



'A STUDY OF CLINICO-ETIOLOGICAL PROFILE OF NEW ONSET OF SEIZURE ABOVE 40 YEARS OF AGE AT TERTIARY HEALTH CENTRE'

General Medicine

Dr. Rakesh. R Junior Resident, Department Of General Medicine, Esipgimsr, Bangalore.

Dr. Satyanarayana. N HOD And Professor, Department Of General Medicine, Esipgimsr, Bangalore.

ABSTRACT

Seizure is a paroxysmal event due to abnormal excessive or synchronous neuronal activity in the brain. Index episode of seizure occurring more than 40 years of age has usually an organic cause. The objective of this study is to identify the type of seizure occurring in more than 40 years of age and to correlate with clinical, etiological and radiological profile. The present study was carried out among patients with new onset of seizures among patients aged > 40 years of age. Cases of seizures due to recent traumatic brain injury (< 6 months), post-operative seizures (including neurosurgical procedures) and seizures due to obstetric causes (including eclampsia) were excluded. Out of 95 patients in the study who had index episode of seizures occurring above 40 years of age, 65 were males and 30 were females. Most leading cause was due to stroke followed by metabolic causes and neuro-infections. Alcohol withdrawal was one of the common features in 4th and 5th decade of life. This study illustrates that new onset of seizures were not as uncommon as in younger age groups. Most of them had an organic etiology in the form of stroke or neuro-infections. Unprovoked ones were more common in the 4th and 5th decade.

KEYWORDS

NEW ONSET OF SEIZURES, ABOVE 40 YEARS

INTRODUCTION

Seizure is a paroxysmal event due to abnormal excessive or asynchronous neuronal activity in the brain. Seizure could be acute symptomatic or unprovoked.

Acute symptomatic seizures are defined as clinical seizure occurring at the time of a systemic insult or in close temporal association with a documented brain insult. Acute symptomatic seizures are defined as those events occurring within 1 week of stroke, traumatic brain injury, anoxic/hypoxic encephalopathy, intracranial surgery; at the presence of an active central nervous system infection; in the presence of severe metabolic derangements documented within 24 hours by specific biochemical or hematologic abnormalities.

Studies have reported that 25-30% of index episode of seizures are acute symptomatic seizures. An index seizure caused by an acute disturbance of brain function has recurrence in only about 3-10% of cases.

A remote symptomatic seizure is a seizure that occurs more than 1 week following a disorder that is known to increase the risk of developing epilepsy. This type of seizure may occur a long time after the disorder. These disorders usually produce static or progressive brain lesions.

AIM AND OBJECTIVES

- To study and identify the type of seizure occurring in more than 40 years of age
- To correlate with clinical, etiological and radiological profile

METHODOLOGY

The present study was carried out among patients with new onset of seizures among patients aged > 40 years of age attending Department of General Medicine, ESIC-PGIMSIR Bangalore, between January 2019 to June 2020.

Inclusion Criteria:

- Patients aged > 40 years of age.
- Patients presenting with index episode of seizure.

Exclusion Criteria:

- Cases of seizures due to recent traumatic brain injury (< 6 months)
- Post-operative seizures (including neurosurgical procedures)
- Seizures due to obstetric causes (including eclampsia)
- Movement disorders

METHODS OF COLLECTION OF DATA

Information was collected through preformed proforma for each patient.

- All patients were interviewed as per the proforma and a complete clinical examination will be done.

- Cases of new onset seizures diagnosed with clinical history, examination, laboratory and radiological studies.

The lab investigations done were

- Complete hemogram
- Renal function test
- Serum electrolytes
- Liver function tests
- Urine routine
- Blood glucose levels / GRBS
- Serum calcium
- CT brain
- MRI brain sos
- CSF analysis sos
- MRI brain sos
- EEG sos

Results were analyzed with appropriate statistical analysis.

