

A Study of Profile of 1st Time Seizure Episode in Young Patients

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Abstract: Background: Seizures beginning in adults are likely to be identifiable cause as compared to those beginning in childhood which is more likely to be idiopathic. Objectives: To find out causes for first time seizure in young patients. Material and Methods: This Descriptive study done in the G.G. hospital to know the etiologies in patients with new onset seizures. In these cases history, clinical examination and investigations like CTBRAIN, MRIBRAIN, EEG, SEROLOGY, CSF ANALYSIS were done to find out the etiology. Results: Out of 100 patients 56% were males, 44% were females. Idiopathic was the leading cause of seizures account for 51% followed by alcohol withdrawal seizures (18%), neuroinfection (16%), metabolic (8%) and CVA (7%). Conclusion: Idiopathic is the most common cause of seizure in new onset seizure patients

Keywords: Tuberculoma, Neurocysticercosis, Meningitis, Metabolic seizure

1. Introduction

Epilepsy describes a condition in which a person has recurrent seizures due to chronic underlying process. Epilepsy beginning in adult life is due to progressive brain diseases compared to idiopathic epilepsy, which has its onset in childhood or adolescence.

With proper history and clinical examination, analysis of etiology made with available investigations, the epilepsy can be treated accordingly thus reducing the morbidity and mortality associated with it.

Hence this study is aimed to evaluate the clinical profile and etiological analysis of new onset epilepsy in adults of more than 18 years of age up to 35 years of age.

2. Literature Survey

Diagnosis of Epilepsy

The confirmation and diagnosis of the seizure type usually based on the history taken from the patients or care givers. First we have to distinguish epileptic seizures from the non-epileptic attacks, such as psychogenic seizures and syncopal attacks. In distinguishing a syncopal attack from an epileptic seizure, we must pay attention to the sensation of faintness or feeling of-black outs immediately before loss of consciousness and the presence of provoking factors, such as noxious stimuli, sudden unexpected pain or standing for along time, Next we must ask the following questions directly to the patients or indirectly to the care givers to make a precise seizure diagnosis including the aura, asymmetry of the seizures, content, clouded consciousness, presence of automatism, deviation of the head and eyes and dystonic arm posture

A fundamental principle is that seizures may be either focal or generalized. Generalized seizures involve diffuse regions of the brain simultaneously. Focal seizures are those in

which the seizure activity is restricted to discrete areas of the cerebral cortex. Generalized seizures may result from biochemical, cellular abnormality or structural abnormalities that have a more widespread distribution. In contrast, focal seizures are usually associated with structural abnormalities of the brain.

Differential Diagnosis of Seizures

Syncope
Psychological seizure
Hypoxia
Hypoglycemia
Migraine
Movement disorder

Treatment of Seizure

When a patient presents shortly after a seizure, we should give first priorities to vital signs, cardiovascular and respiratory support and treatment of seizures. Life-threatening conditions such as metabolic derangement, CNS infection or drug toxicity must be managed appropriately.

If patient is not acutely ill, the initial evaluation focus on whether there is a history of earlier seizures. If this is the first seizure, then the emphasis will be : (1) to establish whether the reported episode was a seizure or any another paroxysmal event, (2) to determine the cause of the seizure by identifying precipitating events and risk factors, and (3) to decide whether anticonvulsant therapy is required.

When to Discontinue Therapy

Overall, about 70% of children and 60% of adults who have their seizures completely controlled with AED's can eventually discontinue therapy. The following profile of patient yields the greatest chance of remaining seizure-free after the drug withdrawal.

- 1) Complete medical control of seizures for one to five years;
- 2) Single seizure type either generalized or partial;
- 3) Normal neurological examination;

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4) Normal EEG.

3. Materials and Methods

It is a prospective study of 100 cases done at Medicine department, G. G. Hospital, Jamnagar, Gujarat during 3 years of post-graduation

3.1 Materials

Detailed history, physical examination, RFT, Serum Electrolytes EEG, CT Brain, MRI Brain, CSF, serology and other routine investigations.

3.2 Methodology

In patients with New onset seizures along with history and clinical examination, special investigations like CT BRAIN, MRI BRAIN, EEG, SEROLOGY, CSF ANALYSIS will be done to find out the etiology.

Inclusion Criteria

Patients admitted in medical wards of Guru Gobind Singh Hospital, Jamnagar.

