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# "CLINICAL PROFILE OF NEW ONSET OF GENERALISED OR FOCAL CONVULSION DISORDER"

Medicine

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## ABSTRACT

**BACKGROUND:** Seizures beginning in adult life are likely to be an identifiable cause as compared to those beginning in childhood which is more likely to be idiopathic.
**METHOD:** This Descriptive study done in the Sir T. general hospital, Bhavnagar to know the various etiologies in patients presented with new onset seizures. In these cases history and clinical examination and special investigations like CT BRAIN, MRI BRAIN, EEG, SEROLOGY, CSF ANALYSIS were done to find out the etiology.
**RESULTS:** Out of 50 patients 58% were males, 42%were females with male to female ratio of 1.3:1.Majority of males were in 2nd decade and females were in 4th decade. Patients age ranged from 18 yrs to 60 yrs, with the mean of 48 years with 86% of the patients were in the below 50 yrs. Alcohol withdrawal was the leading cause of seizures which accounts for 34% followed by idiopathic seizures (30%), neurological infection (12%),CVA 16% and metabolic (8%).
**CONCLUSION:** Alcohol withdrawal is the most common cause of seizure in new onset seizure patients who came for treatment to Sir T General Hospital, Bhavnagar.

## KEYWORDS

New onset seizure, Alcohol withdrawal, Tuberculoma, Meningitis, Metabolic seizures.

### *INTRODUCTION*

Epilepsy described as a condition in which a person has recurrent seizures due to chronic underlying process. Epilepsy refers to a clinical phenomenon than a single disease entity, since there are many forms and causes of epilepsy.

Epilepsy of late onset (*Epilepsiatarda, late onset epilepsy*) may be simply defined as epilepsy beginning in adult life.
Epilepsy beginning in adult life is due to progressive brain disease as compared to idiopathic epilepsy, which has, it's onset in childhood or adolescence.

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

Approximately 8 % to 10 % of the population experience seizure in their life time. Only about 2 % to 3 % of patients go on to develop epilepsy. Understanding the underlying etiology leading to an accurate diagnosis in necessary to ensure appropriate treatment and that patients with law risk for reccurance are not treated unnecessarily.

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.

A first seizure caused by an acute disturbance of brain function is unlikely to recur (3 – 10 %). If a first seizure is unprovoked, however, meta-analysis suggest that 30% - 50% will recur; and after a second unprovoked seizure, 70% - 80% will recur, justifying the diagnosis of epilepsy(a tendency for recurrent seizures).

### *MATERIAL AND METHODS*

This is a Descriptive study conducted in Government medical college& hospital, Bhavnagar, Department of medicine, for a period of 6 months. A total of 50 cases admitted in medical ward with new onset seizures were selected for the present study from January 2020 to June 2020.

#### Materials

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

### METHODOLOGY

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

### INCLUSION CRITERIA

Patients admitted in medical wards of Govt. medical college &hospital, Bhavnagar;

- All patients > 18 years presented with new onset seizure
- Giving informed and written consent for study and voluntary participation.

### EXCLUSION CRITERIA

- Patient not giving consent
- Pregnancy and seizure due to obstetric causes ( including eclampsia )
- Ataxic Disorder
- Known epileptic disorders
- Seizure due to recent traumatic brain injury(<=6months)
- Post operative seizure including neurosurgical procedure

### DATA COLLECTION

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, S. Electrolytes, EEG, CT Brain ,MRI Brain and other routine investigations.

### STATISTICAL ANALYSIS

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. Karakul 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.

### OBSERVATION AND RESULTS

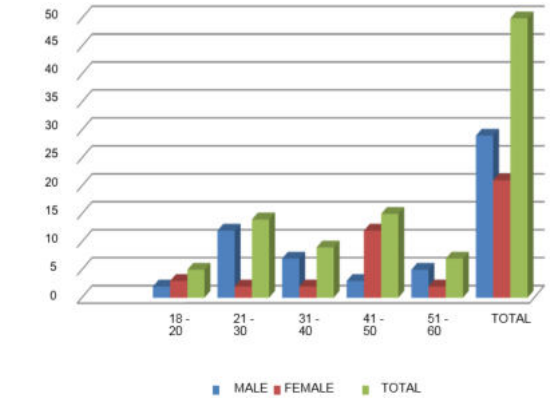


**FIGURE-1**

In the present study patients' age ranged from 18 years to 60 years with the mean age of 48 years. Majority of patients were in the age group of 41-50 years followed by 21-30 years.

76 % of patients were in 2nd – 5th decade.

Majority of males were in 2rd decade and females were in 4th decade.

Out of 50 patients 29 were males and 21 were females with male to female ratio of 1.3:1.

