures.
b) To describe the prescription pattern of Antiseizure drug in new onset seizures.

Material and Methods

This is a prospective observational study. The study was conducted at In- Patient Department of General Medicine, ESI PGIMSR, Rajajinagar of Bengaluru District. A total of 42 subjects fulfilling the inclusion and exclusion criteria were included in the study.

The following tools were employed to obtain information for the study:

Self-designed data collection form: A data collection form was designed to collect Subject demographic details, chief complaints, history of present illness, diagnostic reports, past history, medication history and risk factors. Patients profile and treatment details are collected from patient's case sheet admitted in the in-patient Department of General Medicine, ESI MC PGIMSR Model Hospital, Rajajinagar, Bengaluru.

Inclusion criteria:

a. Subjects above 18 years of age.
b. Diagnosed with New-onset seizures

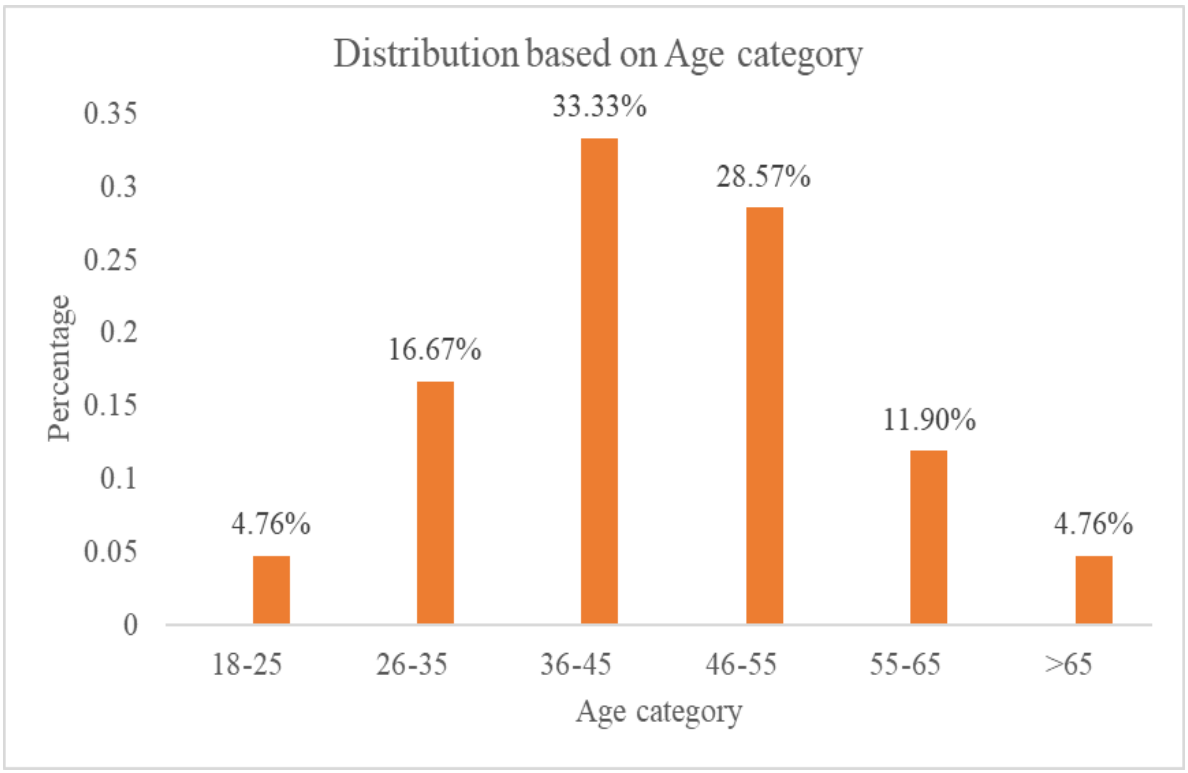
Exclusion criteria:

a. Known case of seizures disorder.
b. Pregnant women are excluded
c. Participants who are not willing to participate for the study.

Results:

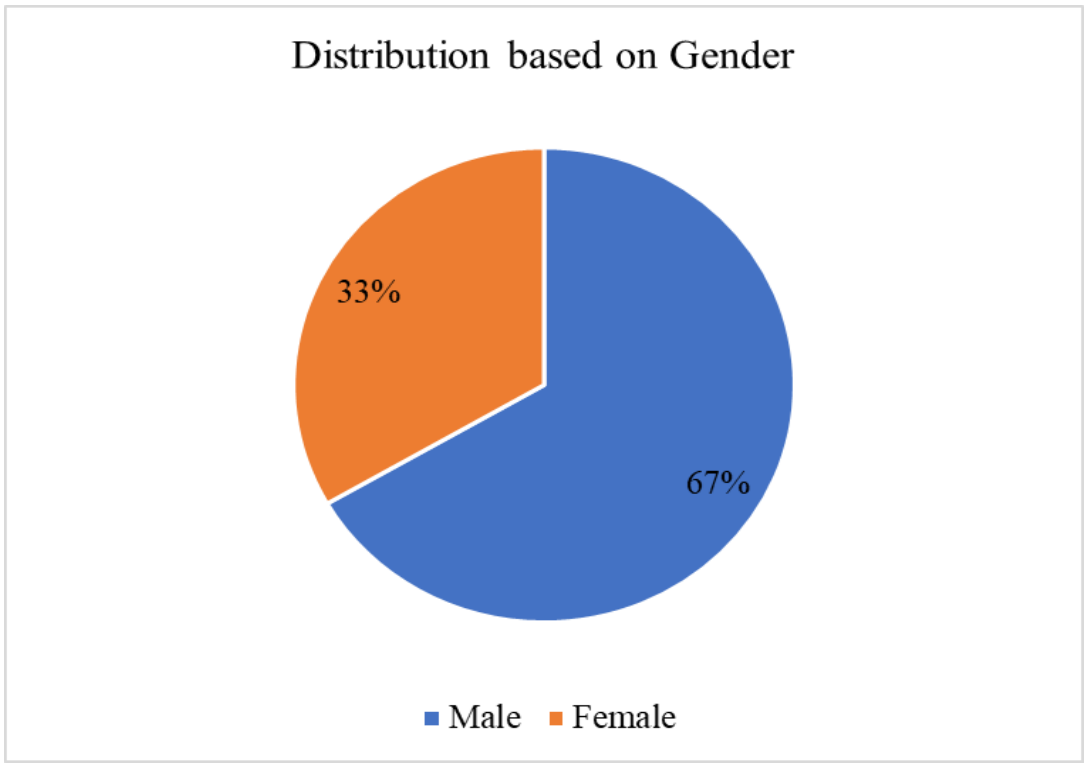
This study was conducted in the In- Patient Department, ESI PGIMSR, Rajajinagar. The study was carried out for a period of 3 months, and a total of 44 of samples were collected out of this 2 samples were dropped due to insufficient data and overall sample size was 42.

