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Original Research Article

To Study the Clinical Profile & Etiology of Epilepsy in Adults of >18 Years in Southern Part of Rajasthan

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Abstract:

Background: Epilepsy describes a condition in which a person has recurrent seizure due to a chronic, underlying process. In a design to analyze etiology, it is desirable to select incident cases instead of prevalent cases. There are hardly any major incidence studies in India, which makes this study special, as it is first of its kind to evaluate etiology and clinical profile of adult onset seizures. 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.

Methods: The present study was performed on patient, admitted in department of medicine and neurology wards at R.N.T Medical College and associated group of Hospitals Udaipur (Raj.).

Results: The most common type of adult onset seizures was GTCS (51%.) Underlying cause was recognized in 52% of cases. Most common etiology of seizures with onset after 18 years age was stroke 29(29%) followed by tuberculoma 10(10%), meningioma 6(6%), neurocysticercosis 4 (4%), brain abscess 2 (2%), posttraumatic 1 (1%).

Conclusion: Seizures beginning in adult life are likely to have an identifiable cause as compared to those beginning in childhood which are more likely to be idiopathic. With a reliable history and clinical examination, if proper analysis of etiology is made with available investigations, the epilepsy can be treated accordingly, thus reducing the morbidity and mortality associated with it.

Keywords: Seizures, Etiology, Tuberculoma, Meningioma, Neurocysticercosis.

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Introduction

Epilepsy describes a condition in which a person has recurrent seizure due to a chronic, underlying process. This definition implies that a person with a single seizure, or a recurrent seizure due to correctable or avoidable circumstances, does not necessarily have epilepsy. [1]

Using the definition of epilepsy as two or more unprovoked seizures, the incidence of epilepsy is 0.3-0.5% in different populations throughout the world, and the prevalence of epilepsy has been estimated at 5-30 persons per 1000. [2]

Epilepsy refers to a clinical phenomenon than a single disease entity, since there are many forms and causes of epilepsy.

Epilepsy beginning in adult life is likely to be due to progressive brain disease as compared to idiopathic epilepsy, which has its onset in childhood or youth. [3]

With history and clinical examination, if proper analysis of etiology is made with available investigation, the epilepsy can be treated accordingly thus reducing the morbidity and mortality associated with it. It is important to consider differences among studies using prevalent cases of epilepsy and those who recruit newly diagnosed epilepsy when considering etiology.

In a design to analyze etiology, it is desirable to select incident cases instead of prevalent cases. There are hardly any major incidence studies in India, which makes this study special, as it is first of its kind to evaluate etiology and clinical profile of adult onset seizures.

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.

Material and Methods

The present study was performed on patient, admitted in department of medicine and neurology wards at R.N.T Medical College and associated group of Hospitals Udaipur (Raj.).

Sample Size: A total of 100 adult patients with new onset seizures were included in the present study.

Type of Study: It is a Prospective study

Inclusion Criteria

1. Age of onset of seizure >18 years.
2. Epilepsy diagnosed according to ILAE. (2005-09)

Exclusion Criteria

1. Age of onset of seizure <18 years.
2. Onset before 18 years of age but continued to have seizure even after 18 years.
3. Seizures due to metabolic causes.
4. Pseudoseizures**.**
5. Known case of seizure disorder
6. Movement disorders.
7. Transient ischemic attacks
8. Hyperventilation syndrome
9. Patients with insufficient clinical data for seizure diagnosis.

Data Collection: Information was collected through prepared proforma for each patient.

- All patients were interviewed as per the proforma and a complete clinical examination was done.
- Cases of new onset seizures diagnosed with clinical history, examination, laboratory and radiological studies.
- Patient demographic, social, economic and medical details were recorded in the proforma sheet.
- Results was analysed with appropriate statistical methods.

