

EEG study of patients of dissociative convulsion attending psychiatry department of PMCH PATNA

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Abstract

Introduction: The prevalence of PNES has been estimated between 2 to 33 per 100,000 persons For better understanding of disease EEG findings have been evaluated in patients of Dissociative convulsion disorder and have been compared these findings with EEG of normal healthy population.

Materials and Methods: Thirty patients diagnosed with dissociative convulsion according to ICD10-Classification of Mental Health and Behavioural Disorder and meeting the inclusion and exclusion criteria, visiting the OPD of PMCH, Patna, either as out-patients or on an inpatient basis, were taken as subjects. These patients were been compared with EEG of thirty normal individual's (standardized with age and sex).Result: There were spikes in 3 , sharp waves in 4 , polyspike and waves in 2 , and Slow waves in 3 from case sample.Apart from this we also observed spikes in 1,sharp waves in 1,polyspike in 1,and slow waves in 1 from control group. We also found few patients showed greater than one abnormality while no control showed greater than one abnormality. we observed that there

were overall 6 patients who showed abnormal findings in EEGs also there were 4 controls who showed any type of abnormality in their EEGs after comparison we found statistically non-significant difference between these two groups.

Conclusion: We found EEG abnormality in patients of dissociative convulsion but a very few healthy people also show these abnormality so these EEGs abnormalities could not be considered specific to dissociative convulsion.

Keywords: ICD10, FND,PNES,EEGs

Introduction

Functional neurological disorder (FND; conversion disorder) is a neurobehavioral condition at the intersection of Neurology and Psychiatry, and is closely linked to the origins of both specialties. They are more prevalent in developing countries compared to the developed western countries. ¹Based on several population-based studies, the estimated incidence rate ranges from 1.5 to 5 per 100,000 persons per year ²⁻³. The prevalence of PNES has been estimated between 2 to 33 per 100,000 persons ⁴. Chaturvedi SK⁵, found

among dissociative patients majority of them were with dissociative motor disorder followed by dissociative convulsions. Female preponderance was seen across all sub-types of dissociative disorder except dissociative fugue. Ganguly H C in India reported prevalence rate of 3.3 per 1000 population⁶. Reddy M V and Chandrashekar CR reported prevalence of 4.5 per 1000 for conversion disorder⁷. The largest study of adults with dissociative seizures, (Laurs H Goldstein et al, DOI 10.1111/epi.16350) the overall modal age at dissociative seizure onset was 19 years, Although 74% of the sample was female. The frequency of self-reported previous epilepsy was 27%; nearly half of these epilepsy diagnoses were retrospectively considered erroneous by clinicians. Yogesh Patidar, et al found 79.36% of PNES of which 44% were initially diagnosed and treated as epilepsy. Remaining 20.63% patients with coexisting epilepsy. 11.36% of PNES patients showed non-specific EEG abnormalities and none with epileptiform discharges. Abnormal non-epileptiform inter-ictal EEG (46-54%)⁸ are not uncommon in PNES patients without coexisting epilepsy. Most studies have reported a mean delay of 1.5-9 years⁹. P. DE TIMARY et al found Interictal EEG abnormalities in 16% of NES patients while 80% in NES + ES patients. Markus Reuber et al observed that 92.9% of patients in the PNES+E and 53.8% in the PNES only group had one or more abnormal EEGs. In the PNES only group, EEG changes were nonspecific in 42.3% of patients. In this study, 18% of patients and 10% of controls had abnormal EEGs. The frequency of epileptiform EEG changes was similar to that in previous population studies in both groups (2.0%). More than 10% of normal people may have non-specific EEG abnormalities and approximately 1% may have 'epileptiform paroxysmal activity' without

seizures¹⁰. The prevalence of these abnormalities is higher in children, with 2-4% having functional spike discharges¹¹. Considering the fact that some EEG changes may also be found in dissociative convulsion, we planned to do this study to find out EEG changes in dissociative convulsion.