Figure 1: Distribution of subjects based on Age category



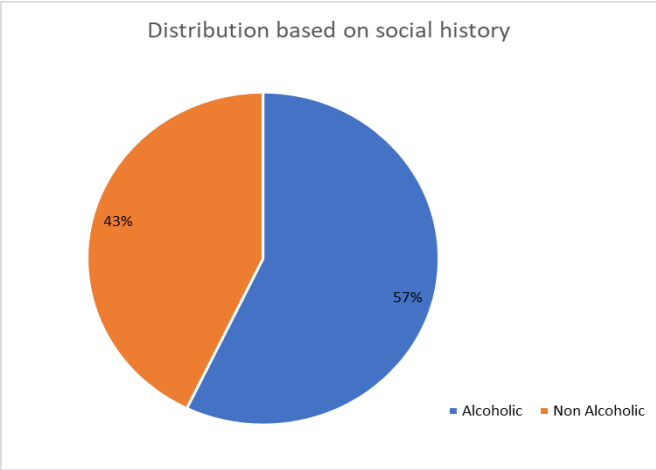
Subjects were categorized based on different age category. The study shows that majority between 36-55 years of age.

Figure 2: Distribution of subjects based on Gender



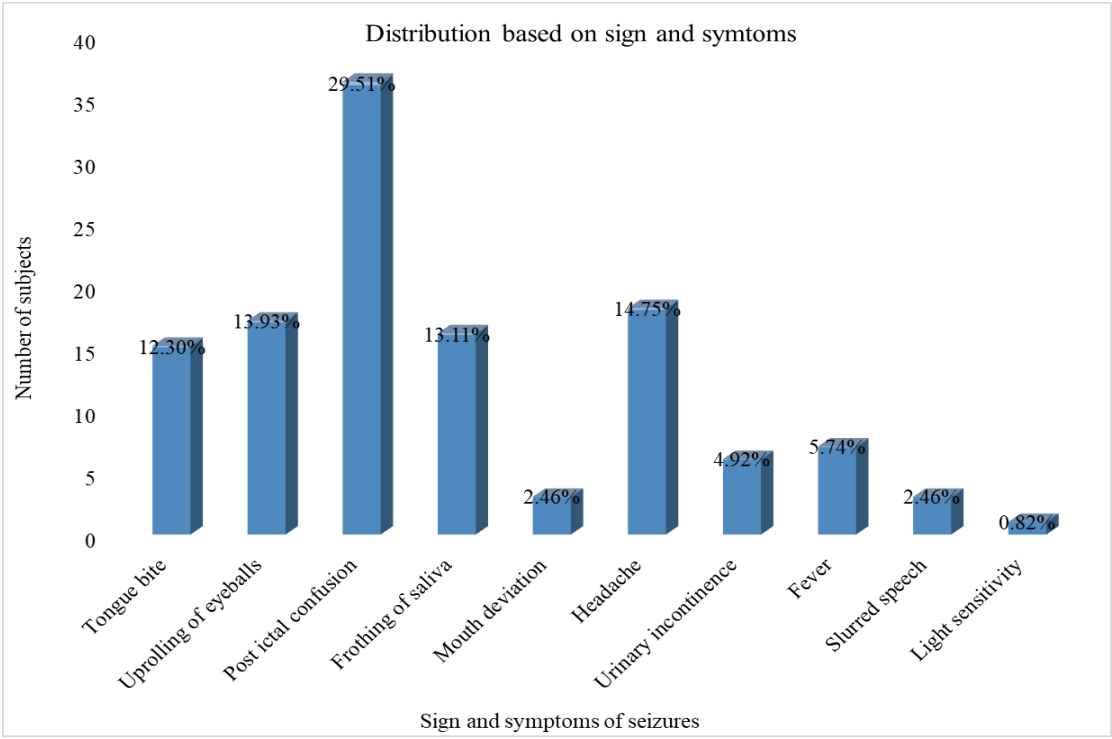
In our study, out of the 42 sample, majority were males (66.67%) then that of females (33.33%).

Figure 3: Distribution of subjects based on social history



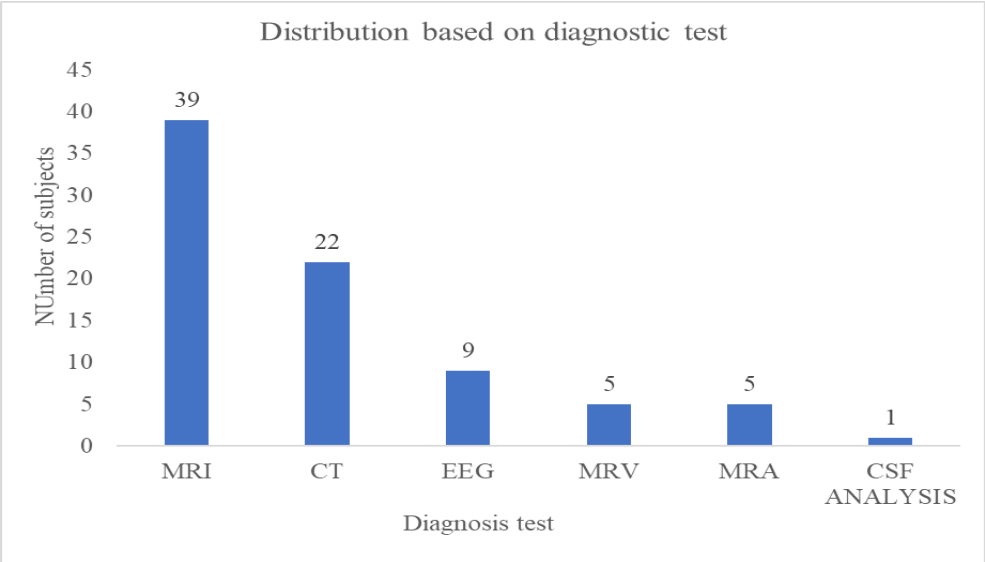
Distribution based on social history, out of 42 samples, 24 subjects were Alcoholic and 18 subjectswere Non-alcoholic.