- 1) All patients having evidence of seizure from medical condition
- 2) Age 14 to 35

Exclusion Criteria

Patient <14yrs and >35years

Data Collection

Data collected from hospital case records of G. G. Hospital, Jamnagar. Hospital records for all patients who had undergone one the investigations were obtained from the indoor data register. Data were analyzed for qualitative and quantitative variables and descriptive statistics were calculated

The data of each patient was collected on a proforma specially designed for this study and included demographic details, detailed history, clinical features, past medical history. Physical examination, RFT, Sr. Electrolytes, EEG, CT Brain, MRI Brain and other routine investigations.

Statistical Tools

The information collected regarding all the selected cases were recorded in a Master Chart. Data analysis was done with the help of computer using **statistics software**.

Using this software range, frequencies, percentages, means, standard deviations, chi square and 'p' values were calculated. Kruskal Wallis chi-square test was used to test the significance of difference between quantitative variables and Yate's test for qualitative variables. A 'p' value less than 0.05 is taken to denote significant relationship.

Proforma

Name:

Diagnosis:

Age/Sex:

Occupation:

Address:

Details of Present Illness:

Seizures:

Time of onset

Duration

Aura

Any precipitating factors

Partial (face/hand/upper limb/ lower limb/foot)

Generalised (LOC, tongue bite, bladder/ bowel in continence, post ictal confusion, residual neurological deficit)

Number of episodes

Associated Complaints:

Fever

Headache

Vomiting

Focal neurological deficit

Head injury

Past history: DM-

2/SHT/TB/CVA/Meningitis/Encephalitis/RHD

Family history: DM-2/SHT/Seizure disorder/Mental retardation

Personal history:

Sleep, Diet, Smoking, Alcoholism, Drug abuse, Tobacco chewing

General Examination:

Built & nourishment:

Height:

weight:

BMI:

P/I/CY/CL/LN/PE

VITALS-PR.BP, RR, Temperature

Cutaneous stigmata of neuro epidermal syndromes

Adenoma sebaceum,

café-au-lait spots,

neurofibromatosis,

ash leaf macules,

shagreen patch

Systemic Examination

Central nervous system

- Higher functions:
- Cranial nerves:
- Motor system :
- Sensory system:
- Reflexes:
- Autonomic nervous system:
- Skull & spine:
- Meningeal signs:

4. Observation and Analysis

The results of the study are shown in tables as below. The baseline characteristics observed are as follows, Number of cases of new onset seizures studied-100

Table 1: Age and Sex Distribution

	Age in Years	Male	Female	Total
1	14-19	15	08	23
2	20-24	27	06	33
3	25-29	04	10	14
4	30-35	10	20	30
	Total	56	44	100

In the present study patients age ranged from 14yrsto 35 years with the mean of Majority of patients were in the age group of 20-24 years (n=33) followed by 30 to 35yrs (n=30).

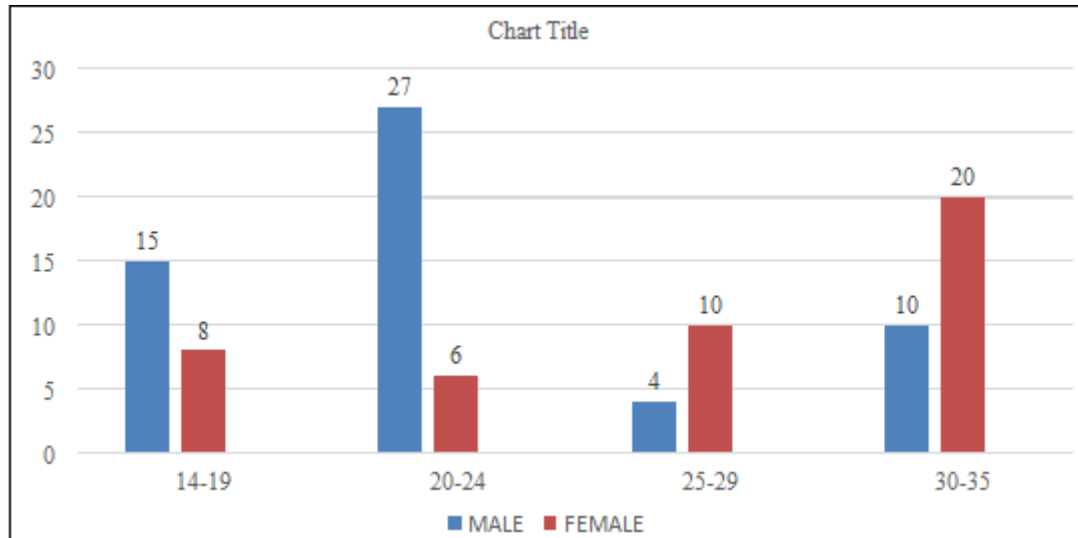


Figure 1-1

Majority of males were in 20-24yrs age group
 Females were in 30-35yrs age group.
 Out of 100 patients 56 were males and 44 were females with male to female ratio of 1.22:1.