Materials and Methods

Cooperative individuals aged between 10-40 years diagnosed as dissociative convulsion according to ICD10- Classification of Mental Health and Behavioural Disorder in Department of Psychiatry, PMCH, Patna as out-patients or admitted on an in-patient basis were taken as sample. Normal healthy asymptomatic male/female aged between 10-40 years and Cooperative were taken as control group. Individuals with any other psychiatric co-morbidity or other features of organic brain syndrome, Individuals with memory deficit, delirium, Presence of focal neurological deficits, History of mental retardation, Individuals with significant physical illness, Visual or hearing or sensory deficits, Individuals with substance abuse/dependence disorder, Individuals diagnosed earlier with epilepsy were excluded from sampling. A written informed consent was taken for participation after explaining the purpose and design of study. Prior to consent, the participants were informed that refusal to participate will not affect the course or further management adversely. Clinical history was obtained by reliable and adequate informant, physical and mental illness examination was done thoroughly and diagnosis is confirmed by consultant psychiatry department of PMCH Patna. These patients were evaluated for EEG findings.

Result

There were 24 females and 6 males in both case and control group. Out of 30 patients ^{Half} of the total patient

were found less than of 20 years. This group was closely followed by age group less than 30 years. Summing up of two group constitute 83.3 % of patients were from 10 to 30 years. Means age of patient was 21.6+- 1.4 years. There was no significant difference for age distribution between case and control group.

Out of 30 patients we found spikes in 3 patients and in 1 from control group out of 30 normal people.

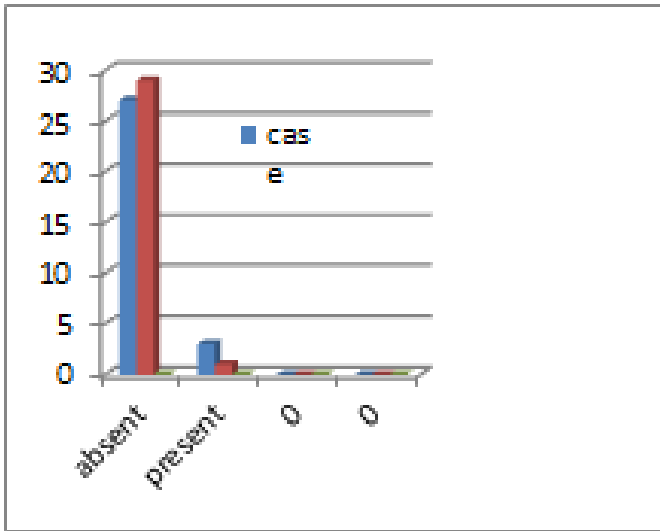


Figure 1
Graphical presentation of Spikes between case and control

Out of 30 patients we found sharp waves in 4 patients and 1 in control group.

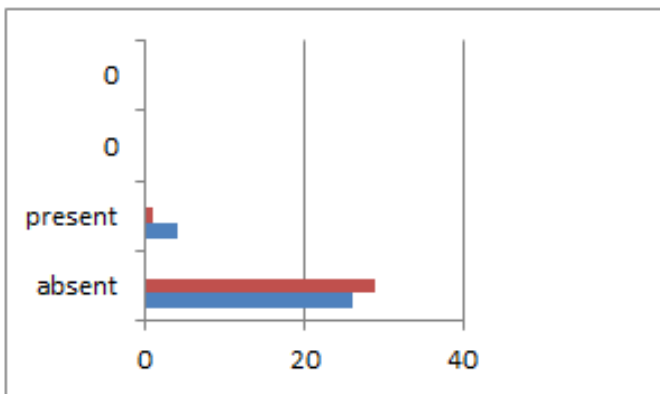


Figure 2
Graphical presentation of Sharp waves between case and control

We found polyspike and waves in 2 patients out of 30 patients and in 1 healthy group.