Figure 4: Distribution of subjects based on sign and symptoms



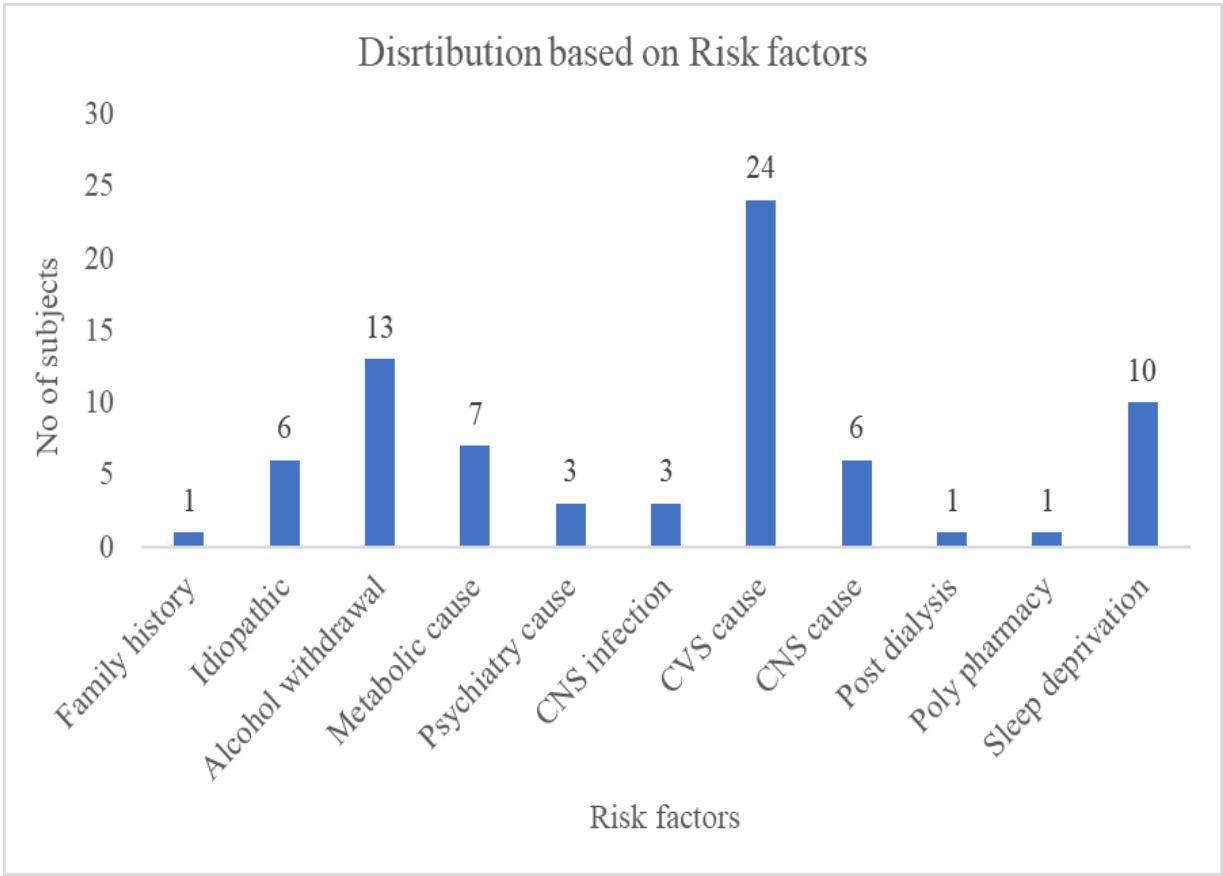
The sign and symptoms distribution shows that Post ictal confusion(29.51%) is most common symptom followed by Headache(14.75%), Up-rolling of eyeball(13.93%), Frothing of saliva(13.11%), Tongue bite(12.30%), fever(5.74%), Urinary incontinence(4.92%), slurred speech(2.46%), mouth deviation(2.46%) and light sensitivity(0.82%).

Figure 5: Distribution of subjects based on diagnostic test



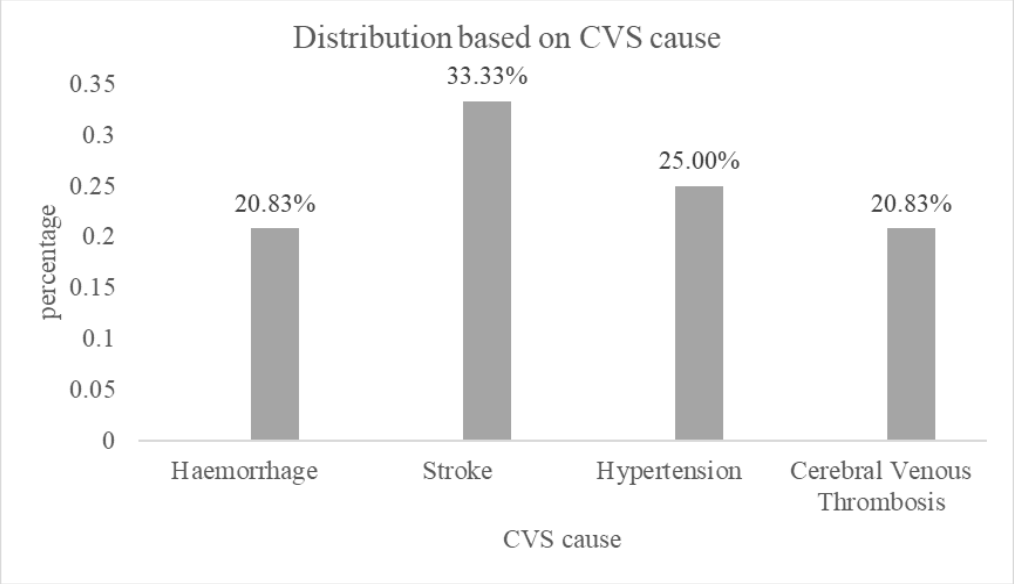
Subjects were distribution based on diagnostic tests performed, out of 42 subjects, Majority of them has undergone MRI (48.15%) followed by CT (27.16%), EEG (11.11%).