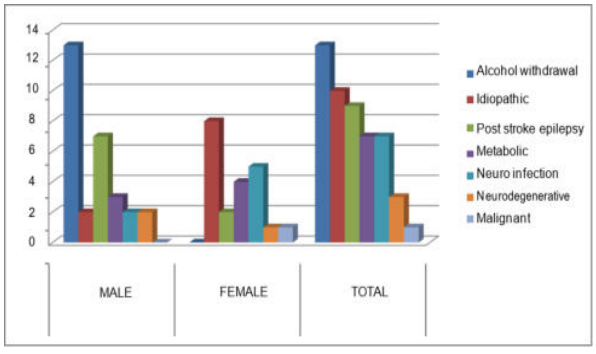


**FIGURE-2**

In our study alcohol withdrawal (26%) was the commonest cause mainly seen in males which is followed by idiopathic (20%) which was followed by post stroke epilepsy (18%).

In males the commonest cause of convulsion was alcohol withdrawal (26%) whereas in female the commonest cause of convulsion was idiopathic (16%).

In our study metabolic and neuroinfections are more common in females as compare to males whereas neurodegenerative causes are more common in males than in females.

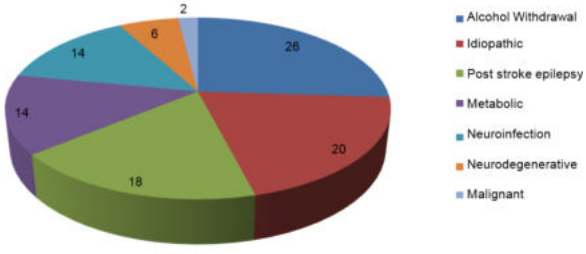


**FIGURE-3**

Alcohol withdrawal was the leading cause of seizure which is accounted for 26% which is followed by Idiopathic 20%, followed by Post stroke epilepsy 18% .

Metabolic and neuro infections accounted for 14% each. In our study malignant lesions was the least common cause of convulsions accounted for 2% only.

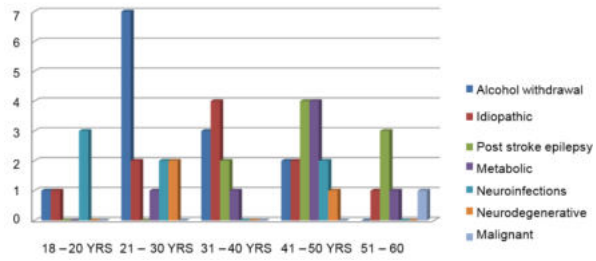


**FIGURE-4**

Alcohol withdrawal seizures are more common in 21-30 years whereas CVA and metabolic seizures are common in 41-50 years of age. In 18-20 yrs 60 % of convulsions are due to neuroinfection, 20 % due to idiopathic and 20% due to alcohol withdrawal. In 21-30 yrs most common etiology is alcohol withdrawal which is 50% followed by 14.2% Idiopathic and 14.2% neuro infection. In 31-40 yrs most common etiology is Idiopathic which is 40% followed by Alcohol withdrawal 30 % and Post stroke epilepsy 20%.In 41-50 yrs most common etiology is Post stroke epilepsy and Metabolic accounted for 17.3% each followed by Idiopathic which is 8.6%.In50-60yrs most common etiology is Post stroke epilepsy which is 50%. Malignancies common in older age group 51 – 60 years whereas Idiopathic convulsions are common in younger age group.

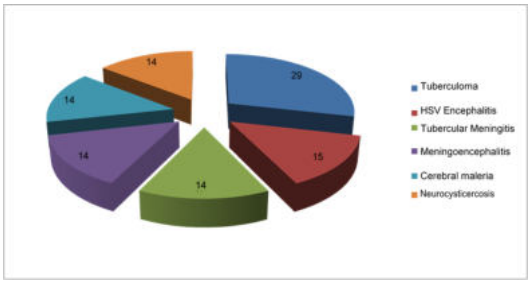


**FIGURE-5**

Amongst neuro infections Tuberculoma is the most common cause of convulsion which accounts for 28.5 %.

It is difficult to differentiate between tuberculoma and neurocysticercosis based on neuroimaging only. One patient was diagnosed to have pulmonary tuberculosis 1 year back had taken anti tubercular drugs for 4 months and now presented with focal convulsions. The CT scan showed 3 large ring enhancing lesions which were more than 20 mm in size. X – ray of thigh , calf and arm was done for the evidence of muscle cysticercosis in a patient suspected NCC.