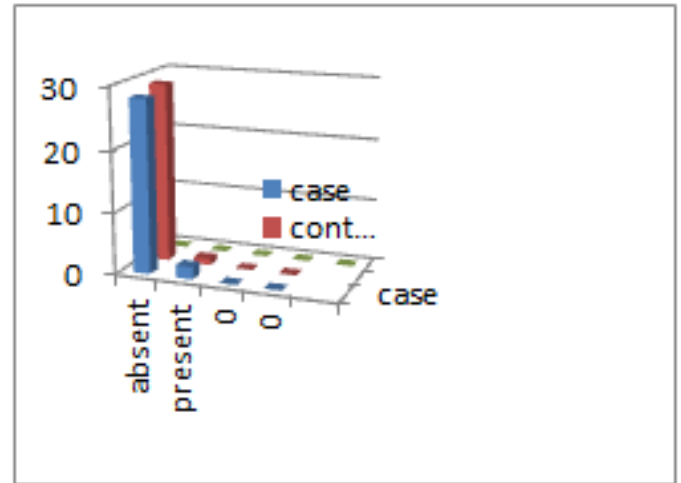


Figure 3
Graphical presentation of polyspikes and waves between case and control

Slow waves were observed in 3 patients out of 30 patients and 1 from control.

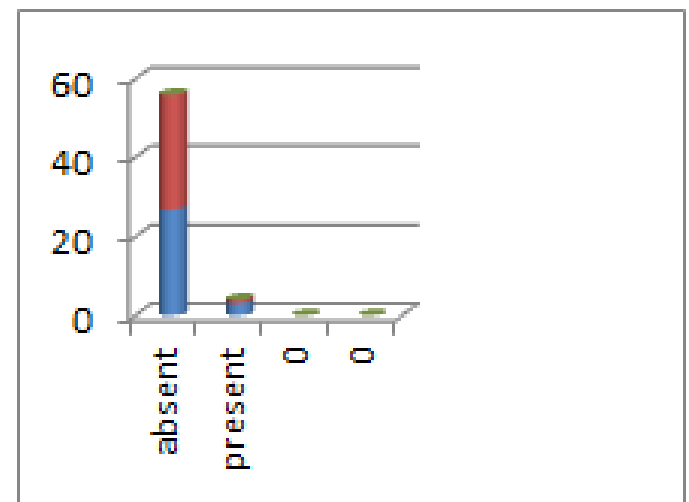


Figure 4
Graphical presentation of slow waves between case and control a we can observe that there were overall 6 patients who showed abnormal findings in EEGs along with there were 4 controls who showed any type of abnormality in their EEGs after comparison we found statistically non-significant difference between these two group.

	Group		χ^2	Df	P
	case	Control			
Absent	24	26	0.48	1	0.4884
Present	6	4			

Table 1

Shows the comparison of any type of abnormality between both the groups using χ^2 . There was no significant difference between two groups with EEGs parameter is non-significant. (p=0.4884).

There were two patients in which both spike and sharp waves were observed.

There were two other patients who showed both poly spike and slow waves.

There was one patient who had spike, sharp waves and slow waves also.

No Controls Showed Greater Than One Abnormality.

Discussion

In this study an attempt has been made to evaluate the EEG changes in Dissociative Convulsion and its comparison to normal healthy person. The sample size of 30 patients was comparable to earlier study on dissociative disorder by Bhargav et al [n 30], Habeeb et al¹⁴. Out of 30 patients Half of the total patient were found less than of 20 years. This group was closely followed by age group less than 30 years. Summing up of two group constitute 83.3 % of patients were from 10 to 30 years. Means age of patient was 21.6+- 1.4 years. The finding was similar to as those reported by Srivastava et al [18 to 25], kamala et al [11 to 25], Bagadia et al [16 to 25] , J. Vanderlinden(27yrs)²⁴. Most of the patients were from late adolescence or early adulthood. In the study 80% were female and Chaturvedi et al told about female preponderance in all type of dissociative disorder⁵Lohit Somashekar Reddy et al also showed similar female preponderance(78.18%)¹²,70%

were from rural region while 30% patients were from urban region. This is similar to reported by Jain AK et al [63.4%]. There was only one patient who was working as a clerk, married, belonged to rural area. Unemployment and poverty itself are major stressor and may lead to dissociation in patients.