Figure 6: Distribution of subjects based on risk factor



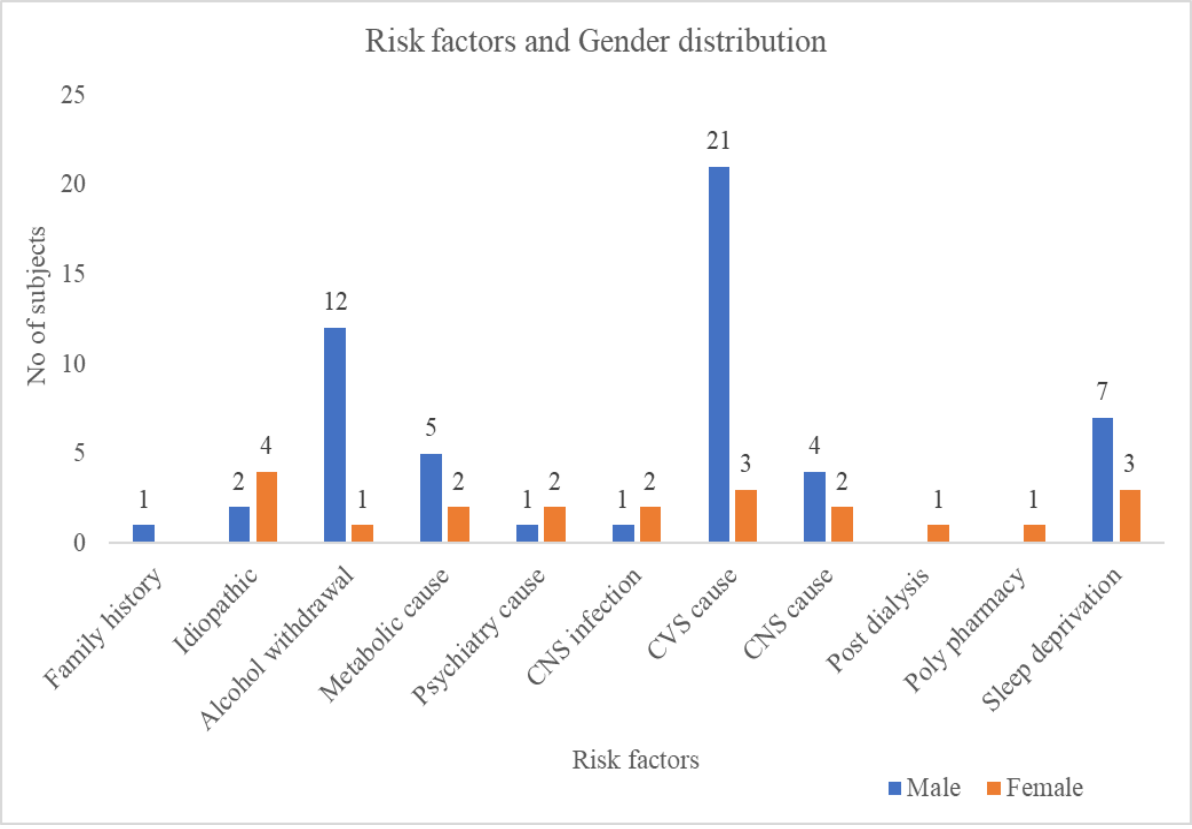
Out of 42 subjects, The risk factor of NOS was found to be the most with CVS cause(36.92%), alcohol withdrawal(20%), followed by sleep deprivation(15.38%), metabolic cause(10.77%), CNScause(9.23%), idiopathic(9.23%), CNS infection(4.62%), psychiatry(4.62%) and least was found to be post dialysis(1.54%), family history(1.54%), poly pharmacy(1.54%).

Figure 7: Distribution of subjects based on CVS cause



Distribution of subjects based on CVS cause of risk factor, the majority of the subjects found withstroke (33.33%) followed by hypertension (25%), haemorrhage (20.83%), cerebral venous thrombosis (20.83%).

Figure 8: Distribution of subjects based on risk factor and gender



Among risk factor and gender distribution in the study was found to be the most with CVS cause (21) and alcohol withdrawal (12) in male gender and in female gender it was found to be anidiopathic (4) and CNS cause (3).