Observation

Table 1: Age Distribution

Age (years)	Number of patients	Percentage
18-29 Y	27	27%
30-39 Y	24	24%
40-49 Y	15	15%
50-59 Y	11	11%
60-69 Y	13	13%
>70Y	10	10%
Total	**100**	**100%**

The maximum number of patients were in the age group of 18-39 (27%) followed by 30-39 years(24%), the youngest was 18 years old.

Table 2: Sex Distribution

Gender	No. of Patients	Percentage of Patients
Male	59	59%
Female	41	41%
Total	**100**	**100%**

Among 100 patients 59 (59%) were male and 41 (41%) were female. In our study sex ratio was 1.4:1.

Table 3: Type of Seizure

Type of seizure	Number of Patients	Percentage
Generalized	51	51%
Focal	47	47%
Mixed	2	2%
Total	**100**	**100%**

In our study Focal seizures were noted in (47%) patients. Generalized seizures were noted in (51%) patients and mixed seizure (a combination of GTCS and other type of seizures) were noted in (2%) of patients.

Among 100 Patients, 28(28%) patients were presented with status epilepticus. Of these 19 had generalized seizures and 9 had focal seizures. 9 out of 51 patients having generalized seizures had prodromal symptoms. 10 out of 47 patients having focal seizures had aural symptoms. 88 patients in our study had post-ictal phenomenon which include confusion, disorientation, loss of consciousness, drowsiness, headache, generalized bodyache, Todd's paralysis, aphasia, amnesia and mood changes. A positive family history was noted in 5(5%) patients. There was a past history of febrile convulsion in one of our patient with idiopathic type. Now he presented with episodes of GTCS

with status epilepticus. The MRI scan brain and EEG was normal. 6 patients with Stroke epilepsy had a history of diabetes mellitus another 13 had history of essential hypertension. 13 patient who presented with epilepsy had a history of chronic headache in past.

Table 4: Neurological Deficit (N = 52)

Neurological Deficit	Number of Patients	Percentage of Patients
Left hemiparesis	10	19.2%
Left hemiplegia	16	30.7%
Right hemiparesis	19	36.53%
Right hemiplegia	6	11.53%
Paraparesis	1	1.9%

Among 100 patients 48 Patients had normal neurological examination, 52 patients had neurological deficit. Out of them 19 patients (36.53%) had right hemiparesis, 16 patients (30.7%) had left hemiplegia, 10 patients (19.2%) had left hemiparesis, 6 patients (11.53) had right hemiplegia and 1 patient (1.9%) had paraparesis.

Table 5: Brain Imaging Findings

Brain Imaging Findings	Number of Patients	Percentage of Patients
Normal Brain Image	48	48%
Infarct	18	18%
Hemorrhages	11	11%
Neurocysticercosis	4	4%
Tuberculoma	10	10%
Brain Abscess	2	2%
Subdural Hematoma	1	1%
Meningioma	6	6%
Total	**100**	**100%**

The brain imaging (CT Scan/MRI), plain and contrast (if required) was done in every patient presenting with epilepsy.

Among 100 patients 48 patients had normal brain images and 52 (52%) had abnormality in brain imaging. Out of 100 patients 18 patients (18%) had Infarct, 11(11%) patients had brain haemorrhages, 10 (10%) patients had tuberculoma, 6 (6%) had meningioma, 4 (4%) had neurocysticercosis, 2 (2%) patients had brain abscess and 1(1%) patients had subdural hematoma.

In patients with neurocysticercosis, the MRI scan features were varying. It showed single small enhancing lesion in 2 (50%) patients, multiple small dense enhancing lesions in 1 (25%) patients, multiple small ring enhancing lesions in 1 (25) patient.

In patients with post traumatic epilepsy, the CT scan showed right sided subdural hematoma in one patient.

Table 6: EEG Findings In Study Subject

EEG Findings	Number of Patients	Percentage of Patients
Normal	79	79%
Abnormal	21	21%
Total	**100**	**100%**

Among 100 patients 79 (79%) patients had normal EEG finding and 21(21%) patients had abnormal EEG finding. Among 21 patients 7 (33.3%) patients had focal EEG abnormality and 14 (66.16%) patients had generalized EEG abnormality.