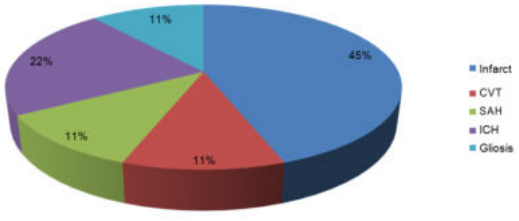


**FIGURE-6**

In our study Infarct was the commonest cause of convulsion in post stroke epilepsy which is 44.4%. Followed by ICH which is 22.2%. SAH, Gliosis and CVT accounts for 11.1 % each.

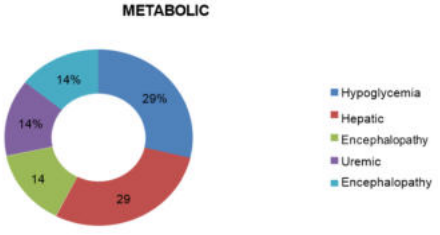


**FIGURE-7**

In metabolic causes Hypoglycemia and Hepatic encephalopathy were the common causes accounted for 28.8% each. Hyponatremia and Hypocalcemia accounted for14.2% each.

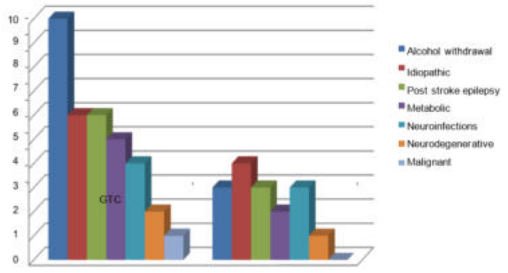


**FIGURE-8**

Generalized tonic clonic seizures were common than Focal seizures in our study. In Western Countries Focal seizures were more common. In GTCS Alcohol withdrawal was the commonest cause. In Focal seizure Idiopathic was the commonest cause.

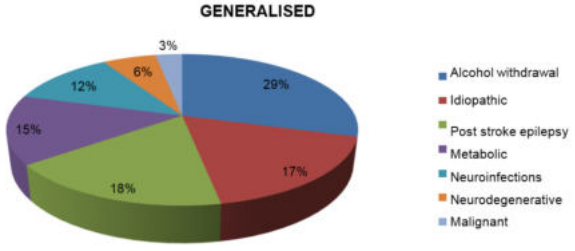


**FIGURE-9**

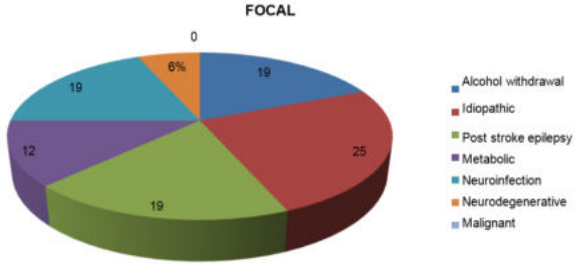


**FIGURE-10**

***DISCUSSION***

In this study, a total of 50 patients with new onset epilepsy were included.

- **Sex ratio**

There was a slight male preponderance (M: F=1.3:1) 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 was in age group of 18-40 years, the youngest being 18 years. Alcohol withdrawal seizures and adult onset idiopathic seizures are more common in this age group. Epilepsy due to cerebral infections is common in middle age. In our study mean age of patients was 48 years. In the similar study done by Pradeep et al 2 mean age of patients was 41 years. Post stroke epilepsy was common in patients more than 40 years of age.

- **Type of seizures**

Generalized tonic clonic seizures 68% are more common than focal seizures 30% in this study. Whereas in similar studies done in Western countries Focal seizures were more common than Generalized tonic clonic seizures.

- **Family History**

A family history of idiopathic epilepsy was noted in 3 of our patients with idiopathic epilepsy. This indicates probable genetic determinant of the disease. Also one patient with idiopathic epilepsy had febrile convulsions in childhood. This indicates his inherent lower seizure threshold.

- **Personal History**

In our study 21 patients out of 50 were having history of addiction. Out of which 5 patients were chronic tobacco smokers and 16 were chronic alcohol addicted.

In tobacco smokers 3 patients presented with Infarct and 1 presented with Basal Ganglia bleed and 1 presented with Tuberculoma.

In chronic alcohol addicted patients 2 patients presented in Hepatic Encephalopathy, 13 presented with alcohol withdrawal and 1 presented with ICH.

- **Past History**

10 patients out of 50 were having positive past history mainly having past history of hypertension and diabetes mellitus.

- **Associated Symptoms**

14 patients out of 50 were having associated symptoms of Fever, Headache and Vomiting. Fever mainly presented in patients of Meningitis and Meningoencephalitis. 13 patients presented with altered level of consciousness out of which majority were presented with post seizure epilepsy and electrolyte imbalance.

- **Fundus Examination**

2 patients of GTSC were having Papilloedema on fundus examination. 1 patient was having hypertensive retinopathy.