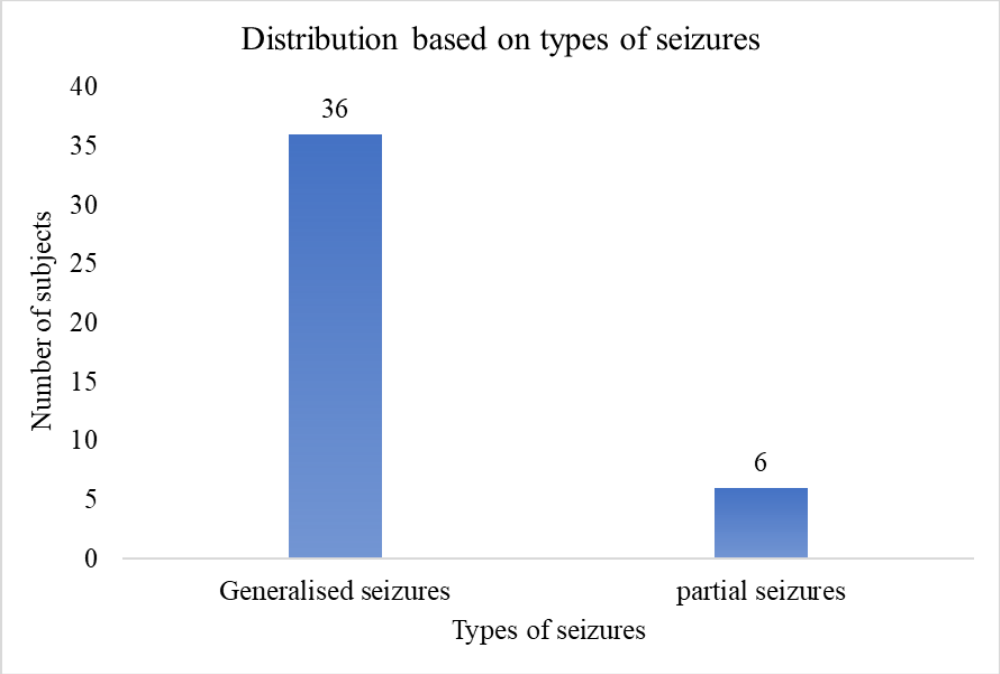
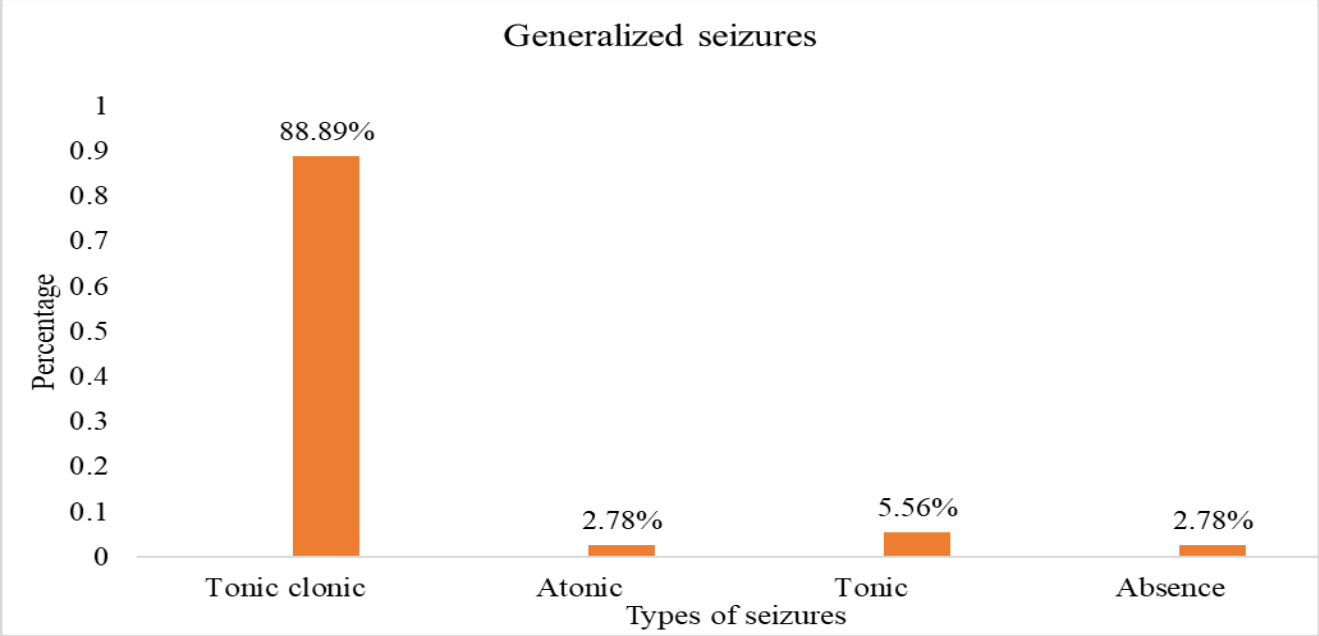


Figure 10: Distribution of subjects based on type of seizure

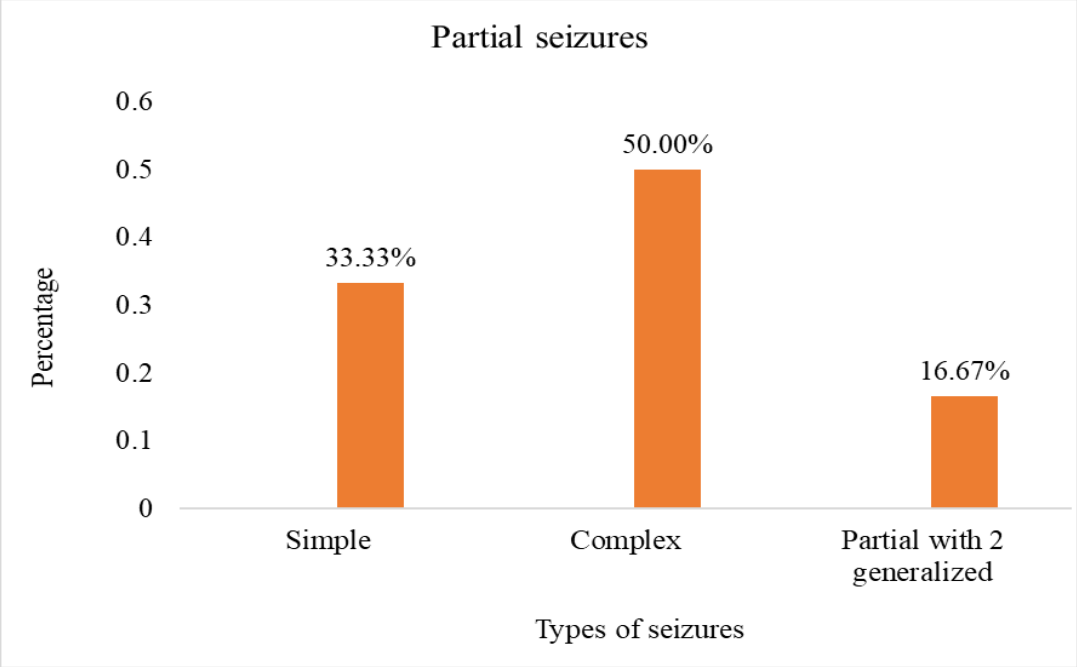
Subjects were classified based on the types of seizure and found that most of the subjects were diagnosed with Generalised seizures (85.71%) followed by Partial seizures (14.29%).