Table 2: Etiologies and Sex Distribution

Etiology	Male (n=56)	Female (n=44)	P value
Idiopathic (n=51)	31	20	0.001
Alcohol Withdrawal (n=18)	15	03	
NEURO Infection(n=16)	07	09	
CVA (n=07)	02	05	
Metabolic (n=08)	01	07	

Among etiologies and sex distribution the P value is <0.001. This shows there is significant correlation between etiologies and sex distribution in this study.

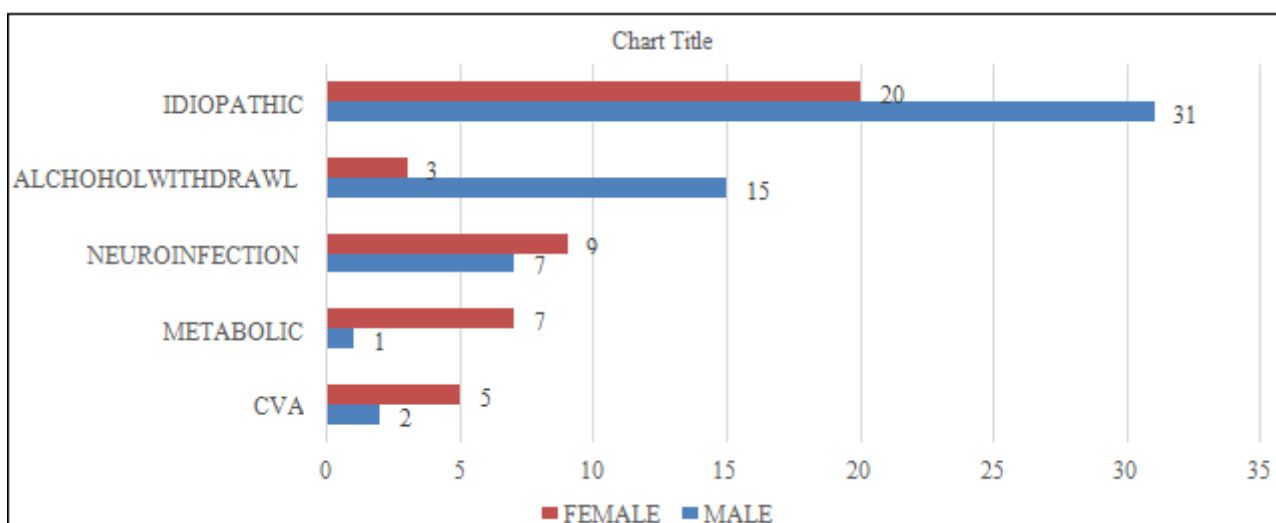


Figure 2

Table 3: Distribution of Etiologies in Patients with Seizures

	Etiologies	Number (n=100)	P value
1	Idiopathic	51	<0.001
2	Alcoholic	18	
3	Neuroinfection	16	
4	Metabolic	8	
5	CVA	7	

Among distribution of various etiologies in seizures shows the P value of <0.001. This shows there is significant relation among distribution of various etiologies in seizures.

IDIOPATHIC SEIZURE is leading cause of seizure which accounted for 51% followed by Alcoholic withdrawal seizure 18%, Neuroinfection 16%, CVA 07% and metabolic 08%

