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Research Article

Comparative study of clinical profile and presumptive stressful life events in patients of psychogenic non epileptic seizure and epileptic seizure: a cross sectional study

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ABSTRACT

Background: Psychogenic Non Epileptic Seizure (PNES) is one of the most common conditions to be mistaken for epilepsy. No clinical feature is pathognomic of PNES, but some help in distinguishing it from epileptic seizure. Role of psychologically stressful events has been considered central to the pathogenesis of PNES and used in differentiating it from epileptic seizure. The purpose of present study was to compare the clinical profile and number of stressful life events in the two patient groups in Indian population.
Methods: 50 new patients of epileptic seizure and PNES each, aged 16 to 60 visiting the psychiatric and neurology OPD were selected. Detailed history and physical examination was carried out to exclude any medical illness. Diagnosis was made based on clinical history given by an eye witness and EEG recording. Brain imaging (CT/MRI) was conducted, to rule out any secondary causes of seizure. General health questionnaire 12, and presumptive stressful life event scale was applied on all patients. SPSS 19 was used for data analysis. Chi square was used for categorical data and Man Whitney U test for continuous data.
Results: There were significantly more females in the PNES group (P = 0.001) and significantly more illiterate (P = 0.004) .There were no significant difference with regard to the age of onset, marital status. Also there was no statistically significant difference between the two group with regard to number of stressful life event (P = 0.330).
Conclusion: Stressful life event should not bias a clinician towards making a diagnosis of PNES.

Keywords: Epileptic seizure, Psychogenic non epileptic seizure, Semiology, Presumptive stressful life events

INTRODUCTION

Psychogenic Non Epileptic Seizure (PNES) is often initially misdiagnosed as epileptic seizure and the eventual diagnosis often depends upon the possibility of PNES being considered in the first place. PNES is one of the most common conditions to be mistaken for epilepsy. This is further complicated by the fact that a sizeable population of patients have co-morbid epileptic seizure.[1,2] No clinical feature is pathagnomic of PNES, but a number of clinical features help in distinguishing PNES from epileptic seizure. Gradual onset of attacks,[3,4] out of phase movements,[5] side-to-side head movements,[5,6] sustained eye closing and fluttering undulating motor activity,[7-10] attacks longer than 2-5 min[5,12] quick recovery[11,13,14] are found frequently in PNES.

Conversely, certain clinical features considered typical of epilepsy can be present in PNES. These include autonomic manifestations like tachycardia, flushing and sweating,[15] incontinence and injury, including tongue biting[15,19] and provocation of attacks by specific triggers such as flashing lights.[17] Nocturnal attacks have often

been thought to be a feature of epilepsy[18] but are frequently reported in PNES[19] ictal semiology of frontal lobe seizures, which commonly include pelvic thrusting, often resemble PNES.[20,21]

Earlier studies have shown that PNES patients report more frequent stressful life events and have higher perceived stress than patients with epilepsy. Role of psychologically traumatic events such as accident and sexual abuse has been considered central to the pathogenesis of PNES.[22-27] Reuber et al. (2008) found a history of severe trauma in 90% of the PNES population studied, of which 41% of the women had suffered trauma from sexual abuse.

Some anecdotal evidence suggests that the onset of epilepsy may be triggered by important life events and that resolution of such issues as social or emotional problems may lead to improved seizure control.[29] It has been suggested that people with epilepsy have a "low seizure threshold" which is an intrinsic level of vulnerability to seizure activity. This threshold can temporarily be influenced by biochemical, metabolic or psychological factors.[30]

Although studies suggest that the stress from major and minor life events may play a role in increasing seizure activity[31-33] stress from major and minor life events that preceded a first seizure occurrence has not been reported.

Correctly diagnosing psychogenic non epileptic seizure saves the patient from iatrogenic injury and death from inappropriate treatment with antiepileptic drugs.[34] PNES patients often have disabling psychopathology and most experts consider psychotherapy the treatment of choice.[35]

The aim of present study was to compare the semiology and the number of stressful life events of seizure between psychogenic non epileptic patients and epileptic seizure patients. We hypothesized the patients of PNES report more number of stressful life events as compared to patients of epileptic seizure.

METHODS

Participants

Patients between the age of 16 to 60 years with complaints of abnormal movements, visiting Psychiatry and Neurology OPD of Jawaharlal Nehru medical college and hospital, Aligarh Muslim University, Aligarh, from January 1, 2012 to August 31, 2013 were considered for the study. Informed consent was taken from all patients. The study was approved by the board of studies of the department of psychiatry and ethical committee of faculty of medicine.

Inclusion criteria for the study were having an eye witness for the abnormal movement and clinical history suggestive of PNES or epileptic seizure. Exclusion criteria were any other type of movement disorder (simulators of epilepsy e.g.; night terrors, syncope, transient ischemic attack), any other neurological or medical illness or co-morbid psychiatric illness, double diagnosis of epileptic seizure and PNES, pregnant and postpartum female.

Procedure

The subjects were assessed as per semi-structured Performa in which their demographic variables and their detailed clinical history were recorded. Physical examination of all patients was carried out. All the patients were then investigated for co morbid medical illnesses. Digital EEG and CT or/and MRI brain was conducted. Screening for psychiatric disorder was done by Hindi version of general health questionnaire 12. The face validity of this GHQ 12 has been established in previous studies.[36] Patients with score of three or more were excluded from the study. The cut off score of three carries a sensitivity and specificity of 80% and 50% respectively.