Figure 11: Distribution of subjects based on generalised seizure



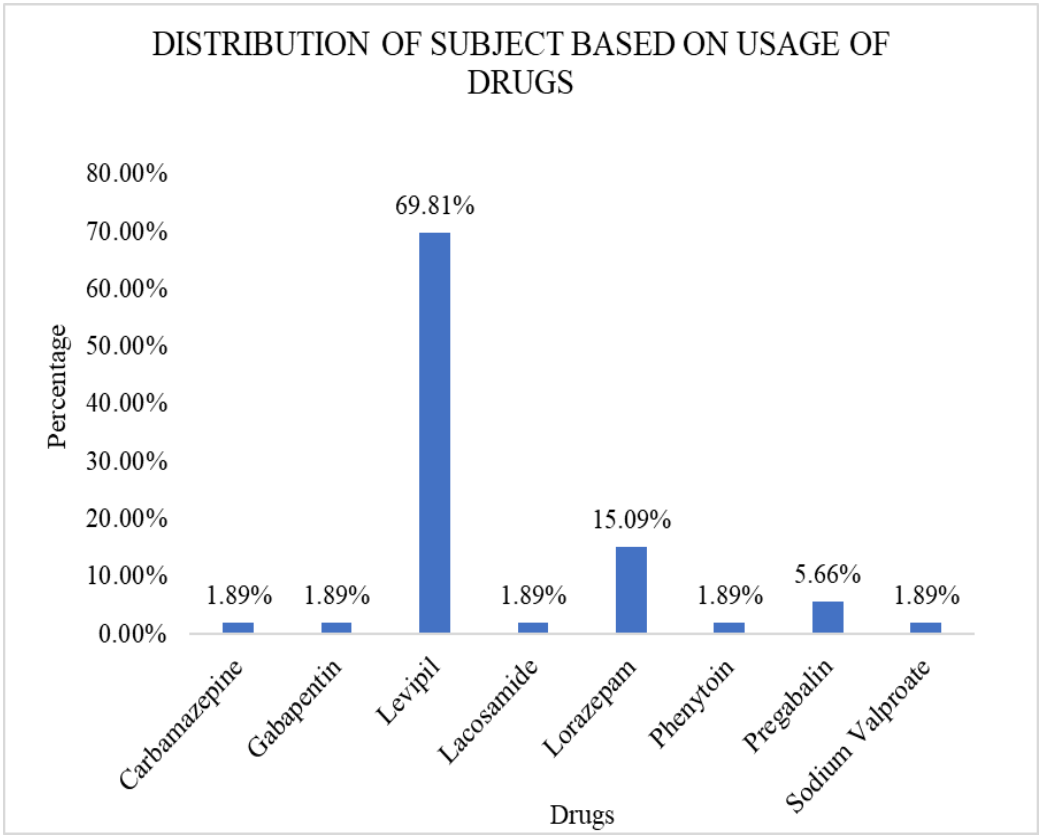
Subjects were classified based on the Generalized seizure, out of 36 patients it was found that the most of the subjects were GTCS (88.89%) followed by tonic seizure (5.56%), atonic seizure(2.78%) and absence seizure(2.78%).

Figure 12: Distribution of subjects based on Partial seizure



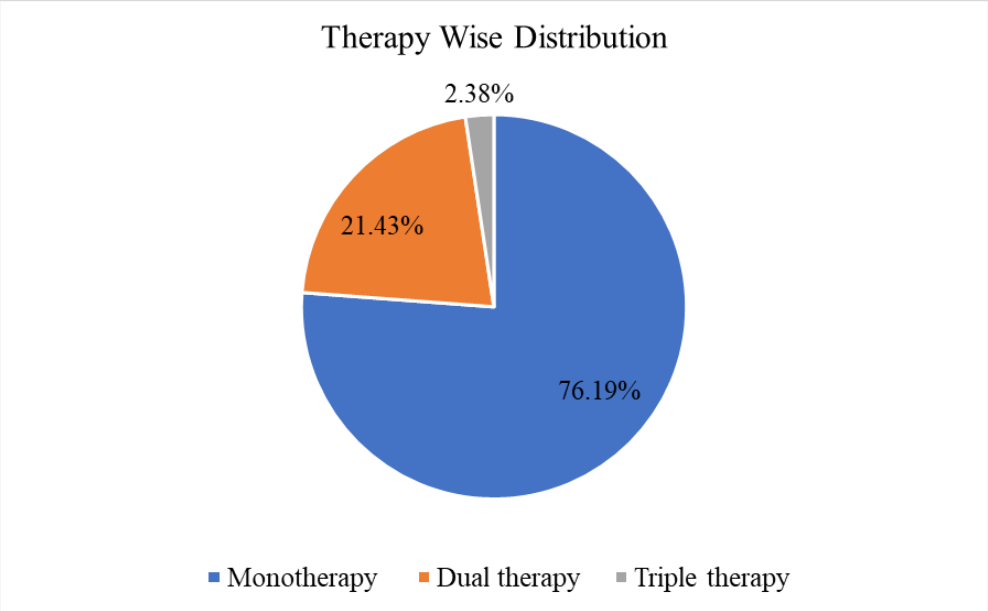
Subjects were classified based on the Partial seizure, out of 6 patients it was found that the most of the subjects were complex seizure (50.00%) followed by simple seizure (33.33%), partial with secondary generalized seizure (16.67%).

