



ETIOLOGICAL PROFILE AND CLINICAL SPECTRUM OF SEIZURES IN CHILDREN ADMITTED IN A TERTIARY CARE HOSPITAL IN A NORTHERN DISTRICT OF WEST BENGAL, INDIA

Paediatrics

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ABSTRACT

Seizure is one of the common and frightening symptoms presenting in paediatric emergency. Recognition and determination of various aetiologies still remain difficult job. Prompt recognition and understanding proper aetiologies and adequate treatment have long term effect in the child's prognosis. The epidemiological trends, various clinical spectrum, aetiologies and outcome of seizure in this study have been evaluated thoroughly. There are very few studies in this region of West Bengal regarding this. **Methodology:** This observational-prospective study was done at Malda Medical College & Hospital in the department of paediatrics. Consecutive 250 children of 2 months to 12 years age admitted with history of seizure were included randomly. Their epidemiological trends, various symptomatology, clinical examination findings, laboratory investigations results & outcomes were assessed from admission to discharge. **Results:** 250 cases were included in our study. Out of which, 58% was boys and girls were 42%. The incidence of seizure was highest in the age group of 2 months to 1 year (39.6%). The commonest type of seizure was generalized tonic clonic seizure (94.8%), followed by Focal (2.4%), Infantile spasm (2%), Myoclonus (0.8%). Fever (66.8%), altered sensorium (64.4%), vomiting (41.2%) were the common associated symptoms. 67 patients underwent EEG of which 46 recordings were suggestive of Generalised cerebral dysrhythmia and 5 had hypsarrhythmia. In our study most common cause of seizure was febrile seizures (28.8%). Of the 67 cases of febrile seizure, 14 cases had a family history.

KEYWORDS

Seizures, Febrile seizure, Cerebral Palsy, CSF, EEG

INTRODUCTION

Seizure is one of the common and frightening symptoms presenting in paediatric emergency. Recognition and determination of various aetiologies still remain difficult job. Prompt recognition and understanding proper aetiologies and adequate treatment have long term effect in the child's prognosis.

A seizure is a transient occurrence of signs and/or symptoms resulting from abnormal excessive or synchronous neuronal activity in the brain. Seizures are one of the most common paediatric neurologic disorders with 4% to 10% of children suffering at least once seizure in the first 16 years of lifespan. The incidence is highest in children below 3 years of age. The epidemiological trends, various clinical spectrum, aetiologies and outcome of seizure in this study have been evaluated thoroughly. There are very few studies in this region of West Bengal regarding this.

This observational-prospective study was done at Malda Medical College & Hospital in the department of paediatrics. Consecutive 250 children of 2 months to 12 years age admitted with history of seizure were included randomly. Their epidemiological trends, various symptomatology, clinical examination findings, laboratory investigations results & outcomes were assessed from admission to discharge.

As per evaluating the number of seizure cases per year admitted in children ward in the last years, 250 randomly selected seizure cases has been taken during the study period considering the time and logistical facilities at our disposal.

Inclusion Criteria:

Patients aged between 2 months to 12 years of either sex with history of seizure willing to participate in the study.

Exclusion Criteria:

- History of traumatic brain injury
- Seizure cases with any surgical intervention
- Expired within 24 hours of admission
- Seizure cases who went discharge against medical advice (LAMA)
- Conditions mimicking seizures

Table – 1 Neuroimaging Findings

Findings	No of cases	Percentage
Normal	171	68.4
Cerebral atrophy	43	17.2
Cerebral oedema	19	7.6

Basal exudates	03	1.2
Hydrocephalus	02	0.8
Infarct	02	0.8
Ring enhancement	06	2.4
Tumour	01	0.4
Abscess	02	0.8
Demyelination	01	0.4

Table – 2 Aetiology Of Seizures Age-groupwise

Aetiology	2m-1 y	1y -5 y	5 y- 12 y
Simple Febrile seizures	16	25	05
Complex Febrile Seizures	11	10	00
Cerebral Palsy	24	19	04
Acute Viral encephalitis	10	10	12
Pyogenic Meningitis	21	06	03
NCC	01	00	05
Epilepsy	09	15	16
Tubercular Meningitis	00	00	03
West Syndrome	04	01	00
Others	03	07	10