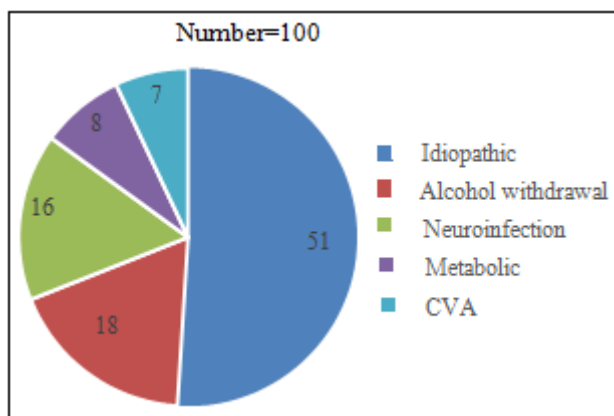


Figure 3

Table 4: Correlation of Etiologies with Age Group

	Etiologies	14-19	20-24	25-29	30-35	P value
1	Idiopathic	20	17	7	7	<0.001
2	Alcohol withdrawal	0	5	2	11	
3	Neuroinfection	1	5	4	6	
4	Metabolic	1	2	0	5	
5	CVA	1	4	1	1	

Idiopathic seizures is more common in 14-24 years whereas Alcohol Withdrawal seizures are common in 30-35 YEARS

In 14-24 year's most common etiology is Idiopathic Seizure (66%) followed by 10% Neuroinfection, 9% CVA and 3% Alcohol withdrawal

In 25-29 yrs most common etiology is idiopathic (50%) followed by neuroinfection (29%).

In 30-35 yrs most common etiology is alcohol withdrawal 37% followed by idiopathic 23%, neuroinfection 20%, metabolic 17%, cva 3%

The P value of etiologies and age distribution is <0.001. This shows there is significant correlation between etiologies and age distribution of this study.

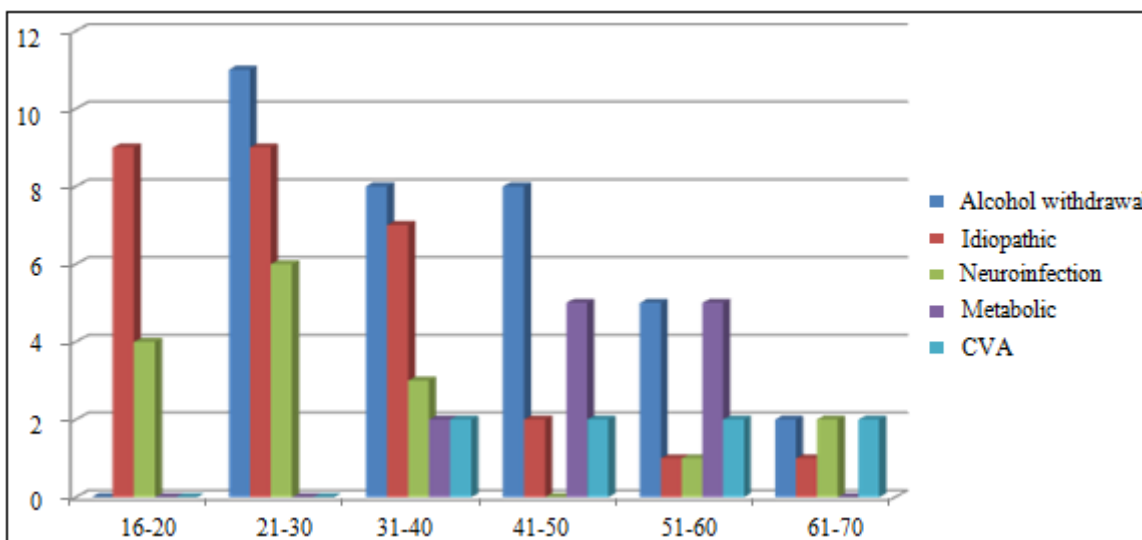


Figure 4

Table 5: Various Types of Neuroinfection

	Neuroinfection	Number (N=16)	% among Neuroinfection
1	Tuberculoma	6	37.5
2	Neurocysticercosis	4	25
3	Meningitis	3	18.75
4	Meningoencephalitis	2	12.5
5	Cerebralmalaria	1	6.25

Among neuro infection Tuberculoma accounts for 37.5% (6), neurocysticercosis 4(25%), meningoencephalitis 2 (12.5%), meningitis 3 (18.75%), cerebralmalaria 1 (6.25).