Table 7: Etiology of Epilepsy

Etiology	Number of Patients	Percentage
1. Idiopathic	48	48%
2. Stroke	29	29%
Neurocysticercosis	4	4%
Tuberculoma	10	10%
Posttraumatic	1	1%
Brain abscess	2	2%
Meningioma	6	6%
Total	**100**	**100%**

Among 100 Patients, 48 (48%) Patients Etiology Could Not Be Ascertained. Among The 100 Patients, 29 (29%%) Had Stroke, 10 Patients (10%) Had Tuberculoma, 6 Patients (6%) Had Meningioma And 4 Patients (4%) Had Neurocysticercosis, 2 Patients (2%) Had Brain Abscess And 1 Patient (1%) Had Posttraumatic Etiology. Out Of 29 Patients Of Epilepsy Due To Stroke 18 (62%) Patients Had Stroke And 11(38%) Patients Hemorrhage.

Table 8: Etiology of Generalized Seizures N = 51

Etiology	Number of Patients	Percentage
1. Idiopathic	29	56.8%
2. Stroke	16	31.37%
3. Neurocysticercosis	1	1.96%
4. Tuberculoma	2	3.9%
5. Posttraumatic	1	1.96%
6. Meningioma	2	3.9%

Among 100 patients, 51 (51%) patients had generalised seizures. Among 51 Patients 29(56.8%) patients etiology could not be ascertained. Among the 51 patients, 16 (31.37%) had Stroke, 2 (3.9%) Patients had tuberculoma, 2 patients (3.9%) had meningioma and 1 patients (1.96%) had neurocysticercosis, and 1 patient (1.96%) had posttraumatic etiology.

Table 9: Etiology of Focal Seizures N = 47

Etiology	Number of Patients	Percentage
1. Idiopathic	17	36.17%
2. Stroke	13	27.65%
3. Neurocysticercosis	3	6.3%
4. Tuberculoma	8	17.02%
5. Brain abscess	2	4.25%
6. Meningioma	4	8.5%

Among 100 patients, 47 (47%) patients had focal seizures. Among 47 Patients 17(36.17%) patients etiology could not be ascertained. Among the 47 patients, 13 (27.65%) had stroke, 8(17.02%) Patients had tuberculoma, 4 patients (8.5%) had meningioma and 3 patients (6.3%) had neurcysticercosis, and 2 patient (4.25%) had brain abscess etiology.

Discussion

It is a well-known fact that as one enters adult life, focal seizures with or without secondary generalization becomes the predominant seizure type. In the current study as well, focal seizures with or without secondary generalization accounted for 47% of the cases. Generalized seizures accounted for 51% of cases. In 2% of patients a combination of generalized seizures with other seizures were observed, and the etiology in this group was adult onset idiopathic type. In similar study by G. Sendil et al (2014) most common seizures type was GTCS (64.6%). [4]

In our study, idiopathic epilepsy (48%) was the commonest cause, followed by stroke epilepsy (29%), tuberculoma (10%), brain tumor (6%), neurocysticercosis (4%), posttraumatic (1%), brain abscess (2%). Most of the patients with idiopatihic epilespsy had generalized seizures, whereas majority of patients with neurocysticercosis (75%) Stroke epilepsy (46.42%) tuberculoma (80%), brain tumor (66.66%), and brain abscess (100%) had focal seizures. Some of them had progressed to secondary generalization. All patients with post traumatic epilepsy had generalized seizures. Similar result were seen by G. Sendil et al (2014). [4]

