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Original Article

Study of Etiological Causes of New Onset Seizure with Special Reference to Types of Seizure

Authors
Dr Shishir Pandey[1], Dr Manoj Kumar Kushwaha[2], Dr M.H.Usmani[3], Dr Rakesh Patel[4], Dr Manoj Indurkar[5]
Department of Medicine, Shyam Shah Medical College Rewa (M. P.), India
Corresponding Author
Dr Shishir Pandey
Department of Medicine, Shyam Shah Medical College Rewa (M. P.), India
Email: *shishir.pandey2001@gmail.com*, Cell: 7354708185

ABSTRACT

INTRODUCTION: *Etiological spectrum of acute symptomatic seizures in developing countries is different from developed countries. The major etiological risk factors were central nervous system (CNS) infections (32%), metabolic disorders (32%) and cerebrovascular diseases (21%).[1] Presently CNS infections like malaria, meningitis, tuberculosis, Human Immunodeficiency Virus (HIV) and neurocysticercosis account for significant number of cases in developing countries.[2] Since these infections vary from region to region; etiology of seizure may also vary from region to region.*

AIMS AND OBJECTIVE: *1.To study the etiological profile of new onset seizures.*
2. To study the distribution of various types of seizures and its correlation with etiological profile.

MATRIALS AND METHODS: *100 patients admitted with new onset seizures from the hospital attached to S. S. Medical College, REWA and study conducted from july 2014 to October 2015. Eyewitness and patient are interviewed regarding seizure and clinical examination and routine investigation done, with special investigation like CT, MRI, EEG in selected cases. Result was analysed statically and mean and standard deviation was calculated.*

RESULT: *Neuroinfections were the leading cause of seizure, which accounted for 31%, followed by Cerebrovascular accidents 26%, metabolic 22%, Idiopathic 10%, Tumours 6% and miscellaneous causes 5%.The most common cause for GTCS (83% of all cases) was CVA in (30.12%) followed by neuroinfection in (26.5%), metabolic in (20.48%), idiopathic in (12.04%), miscellaneous in (6.02%) and least common was tumours (4.8%). Type of seizures in Neuroinfection patients were GTCS in (70.96%) followed by Focal Seizures without dyscognitive features in (16.12%) and Focal Seizures with dyscognitive features in (6.45%). CVA patients presented with GTCS in (96.15%) followed Focal Seizures without dyscognitive features (3.84%). Metabolic seizures presentimg as GTCS were 77.27% followed by Focal seizure with secondary generalisation (13.63%). Tumours presenting with GTCS were 66.66%, followed by Focal Seizures without dyscognitive features in 16.66% of cases and Focal Seizures without dyscognitive features in 16.66% of cases. All of the idiopathic seizures and seizures in Poisoning were GTCS.*

CONCLUSION: *Neuroinfection (31%) were the leading cause of new onset seizure which mainly present as focal seizure. CVA (26%) is second most common cause which mainly present as GTCS. Also Neuroinfection can be easily prevented by maintaining good hygiene, sanitary conditions and avoiding open defecation.*

KEYWORDS: *Seizure, neuroinfection, GTCS, focal seizure.*

INTRODUCTION

About 65 million people worldwide have epilepsy and nearly 80 per cent of the person with epilepsy (PWE) live in developing countries, where annual new cases occur between 40 to 70 per 100,000 people in the general population. The estimated proportion of the general population with active epilepsy at a given time is between 4 to 10 per 1000 people. However, some of the studies from developing countries suggest that the proportion is between 6 to 10 per 1000 [3]. It is estimated that there are more than 10 million PWE in India.

Etiological spectrum of acute symptomatic seizures in developing countries is different from developed countries. The major etiological risk factors were central nervous system (CNS) infections (32%), metabolic disorders (32%) and cerebrovascular diseases (21%).[1] Presently CNS infections like malaria, meningitis, tuberculosis, Human Immunodeficiency Virus (HIV) and neurocysticercosis account for significant number of cases in developing countries.[2]

Various etiology present with different seizure type eg. Focal seizure are more common in neurocystecercosis which comes under focal infection[4], GTCS are more common in cerebrovascular accident and other systemic disease which involve both hemisphere of brain[5].

Hence this study was done to find out preventable etiology of new onset seizure and to identify various etiology with seizure type and to procced in right direction of investigation.

MATRIALS AND METHODS

100 patients admitted with new onset seizures from the hospital attached to S. S. Medical College, REWA. Study was done for 1 year from 2014-2015. Patients presenting with history of new onset seizures were included in the study. Patient and eyewitness were interviewed regarding history, and clinical examination was done as mentioned in proforma.

The investigations included haemoglobin level, total count, differential count, ESR, urine routine, blood urea, serum creatinine, blood glucose levels, liver function test and estimation of serum electrolytes like sodium and potassium.

Special investigations like lumbar puncture, serological tests, CT scan or MRI brain, EEG were done in selected cases. The collected data was analysed using the computer programme Statistical Package for Social Sciences (SPSS 11.0) and Systat 8.0. Microsoft word and Excel have been used to generate tables etc.