Figure 13: Distribution of subjects based on usage of antiseizure drug



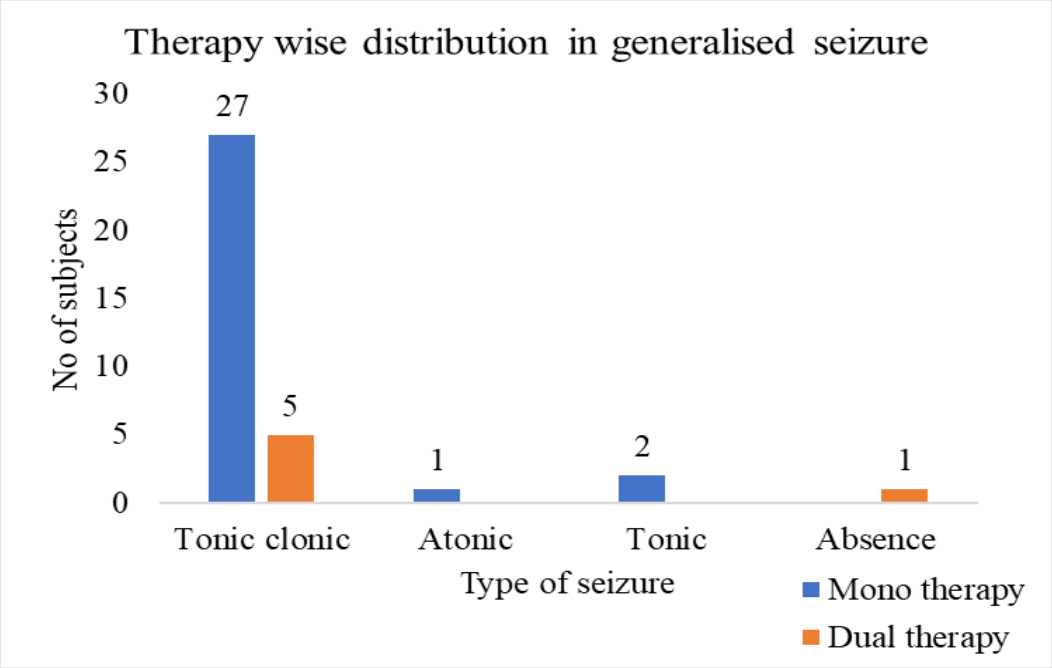
Out of 42 subjects, most commonly prescribed antiseizure drugs are levipil (Levetiracetam) 37(69.81%) followed by lorazepam 8(15.09%), pregabalin 3(5.66%), and the least commonly prescribed drugs were carbamazepine1(1.89%), gabapentin1(1.89%), lacosamide1(1.89%), phenytoin1(1.89%), sodium valproate 1(1.89%).

Figure 15: Distribution of subjects based on therapy wise



Subjects were distribution based on the type of the therapy, The majority of subjects received monotherapy (76.19%) followed by dual therapy(21.43%), triple therapy(2.38%).

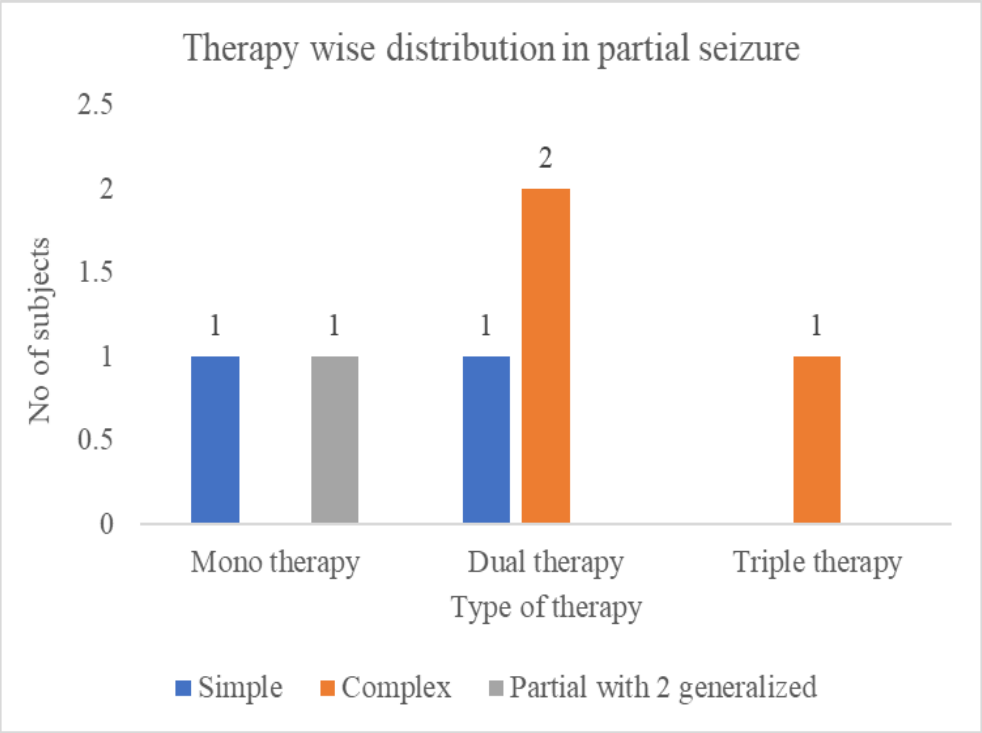
Figure 16: Distribution of subjects based on therapy wise in generalized seizure



Subjects were distributed based on type of therapy in generalized seizure, out of 36 subjects, majority of received mono therapy (30) followed by dual therapy (6). In that GTCS, 27 subjects received mono

therapy and 5 subjects received dual therapy, Atonic seizure received mono therapy, Tonic seizure received mono therapy and Absence seizure received dual therapy.

Figure 17: Distribution of subjects based on therapy wise in partial seizure



Subjects were distributed based on type of therapy in Partial seizure, out of 6 subjects, majority of received dual therapy (3) followed by mono therapy (2), triple therapy (1). In that Simple seizure,1 subject received mono therapy and 1 subject received dual therapy, complex seizure,2 subjects received dual therapy and 1 subject received triple therapy and Partial with secondary generalizes seizure received mono therapy.