Author		Jag Mohan Kumar et al[5] (2017)	G Sendil et al[4](2014)	Pradeep et al[6](2004)	Present Study
Total cases		60	50	50	100
Idiopathic	No cases	8	16	22	48
	%	13.33%	32%	44%	48%
Stroke	No cases	6	16	10	29
	%	10%	47.05%	20%	29%
NCC	No cases	30	1	6	4
	%	50%	2.94%	12%	4%
Tuberculoma	No cases	12	-	3	10
	%	20%	-	6%	10%
Post trauma	No cases	-	-	3	1
	%	-	-	6%	1%
Brain tumour	No cases	2	3	2	6
	%	3.33%	8.84%	4%	6%
Brain abscess	No cases	2	-	-	2
	%	3.33%	-	-	2%
Vascular Malformation	No cases	-	-	2	-
	%	-	-	4%	-
Medial Temporal Lobe Sclerosis	No cases	-	-	2	-
	%	-	-	4%	-
Metastasis	No cases	-	3	-	-
	%	-	8.84%	-	-
Metabolic	No cases	-	7	-	-
	%	-	20.58%	-	-
Infection	No cases	-	4	-	-
	%	-	11.76%	-	-

In a study of 250 patients with Late Onset Seizures by perez Lapez et al (1985), Etiology was identified in 201 patients with most frequent cause being chronic alcohol abuse (24.8%) followed by tumor (16.4%), Post stroke (13.2%) and post traumatic (11.2%). [7]

In a study of 248 patients by Martinex et al (1998) Spain, with age of onset after 20 years the most frequent etiologies were stroke (26.2%), tumors (26.2%), unknown (24.6%) and chronic alcoholic intake (18.5%). Stroke was the most common etiology in patients over 60 yrs of age. [8]

As per the study of Srinivas P. Prasad et al (2003) etiology of epilepsy was CVA (40%), Space occupying lesion (12%) metabolic (12%). [9]

In another study Jimenez et al (1990) etilogy was unknown in 51.3% of cases. The most common identified cause was CVA (20%), chronic alcohol abuse (10%), tumor (6.3%), NCC (6.3%) and post traumatic (2.5%). [10]

In our study 52 patients had neurological deficit out of which 19(63.53% patients had right hemiparesis followed by left hemiplegia 16 (30.7%) followed by left hemiparesis 10 (9.2%) and 6 (11.53%) patients had right hemiplegia and 1 (1.9%) patients had paraparesis. In study by G sendil et al (2014) 9 patients had abnormal neurological examination of which 5 (55.55%) patients hed left hemiparesis and 2 (22.22%) patients had right hemiparesis and 2 (22.22%) had aphasia.[4]

In our study 21 patients had abnormal EEG finding out of which 7(33.33% patients had focal EEG abnormalities and 14 (66.66%) patients had generalized EEG abnormalities. In study by G Sendil et al (2014) 16(32%) patients had EEG abnormalities among them 7(14%) patients had focal EEG abnormalities and 9 (18%) patients had generalized EEG abnormalities. [4]

In our study among 100 patients 48 patients had normal brain images and 52 (52%) had abnormality in brain imaging. Out of 100 patients 18 patients (18%) had Infarct, 11(11%) patients had brain haemorrhages, 10 (10%) patients had tuberculoma, 6 (6%) had meningioma, 4 (4%) had neurocysticercosis, 2 (2%) patients had brain abscess and 1(1%) patients had subdural hematoma.In study by Shridhar MD, et al (2016) most common imaging finding was infarct presenting in 13(31%) patients and neurocysticercosis and tuberculoma presenting in 2 (4.8%) patients.[11]

Conclusion

The most common type of adult onset seizures was GTCS (51%.) Underlying cause was recognized in 52% of cases. Most common etiology of seizures with onset after 18 years age was stroke 29(29%) followed by tuberculoma 10(10%), meningioma

6(6%), neurocysticercosis 4 (4%), brain abscess 2 (2%), posttraumatic 1 (1%). Seizures beginning in adult life are likely to have an identifiable cause as compared to those beginning in childhood which are more likely to be idiopathic. With a reliable history and clinical examination, if proper analysis of etiology is made with available investigations, the epilepsy can be treated accordingly, thus reducing the morbidity and mortality associated with it.

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