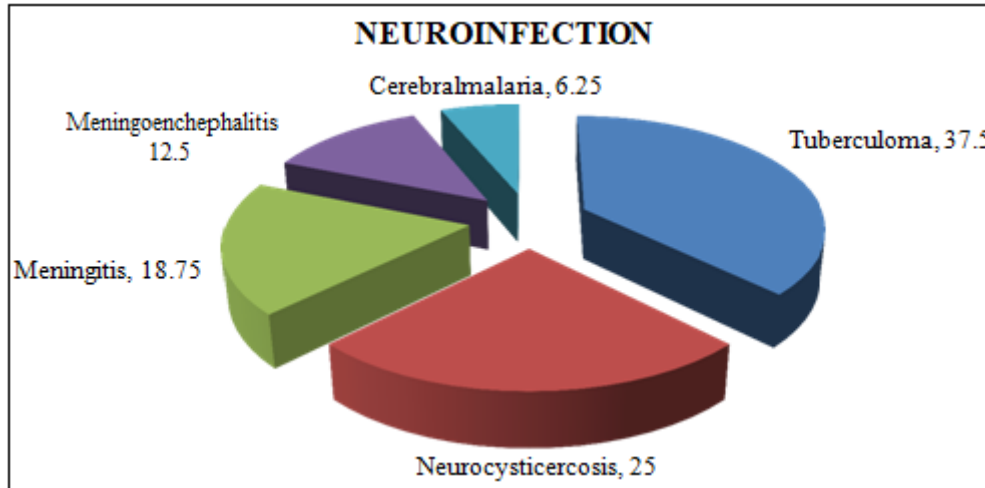


Figure 5

Table 6: Various Types of CVA

	CVA	Number(n=7)	% among CVA
1	Infarct	2	29
2	Venous Sinusthrombosis	2	29
3	Haemorrhage	1	14
4	SDH	1	14
5	SAH	1	14

Among CVA infarct 2 (29%), cerebral venous sinus thrombosis 2 (29%) haemorrhage 1(14%), SAH 1(14%) and SDH 1(14%).

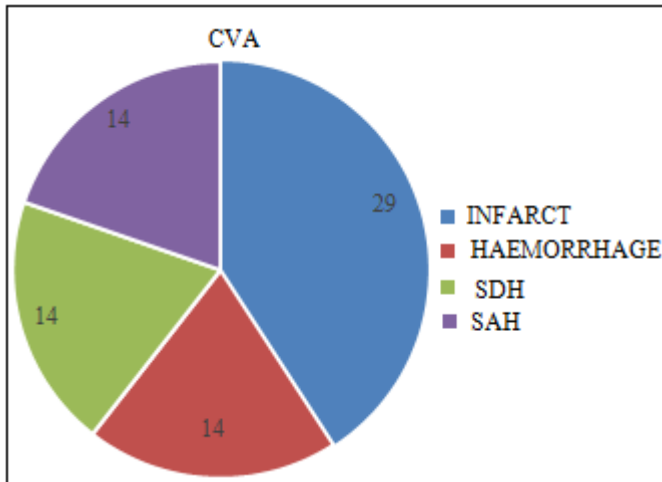


Figure 6

Table 7: Various Metabolic Causes

	Metaboliccause	Number (n=8)	% among Metaboliccause
1	Hypoglycaemia	6	75
2	Hyperglycaemia	1	12.5
3	Hyponatraemia	1	12.5

Among metabolic causes 75% is due to hypoglycaemia followed by hyponatremia 12.5%, and hyperglycemia 11%

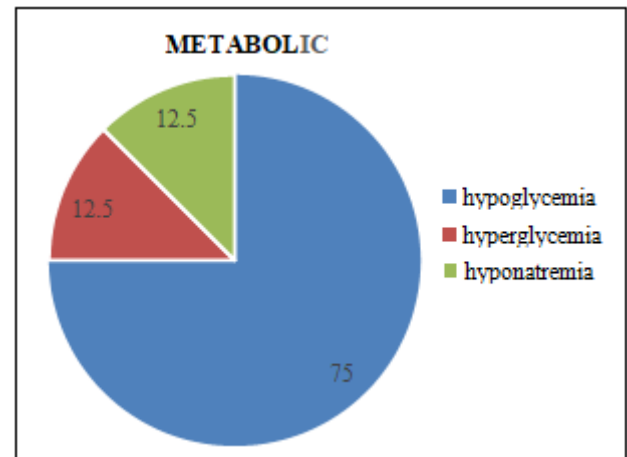


Figure 7

Table 8: Association for Etiology and Type of Seizures

	Etiology	Type of seizure		P value
		GTCS	Focal	
1	Idiopathic	39	12	<0.001
2	Alcohol withdrawal	16	2	
3	Neuro infection	8	8	
4	Metabolic	4	4	
5	CVA	4	3	
	Total	71	29	