Discussion:

This study was conducted in the In- Patient Department, ESI PGIMSR, Rajajinagar. The study was carried out for a period of 3 months, and a total of 44 of samples were collected out of this 2 samples were dropped due to insufficient data and overall sample size was 42.

Subjects were categorized based on different age category. The study shows that majority between 36-55 years of age. In our study, out of the 42 sample, majority were males (66.67%) then that of females (33.33%). Distribution based on social history, out of 42 samples, 24 subjects were Alcoholic and 18 subjects were Non-alcoholic. The sign and symptoms distribution shows that Post ictal confusion (29.51%) is most common symptom followed by Headache (14.75%), Up-rolling of eyeball (13.93%), Frothing of saliva (13.11%), Tongue bite (12.30%), fever (5.74%), Urinary incontinence (4.92%), slurred speech (2.46%), mouth deviation (2.46%) and light sensitivity (0.82%). Subjects were distribution based on diagnostic tests performed, out of 42 subjects, Majority of them has undergone MRI (48.15%) followed by CT (27.16%), EEG (11.11%).

Out of 42 subjects, The risk factor of NOS was found to be the most with CVS cause(36.92%), alcohol withdrawal(20%), followed by sleep deprivation(15.38%), metabolic cause(10.77%), CNS cause(9.23%), idiopathic(9.23%), CNS infection(4.62%), psychiatry(4.62%) and least was found to be

post dialysis(1.54%), family history(1.54%), poly pharmacy(1.54%). Distribution of subjects based on CVS cause of risk factor, the majority of the subjects found with stroke (33.33%) followed by hypertension (25%), haemorrhage (20.83%), cerebral venous thrombosis (20.83%).

Among risk factor and gender distribution in the study was found to be the most with CVS cause (21) and alcohol withdrawal (12) in male gender and in female gender it was found to be an idiopathic (4) and CNS cause (3).

Subjects were classified based on the types of seizure and found that most of the subjects were diagnosed with Generalised seizures (85.71%) followed by Partial seizures (14.29%). Subjects were classified based on the generalized seizure, out of 36 patients it was found that the most of the subjects were GTCS (88.89%) followed by tonic seizure (5.56%), atonic seizure (2.78%) and absence seizure (2.78%). Subjects were classified based on the Partial seizure, out of 6 patients it was found that the most of the subjects were complex seizure (50.00%) followed by simple seizure (33.33%), partial with secondary generalized seizure (16.67%).

Out of 42 subjects, most commonly prescribed antiseizure drugs are levipil (Levetiracetam) 37(69.81%) followed by lorazepam 8(15.09%), pregabalin 3(5.66%), and the least commonly prescribed drugs were carbamazepine1(1.89%), gabapentin1(1.89%), lacosamide1(1.89%), phenytoin1(1.89%), sodium valproate 1(1.89%). Out of 42 subjects, most commonly prescribed antiseizure drugs are levipill 37(69.81%) followed by lorazepam 8(15.09%), pregabalin 3(5.66%), and the least commonly prescribed drugs were carbamazepine1(1.89%), gabapentin1(1.89%), lacosamide1(1.89%), phenytoin1(1.89%), sodium valproate 1(1.89%). Subjects were distribution based on the type of the therapy, the majority of subjects received monotherapy (76.19%) followed by dual therapy (21.43%), triple therapy (2.38%).

Subjects were distributed based on type of therapy in generalized seizure, out of 36 subjects, majority of received mono therapy (30) followed by dual therapy (6). In that GTCS, 27 subjects received mono therapy and 5 subjects received dual therapy, Atonic seizure received mono therapy, Tonic seizure received mono therapy and Absence seizure received dual therapy. Subjects were distributed based on type of therapy in Partial seizure, out of 6 subjects, majority of received dual therapy (3) followed by mono therapy (2), triple therapy (1). In that Simple seizure,1 subject received mono therapy and 1 subject received dual therapy, complex seizure,2 subjects received dual therapy and 1 subject received triple therapy and Partial with secondary generalizes seizure received mono therapy.

The prescription pattern of antiepileptic drugs was categorized into 3 types: monotherapy, dual therapy and triple therapy. Monotherapy was mostly preferred by the NOS in the ESI hospital. It is important to maintain patients on mono-therapy as compliance is better, side effects are less and there is no problem of drug-t drug interactions and to yield better compliance.

In monotherapy among 42 subjects,32(76.19%) subjects were prescribed with single antiepileptic drug. Hence the most commonly prescribed antiepileptic drug in monotherapy is Levetiracetam (levipill) was prescribed to 27 subjects, lorazepam was prescribed to 4 subjects and pregabalin was prescribed to 1 subject.

In dual therapy among 42 subjects, 9(21.43%) subjects were prescribed with two antiepileptic drug, levipill + lorazepam was prescribed to 4 subjects followed by levipill + pregabalin was prescribed to 2 subject and levipill + sodium valproate, levipill + lacosamide, levipill + carbamazepine was prescribed to 1 subject.

In triple therapy among 42 subjects, 1(2.38%) subject mostly prescribed with antiepileptic drug, that is levipill + phenytoin + gabapentin

Conclusion

New-onset seizures need long-term antiepileptic medication therapy, and patient's quality of life is greatly impacted by the suitability of their therapy. A method for evaluating the prescription, dispensing, and distribution of medications is prescription epilepsy pattern monitoring studies. This study concluded that males subject were more prone than females subject based on age wise distribution subject between 36 to 55 years of age were admitted more with thecomplaints of New onset seizure. Post ictal confusion is the common presentation followed by headache. The common risk factor for new-onset seizures is CVS, which is followed by alcohol withdrawal. In CVS, stroke was more prevalent. The most common risk factor in males was alcohol withdrawal and stroke; while in females it was idiopathic. The present study concludes that Generalized tonic clonic seizure was more commonly observed. The most commonly prescribed antiseizure drug was levipil (Levetiracetam), followed by lorazepam. Majority of the patient were prescribed with mono therapy followedby dual therapy.

Conflict of interest

There is no conflict of interest.

Acknowledgement

We express our sincere gratitude to all those people who have been associated with this study and have helped us with it.

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