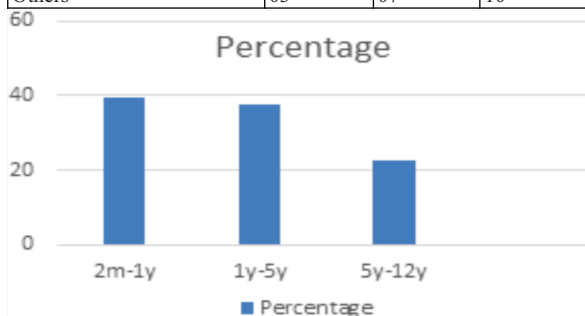


Figure 1: Incidence of seizures in different age groups (%)

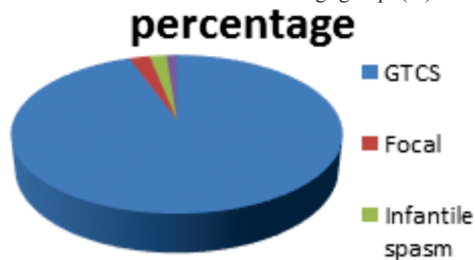


Figure 2: Types of seizures

Table 3 : Aetiology Of Seizures :

Aetiology	No of Cases	Percentage
Simple Febrile Seizure	46	18.4
Complex Febrile Seizure	21	8.4
Cerebral Palsy	47	18.8
Pyogenic Meningitis	30	12
Acute Viral Encephalitis	32	12.8
Epilepsy	40	16
MISC-Encephalopathy	07	2.8
Scrub typhus Encephalopathy	08	3.2
Ring enhancing lesion	06	2.4
TBM	03	1.2
Brain Abscess	01	0.4
West Syndrome	05	2
ADEM	01	0.4
Stroke	01	0.4
Hypertensive Encephalopathy	01	0.4
Tumor	01	0.4

Case Study

- Among the 250 children who were analysed for our study, the incidence of seizure was highest in the age group of 2 months to 1 year (39.6%).
- The occurrence of seizures was high in boys, 58% compared with girls 42%.
- The most common type of seizure was Generalize tonic clonic seizure 94.8%, followed by Focal 2.4%, Infantile spasm 2%, Myoclonus 0.8%.
- Fever (66.8%), altered sensorium (64.4%), vomiting (41.2%) were the common associated symptoms. Other symptoms included Irritability (22%), lethargy (28.8%), headache (16%).
- 45.2% cases had past history of seizures and 16.8 % had family history.
- 34.8% cases had delayed developmental history.
- The commonest neurological sign was altered sensorium (64.4%), meningeal irritation signs were present in 21.2% cases, motor weakness was found in 27.6% of children, 0.8% cases had cranial nerve involvement.
- Metabolic abnormalities like hypoglycaemia and hypocalcaemia were seen in 6.4% and 10% cases respectively.
- CSF analysis was performed most of the 250 cases except simple febrile seizures.
- CSF sugar was low in 10% cases, protein was elevated in 31.2% cases and pleocytosis was seen in 30% cases.
- Neuroimaging was done in 204 cases. The abnormalities like cerebral atrophy (17.2%) cases, cerebral oedema (7.6% cases), basal exudate (1.2), ring enhancing lesions 2.4% and infarct in 0.8% cases were found.
- 67 patients underwent EEG of which 46 recordings were suggestive of Generalised cerebral dysrhythmia and 5 had hypersarhythmia.

CONCLUSIONS

We Seizures are usually a manifestation of underlying systemic especially CNS pathology. From different literature it is found that 4-10% cases of total admission in door of paediatric ward are seizures.

In our hospital where the study conducted, 12.2% cases of total admission presents with seizures in paediatric ward. Age plays an important role in the aetiology of seizures. In our study we found more number of seizure cases in the age below 5 years but especially in 2months to 1 year age group.

The incidence of seizures in this study was more in boys, accounting 145 cases (58%). The commonest type of seizures was GTC 237(94.8%). Most of them presented with fever (66.8%), altered sensorium (64.4%). The commonest neurological sign was altered sensorium (64.4%), meningeal irritation signs were present in 21.2% cases.

During the course of the study, we had found that most common cause of seizures admitted in paediatric ward was febrile seizures (26.8%). Of the 67 cases of febrile seizure, 14 cases had a family history. Cases of cerebral palsy (18.8%) were quite high in our hospital. Cases of epilepsy was found to be 16%. Other aetiologies include acute viral encephalitis (12.8%), pyogenic meningitis (12%), MISC-Encephalopathy (2.8%). In our hospital area, scrub typhus infection is worth mentioning and 3.2% cases out of 250 cases were noted.

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