Original Article

A Study Of Childhood Seizures And Incidence Of Findings In EEG And Neuro Imaging And In A Tertiary Care Hospital In A Sub Urban Population

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Abstract

Background: It is a transient occurrence of symptoms and signs resulting from abnormal synchronous or excessive neuronal activity in the brain.Our study is focused on incidence of seizure in pediatric age group and associated changes in EEG and neuro imaging in indian population .

Aims :To assess childhood seizures and incidence of-findings in EEG and neuro- imaging in a tertiary care hospital in a sub urban population.

Materials and Methods: The study was conducted in 50 children presented with unprovoked afebrile seizures, investigations were done and data was collected. SPSS 24was used for statistical analysis of results

RESULTS : Among the 50 children with unprovoked afebrile seizures, 70% of patient had generalised seizures and 30% patient had partial seizures.82 % had EEG abnormality

ConclusionThere is higher correlation between neuroimaging abnormality and focal Electroencephalogram changes in partial seizures when compared to generalised seizures. Electroencephalogram and Neuroimaging are mandatory tool in evaluating Children with afebrile seizures.

Key words: Seizures,Neuroimaging,EEG Findings.

Introduction: A seizure is a transient occurrence of symptoms and signs resulting from abnormal synchronous or excessive neuronal activity in the brain.[5] In the general population around 5 percent children in pediatric age group experience seizure . Various studies tried to show correlation between seizure activity and investigations like EEG , MRI brain , CTbrain . Ramesh Baheti et al.,[1]did a study in CT and EEG admitted in rural indian population , he observed that the more finding in EEG there was higher chances for abnormalities to be observed in CT scan . Studies done by Shinnar S et al 2showed changes in neuro imaging in 411 children with afebrile seizure , he concluded in his study that neuroimaging should be considered in all cases who had a episode of afebrile seizure . Our study aims at finding changes in EEG and neuro imaging changes in seizure disorder in a Indian population.

Aims & Objectives of the study: To assess childhood seizures and incidence offindings in EEG and neuro imaging in a tertiary care hospital in a sub urban population.

Materials and Methods: This was a study done in 50 children with unprovoked afebrile seizures in department of Pediatrics in Meenakshi Medical College Hospital and Research Institute, a tertiary care teaching hospital located inEnathur, Kanchipuram. , after getting necessary permission and ethical committee clearance, type of seizure was recorded according to international classification of epileptic seizure. EEG recording, CT scan / MRI scan are done in all patients , data was recorded .Statistical analysis was done using SPSS24**.**

Tools used: EEG,CT MRI

Results:

Table I- Age wise distribution of patients in each group.

AGE GROUP	TOTAL	GENERALISED SEIZURES n=35		PARTIAL SEIZURE n=15	
	n=50	Mean age	SD	Mean age	SD
		4.82	3.75	5.28	3.58
1M-4 YRS	27	20		7	
5-8 YRS	14	8		6	
9-12 YRS	9	7		2	
TOTAL	50	35		15	

In our study Seizures more commonly seen in the age group 1

Table II - EEG FINDINGS

SEIZURE TYPE	ABNORMAL	NORMAL	TOTAL
GENERALISED	30(85.7%)	5(14.3%)	35
PARTIAL	11(73.3%)	4(26.7%)	15
TOTAL	41(82%)	9(18%)	50(100%)

In our study 82% patients have EEG abnormality . Most common type observed was generalized (85.7%) .

Table III: GENERALISED AND FOCAL EEG CHANGES INGENERALISED & PARTIAL SEIZURES

SEIZURE	Generalised EEG Activity	Focal EEG Changes	Total EEG changes	Normal EEG
GENERALISED	23	7	30	5
PARTIAL	2	9	11	4
TOTAL	25(50%)	16(32%)	41	9(18%)

There is significant higher incidence of generalized EEG changes in generalized seizures when compared to partial seizures group.P value-0.012

TABLE IV: CT FINDINGS IN GENERALISED AND PARTIALSEIZURES

Seizures	NORMAL	ABNORMAL	TOTAL
GENERALISED	28	2	30
PARTIAL	8	6	14
TOTAL	36	8	44

There is significant higher incidence of abnormal CT imaging among thepartial seizures P value is 0.008

Table:V.NEUROIMAGING IN GENERALISED & PARTIALSEIZURES(CT/MRI)

Seizures	Normal neuro imaging	AbNormal neuro imaging	Total
Generalised Seizures	32(92%)	3(8%)	35

Partial seizures	9(60%)	6(40%)	15
Total	41(82%)	9(18%)	50(100%)

In our study 40 % of the patient with partial seizures have Neuroimaging abnormality.
P value is 0.00803. The result is statistically significant. There is high correlation between partial seizures and abnormal Neuroimaging.

Discussion: The study was conducted in 50 children admitted in pediatric ward with afebrile seizure . in our study 82 percent patients with seizure disorder had EEG abnormality , Similar finding were seen in studies done by Ramesh Baheti etal[1] in rural india were there was 76.9% EEG abnormality in study group with seizure . There was 40 percent among partial seizure cases had abnormality in CT findings . Similar findings were seen in studies done by Mira etal [3] and Hussain Jagar et al[4] were he observed 75% abnormality in CT findings in his study group. Our study showed a strong correlation between neuro imaging abnormality and focal EEG changes in partial seizures as compared to generalized seizures .

Conclusion: There is higher correlation between neuroimaging abnormality and focal Electroencephalogram changes in partial seizures when compared to generalised seizures. Electroencephalogram and Neuroimaging are mandatory tool in evaluating Children with afebrile seizures.

Conflicts of interest: Nil

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