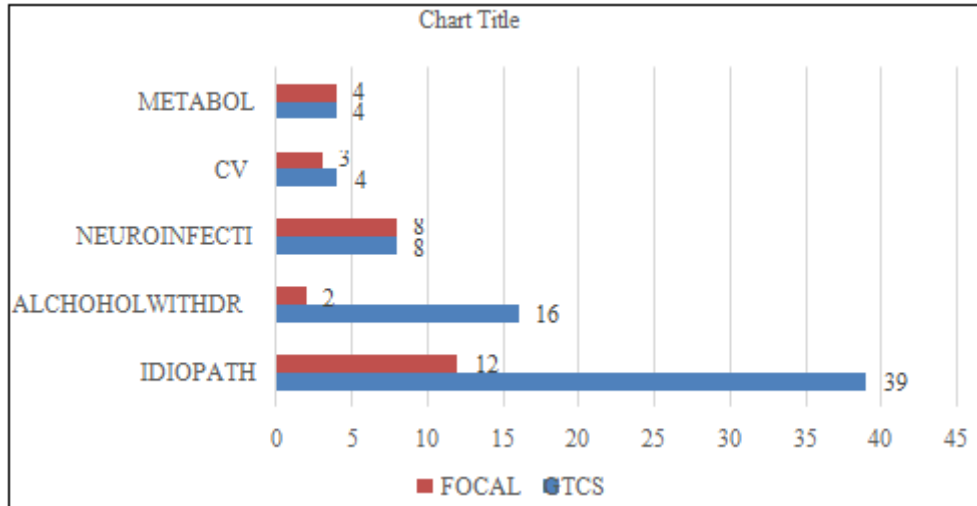


Figure 8

Table 9: GTCS Distribution

Etiology	Number of cases (N=71)
Idiopathic	39
Alcohol Withdrawal	16
CVA	4
Neuroinfection	8
Metabolic	4

Table 10: Focal seizures distribution

Etiology	Number of Cases (n=29)
Idiopathic	12
Alcohol withdrawal	2
Neuroinfection	8
Metabolic	4
CVA	3

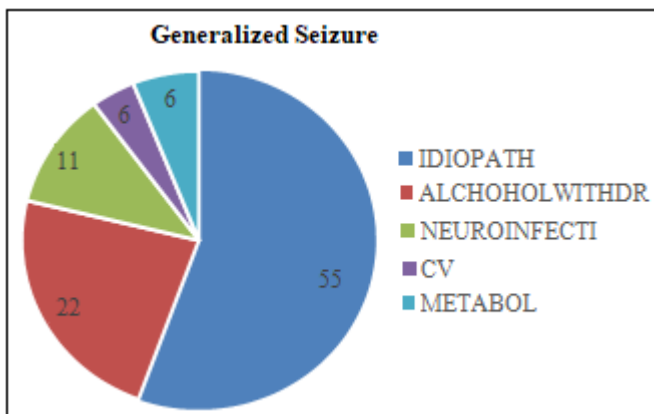


Figure 9

Focal seizure is common in neuro infection and idiopathic seizures.