Out of 30 patients we found presence of spikes in 3 patients and the comparison of these spikes to control group was non-significant (p=0.301).

Out of 30 patients we found sharp waves in 4 patients and the result was non-significant (p=0.161) after comparison with normal healthy group.

We found polyspike and waves in 2 patients out of 30 patients. Comparison Of these polyspike and waves with controls were found non-significant (p=0.554).

Slow waves were observed in 3 patients out of 30 patient and compared to control on this parameter was found statistically non-significant(p=0.301).

There were two patients in which both spike and sharp waves were observed.

There were two other patients who showed both poly spike and slow waves.

There was one patient who had spike, sharp waves and slow waves also.

No controls showed greater than one abnormality. we can observe that there were overall 6 patients who showed abnormal findings in EEGs along with there were 4 controls who showed any type of abnormality in their EEGs after comparison we found statistically non-significant difference between these two groups. Previous studies told about abnormalities in EEGs in cases of Dissociative convulsion, we also found some abnormalities in the case group and after comparison with EEGs of normal healthy population, results were found statistically non-significant. Here sample size was relatively small and

the study was cross sectional so it might have given some erroneous result. So on basis of this result we cannot routinely advised EEG to a dissociative convulsion case, but in case of dilemma with organic cause and epilepsy we can go for it .We can also save patient from long term side effect of antiepileptic drugs. A large number of patients have already taken antiepileptic drugs before refer to a psychiatrist.

Conclusion

The above findings are suggestive that EEG parameter in dissociative convulsion patient can show some abnormality but a very few controls also shows these abnormalities.

Comparison of EEG between dissociative convulsion and normal healthy individuals using Chi-square test showed no significant difference. While the result is statistically non-significant but dissociation should not be considered merely functional in traditional sense .An important task force researchers to find out specific structural changes and biochemical changes these conditions and try to correlate them on various parameters like clinical presentation, duration of illness, progression of illness, psychological and physical factors.

References

1. Ann Saudi Med 1997; 17(1): 35-38.
2. Duncan R, Razvi S, Mulhern S. Newly presenting psychogenic nonepileptic seizures: incidence, population characteristics, and early outcome from a prospective audit of a first seizure clinic. *Epilepsy Behav* 2011; 20:308.
3. Szaflarski JP, Ficker DM, Cahill WT, Privitera MD. Four-year incidence of psychogenic nonepileptic seizures in adults in hamilton county, OH. *Neurology* 2000; 55:1561.
4. Nandi DN, Banerjee G, Nandi S, Nandi P. Is hysteria on the wane? A community survey in West Bengal, India. *Br J Psychiatry* 1992; 160 : 87-91.
5. Chaturvedi SK¹, Desai G, Shaligram D *Int J Soc Psychiatry*. 2010 Sep;56(5):533-9. doi: 10.1177/0020764009347335. Epub 2009 Sep 17.
6. Ganguli h c prevalence of mental disorder in india; pubmed.
7. Chandrashekhar CR , Reddy M V ;Prevalence of mental and behavioural disorder in india; a meta analysis ;*Indian J Psych* ;pubmed.
8. Reuber M, Fernández G, Bauer J, Singh DD, Elger CE. Interictal EEG abnormalities in patients with psychogenic nonepileptic seizures. *Epilepsia* 2002;43:1013-20.
9. McKenzie P, Oto M, Russell A, Pelosi A, Duncan R. Early outcomes and Diagnostic delay in psychogenic nonepileptic seizures. *Neurology* 2002;58:493-5.
10. Niedermeyer E, Lopes da Silva F. *Electroencephalography. Basic Principles, Clinical Applications, and Related Fields*. 4. Baltimore: Williams & Wilkins; 1999.
11. Panayiotopoulos CP. *Benign Childhood Partial Seizures and Related Epileptic Syndromes*. London: John Libbey & Company Ltd; 1999.