Descriptive analysis was used to compute percentage, to calculate Mean and Standard deviation.

OBSEERVATION:

Table:1 Distribution according to etiology of seizure:-

ETIOLOGY	Number and %
1.Neuroinfection (n=31)	31
2.Cerebrovascular Accidents (n=26)	26
3.Metabolic (n=22)	22
4.Idiopathic (n=10)	10
5.Tumours (n=6)	6
6.Miscellaneous (n=5)	5
TOTAL	100

n=100

Neuroinfections were the leading cause of seizure, which accounted for 31%, followed by Cerebrovascular accidents 26%, metabolic 22%, Idiopathic 10%, Tumours 6% and miscellaneous causes 5%.

Neuroinfection occurred in 15% cases in study by Hauser[6] et al, 32% cases in a study by Narayanan JT and Murthy JMK[5], 39.70% cases in study by Sudhir chalasani[7] et al and 38 % cases in study by Quraishi[8] et al. In the present study etiology is comparable to Indian studies.

In the present study, CVA occurred in 26% cases which was comparable to study by Hauser[6] et al in which CVA occurred in 18% cases. Similar results were found in study by Narayanan JT and Murthy JMK[5], Sudhir Chalasani[7] et al and Quraishi[8] et al in which CVA occurred in 21%, 26.5% and 30% subjects respectively.

Metabolic cause was responsible for seizures in 10% of cases in Hauser [6] et al study, 32% in Narayanan JT and Murthy JMK[5] study, 15.30% in Sudhir Chalasani[7]et al study and 2% in Quraishi[8]

et al study. In the present study it accounted for 22% of cases.

Idiopathic cause was found in 12.20% of patients in Sudhir Chalasani[7] et al study and 20% in Quraishi[8] et al study. In the present study, 10% of cases were found to be idiopathic.

Tumours occurred in 13% cases in study by Hauser[6] et al, in 3% in study by Sudhir Chalasani[7] et al and in 2% in study by Quraishi[8] et al. In the present study, tumours were found to be responsible for seizures in 6% of cases. The findings of the present study are well in conformity of above mentioned studies.

Table:2 Association for etiology and type of seizures :-

ETIOLOGY	TYPES OF SEIZURES					TOTAL
	GTCS	Focal seizure with secondary generalisation	Focal Seizures without dyscogniti-ve features	Focal Seizures with dyscognit-ive features	Status epilepticus	
Neuroinfection	22	-	5	2	2	31
CVA	25	-	1	-	-	26
Metabolic	17	3	-	-	2	22
Idiopathic	10	-	-	-	-	10
Tumours	4	-	1	1	-	6
Misc.	5	-	-	-	-	5
TOTAL	83	3	7	3	4	100

The most common cause for GTCS (83% of all cases) was CVA in (30.12%) followed by neuroi-nfection in (26.5%), metabolic in (20.48%), idiopathic in (12.04%), miscellaneous in (6.02%) and least common was tumours (4.8%).

Neuroinfection was most common cause of Focal Seizures without dyscognitive features (7% of all cases), status epilepticus (4% of all cases) and Focal Seizures with dyscognitive features (3% of all cases). Focal seizure with secondary generalization found in 3% of cases, were mostly due to metabolic causes.

Type of seizures in Neuroinfection patients were GTCS in (70.96%) followed by Focal Seizures without dyscognitive features in (16.12%) and Focal Seizures with dyscognitive features in (6.45%). CVA patients presented with GTCS in (96.15%) followed Focal Seizures without dyscognitive features (3.84%). Metabolic seizures presentimg as GTCS were 77.27% followed by Focal seizure with secondary generalisation (13.63%). Tumours presenting with GTCS were 66.66%, followed by Focal Seizures without dyscognitive features in 16.66% of cases and Focal Seizures without dyscognitive features in 16.66% of cases. All of the idiopathic were GTCS.

In Quraishi[8] et al study 78% 0f patients presented with GTCS and 22% of patients present with Focal Seizures.

In Sudhir Chalasani[7] et al study 43.87% 0f patients presented with GTCS and 56.13% of patients present with Focal Seizures.

In Narayanan and Murthy JMK[5] et al study 55% of patients presented with GTCS and 45% of patients with Focal Seizures. Status Epilepticus occurred in 10 % in a study by Narayanan JT and Murthy JMK[5], in 11.2 % in Sudhir Chalasani[7] et al study and 4 % in Quraishi[8]et al study.

The findings of the present are in accordance to above mentioned studies.

CONCLUSION

Neuroinfection (31%) were the leading cause of new onset seizure which mainly present as focal seizure. CVA (26%) is second most common cause which mainly present as GTCS,. also Neuroinfection (31%) can be easily prevented by maintaining good hygiene, sanitary conditions and avoiding open defecation and regular deworming of population, hence major burden of seizure disorder is preventable.

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