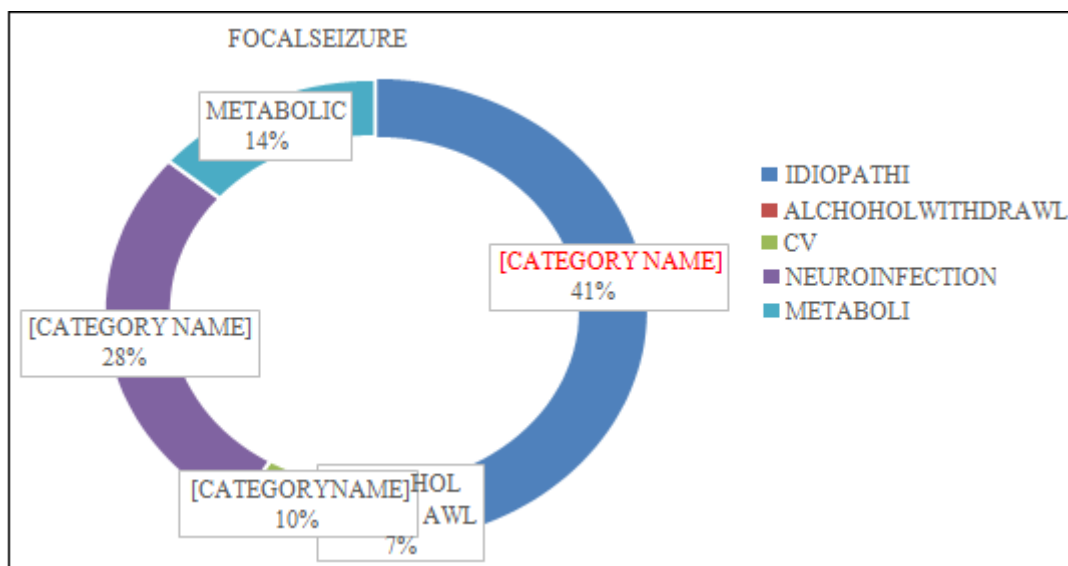


Figure 10

5. Discussion

In this study, a total of 100 patients with new onset epilepsy were included.

Sex ratio:

There was a slight male preponderance (M: F=1.22:1) in this study as quoted by other studies on epilepsy in United States and Europe (Granieri et al, 1983).

Age distribution:

Maximum number of patients were in age group of 20-24 years, the youngest being 14 years. Alcohol withdrawal seizures and adult onset idiopathic seizures are more common in this age group. Epilepsy due to alcohol withdrawal and metabolic causes are common in 30-35 years of age.

Type of seizures: generalized tonic clonic seizures 71% are more common than focal seizures 29% in this study.

Etiology of epilepsy:

In our study Idiopathic seizure (51%) was the commonest cause, followed by Alcoholic epilepsy (18%), Neuroinfection (16%), Metabolic seizures (8%) and CVA (7%). It was very difficult to differentiate between tuberculoma and NCC based on CT findings. We did chest Xray PA view and TBELISA for patients suspected of tuberculoma. There was a history of chronic cough in one patient.

Another patient who was diagnosed to have pulmonary tuberculosis 1 year ago had taken anti tubercular drugs for about 3 months and had presented with generalized tonic clonic convulsions. The CT scan showed 3 large ring enhancing lesions which were more than 20mm in size.

It should be emphasized that despite careful investigations, a sizable proportion of patients 51% were diagnosed with idiopathic seizure, (18%) were diagnosed as alcohol withdrawal seizures.

In present study:

	Etiologies	Number (n=100)
1	Idiopathic	51
2	Alcohol withdrawal	18
3	Neuroinfection	16
4	CVA	7
5	Metabolic	8

In our study:

Most of Alcohol withdrawal seizure patients presented with GTCS (89%)

75% of idiopathic seizure patients presented with GTCS and 25% by focal seizure.

50% of neuro infection patients presented with GTCS and 50% with focal seizures.

57% of CVA patients presented with GTCS and 43% by focal seizures.

50% of metabolic seizures patients presented with GTCS AND 50% with focal seizures.

6. Conclusion

From the present study-CLINICAL PROFILE AND EVALUATION OF NEW ONSET SEIZURES the following conclusions were made.

Underlying etiologies were made in acute symptomatic seizures which contributed to 47%.

- 1) Majority of seizures occurred in patients 20-24 yrs of age.
- 2) Etiological spectrum were varied and included alcohol withdrawal, neuroinfection, CVA, metabolic.
- 3) IDIOPATHIC SEIZURE accounted for significant number of seizures in all the age groups.
- 4) Tuberculomas most common cause of seizures in neuro infection.
- 5) Infarct and cerebral venous sinus thrombosis were most common cause of seizures in CVA patients.
- 6) CVA cerebral venous sinus thrombosis is one of the common cause of seizure in young females.
- 7) Hypoglycemia is an important cause of seizures in metabolic seizures.
- 8) Acute infections (meningitis), alcohol related disorders, hypoglycemia, diabetic ketoacidosis, eclampsia, kidney failure, etc. are reversible causes of seizure and should be kept in mind and vigorously treated whenever detected.
- 9) Health education regarding disease is the need of society for better management of seizure disorders.

7. Future Scope

By detecting the cause of seizure in young patient we may treat the cause as early as possible and can prevent the future episode of seizure and neurological damage which may occur.

Some new techniques should be established for detection and prediction of seizure and many clinical trials are happening for it as self reporting of seizure is poor.

So future study may be possible for establishing devices which helps in early detection and prediction of seizure episode.

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