STUDY TYPE

Cross-sectional study

RESULTS AND DISCUSSION

Table 1: Age Wise Distribution Of Study Subjects

Age	Numbers
40-50	39
51-60	26
61-70	17
71-80	10
81-90	3
Total	95

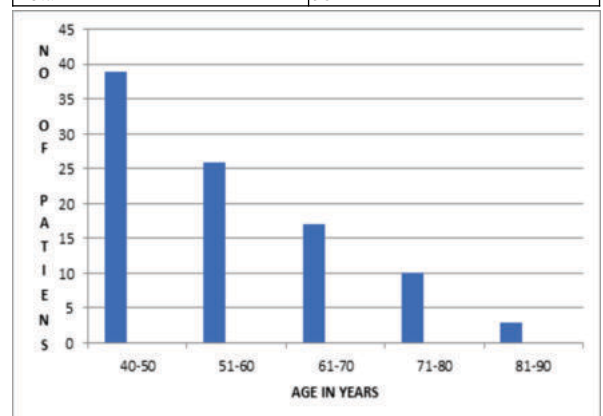


Fig 1: Age Wise Distribution Of Study Subjects

Table 2: Type Of Seizures

Type of seizure	Number
Generalized seizure	70
Focal seizure	25

Generalized seizure was the most common type of seizure (n = 70). Focal seizures ie; including both with dycognitive features and without dycognitive features were seen in 20 subjects. None of the patients in our study had absence or myoclonic seizures.

Table 3: Associated Symptoms

Associated Symptoms	Number Of Patients
No associated symptoms	45
Headache	18
Fever	8
Vomiting	3
Visual disturbances	1
Headache and fever	3
Headache, fever and vomiting	3
Headache and vomiting	12
Headache, vomiting and visual disturbances	1
Headache and visual disturbances	1
Total	95

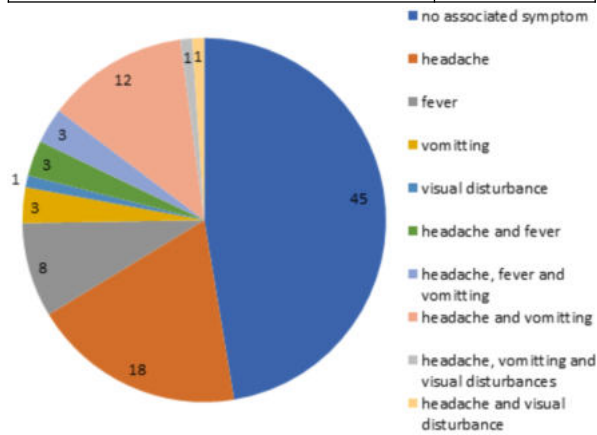


Fig 2: Associated Symptoms

Table 4: CNS Findings

CNS findings	Number
Normal	45
Altered sensorium	24
Focal deficits	13
Tremors	6
Meningeal irritation	1
Meningeal irritation with altered sensorium	3
Focal deficits with altered sensorium	1
Slurred speech	1
Cognitive decline	1
Total	95

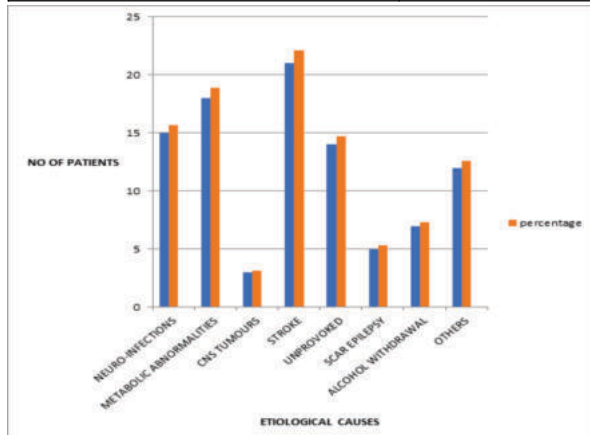


Fig 3: Etiological Profiles Of New Onset Of Seizures

Table 5: Etiological Profiles Of New Onset Of Seizures

Etiology	Number	%age
Neuroinfections	15	15.7
Stroke related	21	22.1
Metabolic	18	18.9
Alcohol withdrawal	7	7.3
Tumors and secondaries	3	3.1
Unprovoked	14	14.7
Scar epilepsy	5	5.3
Others	12	12.6
Total	95	100