- **Prodromal features**

3 patients were having prodromal features.

- **Post Ictal Phenomenon**

18 patients out of 50 were having Post Ictal Confusion. Out of which all were presented with GTSC type of convulsions.

- **Abnormal EEG and Neuroimaging**

14 out of 50 patients of convulsions were having abnormal EEG study.

24 out of 50 patients presented with convulsions were having abnormal CT / MRI Findings.

- **Etiology of study**

In our study Alcohol withdrawal seizures (34%) was the commonest cause, followed by idiopathic epilepsy (29%), Neuro infection (16%), CVA (12%) and Metabolic seizures (9%).

It should be emphasized that despite careful investigations, a sizable proportion of patients (29%) were diagnosed as idiopathic seizures. More sensitive scanning techniques may help us to further sort out this group of idiopathic epilepsy in various categories.

**Etiologies observed in various Studies**

1) SANDER et al (1990) UK

| | |
|---|---|
| **VASCULAR** | **15%** |
| **TUMOUR** | **6%** |
| **INFECTION** | **2%** |
| **ALCOHOL RELATED** | **9%** |

2) HAUSER et al (1995) USA

| | |
|---|---|
| **CVA** | **18%** |
| **NEURO INFECTION** | **15%** |
| **TRAMATIC BRAIN INJURY** | **13%** |
| **TUMOUR** | **13%** |
| **ALCOHOL WITHDRAWAL** | **11%** |
| **METABOLIC** | **10%** |

3) MURTHY JMK and RAVI (1999) Hyderabad

| | |
|---|---|
| **NEUROINFECTION** | **77%** |
| **VASCULAR** | **14%** |
| **METABOLIC** | **3%** |
| **TUMOUR** | **7%** |

4) NARAYANAN JT and JMK (2007)

| | |
|---|---|
| **NEUROINFECTION** | **32%** |
| **VASCULAR** | **21%** |
| **METABOLIC** | **32%** |
| **ALCOHOL** | **9%** |
| **OTHERS** | **15%** |

**In present study:**

| | ETIOLOGIES | PERCENTAGE |
|---|---|---|
| **1** | ALCOHOL WITHDRAWL | 26 % |
| **2** | IDIOPATHIC | 20 % |
| **3** | NEURO INFECTION | 14 % |
| **4** | CVA | 18 % |
| **5** | METABOLIC | 14 % |
| **6** | NEURODEGENERATIVE | 6 % |
| **7** | MALIGNENT | 2 % |

**The results of present study are compared with similar studies done earlier in the following tables:**

| | SANDER et al (1990) UK | HAUSER et al (1995) USA | MURTHY JMK and RAVI (1999) | NARAY ANANJT andJMK (2007) | IN PRESENT STUDY |
|---|---|---|---|---|---|
| **ALCOHOL WITHDRAWL** | 9 % | 11 % | | 9 % | 26 % |
| **IDIOPATHIC** | | 15 % | | | 20 % |
| **NEURO INFECTION** | 2 % | | 77 % | 32 % | 14 % |
| **CVA** | 15 % | 18 % | 14 % | 21 % | 18 % |
| **METABOLIC** | | 10 % | 3 % | 32 % | 14 % |
| **TUMOUR** | 6 % | 13 % | 7 % | | 2 % |
| **NEURODEGENERATIVE** | | | | | 6 % |

| | GTCS | FOCAL SEIZURES |
|---|---|---|
| 1) SANDER et al | 39% | 61% |
| 2) MURTHY JMK and RAVI Y | 22% | 78% |
| 3) NARAYANAN JT | 55% | 45% |
| 4) OUR STUDY | 70% | 30% |

In present study generalized tonic clonic convulsions (GTCS) were observed more than other studies as etiology in present study were more from following reasons. Percentage of patients presented with GTCS in following etiology :

- Alcohol withdrawal seizure- 76.9%
- Metabolic seizure- 71.4 %
- CVA- 66.6%
- Idiopathic seizure- 60%
- Neuro infection- 57.1%

## CONCLUSION

From the present study TO ASSESS CLINICAL PROFILE OF NEW ONSET OF GENERALISED AND FOCAL CONVULSION DISORDER the following conclusions were made.

1. Underlying etiologies were made in acute symptomatic seizures which contributed to 80%.
2. Majority of seizures occurred in patients <50 yrs of age.
3. Etiological spectrum were varied and included Alcohol withdrawal, Neuroinfection, CVA & Metabolic.
4. Alcohol withdrawal accounted for significant number of seizures in all the age groups.
5. Tuberculoma is most common cause of seizure in neuroinfections.
6. Infarct is most common cause of seizures in CVA patients.
7. Hypoglycemia is an important cause of seizures in metabolic seizures.

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