Table 6: Metabolic Causes

Metabolic causes	Percentage
Hyponatremia	32
Neuroglycopenia	21.4
HHS	7
Alcoholism	25
Uremia	3.57
Hypernatremia	3.57
Hypocalcemia	3.57
Post HD	3.57

Hyponatremia (32%) accounted for the most common cause amongst metabolic causes, followed by neuroglycopenia (27%) and alcohol withdrawal (25%).

METABOLIC CAUSES

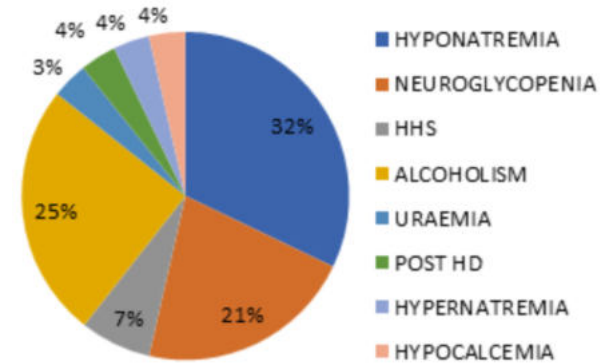


Fig 4: Metabolic Causes

Table 7: Neuroinfections

Etiology	Number	Percentage
TB meningitis	4	27
Tuberculoma	3	20
Neurocysticercosis	5	33
Bacterial meningitis	1	6
Viral meningitis	1	7
Cerebral malaria	1	7
Total	15	100

NEUROINFECTIONS

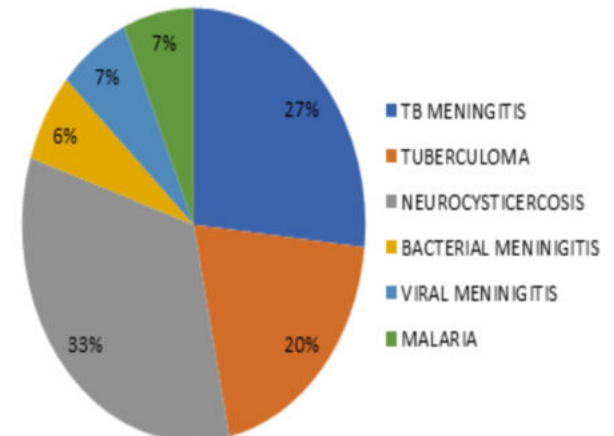


Fig. 5: Neuroinfections

Table 8: Stroke - Causes

Type	Number	Percentage
Infarct	12	52
Hemorrhage	6	26
CVT	5	22
Total	23	100

Amongst the various types of stroke, acute infarct accounted for majority of the cases (n=12), followed by hemorrhage (n=6) and CVT (n=5).

Table 9: CT Brain Findings

CT brain findings	Number	Percentage
Normal	57	60
Infarct	12	13
IC bleed	6	6
Tumour	4	4
Gliosis	6	6
Calcified granuloma	3	3
Cerebral edema	2	2
Neurocysticercosis	5	5
Total	95	100

All cases underwent CT brain. CT brain was found to be normal in 57 of them. Following which the most common finding was infarct (n=12). IC bleed and gliosis were seen in 6 cases. Neurocysticercosis was seen in 5 cases.

Table 10: MRI Brain Findings

MRI brain findings	Number	Percentage
Normal	42	51
Infarct	13	16
CVT	5	6
Tumour	4	5
Gliosis	6	7
Meningitis	7	8
Neurocysticercosis	5	6
Others	1	1
Total	83	100

Out of 95 patients, 83 underwent MRI brain. MRI brain was normal in 42 cases. Most common pathological finding was acute infarct (n=18) followed by meningitis (n=7) and gliosis (n=5). Neurocysticercosis accounted for 5 cases.

Table 11: Classification Of Seizures With Gender Relation

Statistics	Unprovoked	Remote symptomatic	Acute symptomatic	Total
No	15	10	70	95
Male (n=65)	6 (9.2%)	8 (12.3%)	51 (78.4%)	100
Female (n=30)	9 (30%)	2 (6.6%)	19 (63.3%)	100
p-value	0.212	0.233	0.0013	

Most of the patients in the study were found to have acute symptomatic seizures (n=70), out of which 51 were males and 19 were females. The results were found to be statistically significant with a p- value of 0.0013.

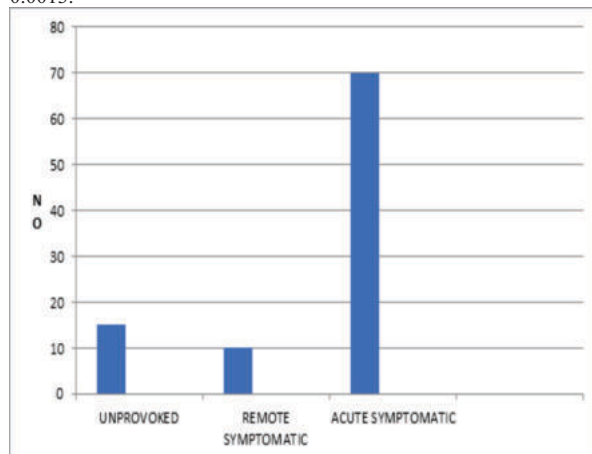


Fig. 6: Classification Of Seizures With Gender Relation

CONCLUSION

From the present study "A study of clinico-etiological profile of new onset of seizure above 40 years of age at tertiary health Centre" done at ESIC&PGIMS, Rajajinagar, the following conclusions were made.

- Mean age of the patients was 56.63 Years. All patients selected were > 40 years of age.
- Male to female ratio was nearly 2:1
- Headache was the most common associated symptom and altered sensorium which was the most common neurological abnormality
- Generalized seizures were the most common semiology occurring in 70% of the patients.
- Etiological spectrum of seizures varied from stroke, metabolic causes, neuro-infections, alcohol withdrawal, tumors and scar epilepsies.
- Metabolic and stroke accounted for 41% of the new onset acute symptomatic seizures.
- Unprovoked seizures and neuro-infections occurred mostly in the 4th and 5th decade.
- In the elderly people cerebrovascular accidents and metabolic causes were identified in majority.

SUMMARY

This observational study was done in ESIC Medical College and PGIMS, Rajajinagar to know the various etiologies of seizures occurring more than 40 years of age. 95 cases of new onset of seizures that fulfilled the criteria as mentioned in the materials and methods were included in the study.

Out of 95 patients, 65 were males and 35 were females with male to female ratio of 2:1.

All patients were selected were more than 40 years of age. Age range was from 40 to 84 years.

Generalized seizures were the most common seizure.

Unprovoked seizures were common in adults < 50 years of age.

Stroke was the most common etiology followed by metabolic causes, both accounting for 41% of the cases. Stroke appeared to be distributed among all age groups, predominantly occurring in elderly population over the age of 60 years.

Amongst metabolic causes hypoglycemia and hyponatremia were the most leading causes. Dialysis disequilibrium, uremic encephalopathy, hypocalcemia, hypernatremia and hyperglycemia were among other metabolic causes.

Alcohol withdrawal related seizures were observed mostly among the patients in the 4th and 5th decade of life. Tumors, sepsis, hypoxia, vasculitis were other causes noted under the etiological spectrum.

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