Diagnoses of epileptic seizure and PNES were based on clinical history provided by an eyewitness, semiology of abnormal movement, EEG investigation, corroborated by neuro-imaging, CT/MRI. International League Against Epilepsy (ILAE) definition was used for diagnosing epileptic seizure and DSM-IV TR criteria of conversion disorder was used for diagnosing PNES. After applying inclusion and exclusion, 50 new patients of PNES and 50 new patients of epileptic seizure were inducted in study.

Cross sectional study design was used. 50 patients of PNES were compared with 50 patients of epileptic seizure. The semiology of seizure was recorded as per information provided by the eye witness. Each Patient group were further assessed for life time and previous 6 month presumptive stressful life event by Presumptive stressful life event scale by Gurmeet Singh.[37]

Data analysis

All statistical data was analysed using SPSS version 19 statistical package for window. Continuous variables were expressed as mean and standard deviation (Gaussian distribution) or range and qualitative data was expressed as percentage. Continuous data was assessed for normal distribution, with Kolmogorov-Smirnov test. For comparing continuous variables between two groups Mann Whitney U test was used. Chi-square test was used to compare qualitative data. All P values were two tailed and values of $P < 0.05$ were considered statistically significant.

RESULTS

As shown in Table 1, there was greater percentage of illiterate patients in the PNES group (32%) as compared

to the seizure group (18%). However this difference was not statistically significant (P = 0.106).

Table 1: Sociodemographic profile.

	PNES	Epileptic seizure	P value
Sex			
Male	14 (28%)	30 (60%)	0.001
Female	36 (72%)	20 (40%)	
Literacy			
Literate	34 (68%)	41 (82%)	0.106
Illiterate	16 (32%)	9 (18%)	
Marital status			
Married	21 (42%)	24 (48%)	0.466
Unmarried	29 (58%)	26 (52%)	
Locality			
Rural	23 (46%)	20 (40%)	0.545
Urban	27(54 %)	30 (60%)	

Clinical profile of the patients with PNES and epileptic seizure

Table 2: Clinical profile of the patients with PNES and epileptic seizure.

Clinical features	PNES Number (%)	Seizure Number (%)
Out of phase movement of limb	24 (48%)	0 (0%)
Undulating body movement / pelvic thrusting	14 (28%)	0 (0%)
Still limb	18 (36%)	3(6%)
Side to side head movement	10 (20%)	4 (8%)
Eye closure with fluttering (resisting attempt to open)	39 (78%)	0 (0%)
Eyes open with upward / side-ways turning of eyeball	10 (20%)	31(62%)
Clenching of teeth	42 (84%)	30 (60%)
Tongue bite	3 (6%)	21 (42%)
Duration of abnormal movement		
<5min	4 (8%)	42(88%)
5 to 30 min	22 (44%)	7 (14%)
>30 min	24 (48%)	1(2%)
Ictal weeping/ shouting	10 (20%)	0
Incontinence of urine	1 (2%)	22 (44%)
Incontinence of faeces	0 (0%)	2 (4%)
Post ictal headache	7 (14%)	19 (38%)
Post ictal fatigue	5 (10%)	27 (54%)
Mild abrasion /mild injury	5 (10%)	32 (64%)
Severe injury/burn /fracture	1 (2%)	19 (38%)
Ability to recall the episode	4 (8%)	26%)

Table 2 shows that most of PNES patients have out of phase movement of limb, undulating body movement/ pelvic thrusting, Eye closure with fluttering (resisting attempt to open), ictal weeping and crying, and duration of abnormal movement between 5 minutes and 30 minutes. Epileptic seizure patients have - Eyes open with upward/side way turning of eyeball, duration of abnormal movement less than 5 minute, incontinence of urine, Incontinence of faeces, post ictal fatigue, severe injury/burn /fracture.

The comparison of the number of stressful life event in patients of epileptic seizure and psychogenic non epileptic seizure

Presumptive stressful life event (six month)

The mean number of stressful life events within six months in patients in the seizure group was 1.14 (SD = 0.881) and in the PNES group was 1.32 (SD = 0.957). As the data was not normally distributed (positively skewed) Mann Whitney U test was applied to assess the difference between the number of stressful life event in the seizure and the PNES group which was not statistically significant (P = 0.304).

Table 3: Number of stressful life event (six months) in patients of PNES and Epileptic seizure.

Number of presumptive stressful life event (within six months)	PNES Number of patients (%)	Seizure Number of patients (%)
0	10 (20%)	11 (22%)
1	20 (40%)	26 (42%)
2	15 (30%)	8 (16%)
3 or more	5 (10%)	5 (10%)

Presumptive stressful life event (life time)

The mean number of stressful life events in life time of patients in the seizure group was 10.96 (SD = 4.873) and in the PNES group was 10.92 (SD = 5.914). As the data was not normally distributed (positively skewed), Mann Whitney U test of significance was applied. There was no significant difference between the number of stressful life event in PNES and epileptic seizure group (P = 0.661).

Table 4: Number of life time presumptive stressful life events in PNES and Epileptic seizure.

Life time presumptive stressful life event	PNES Number of patients (%)	Seizure Number of patients (%)
0 to 5	5	7
6 to 10	21	16
11 to 15	17	18
16 to 20	4	7
21 to 25	0	2
26 to 30	2	0
31 to 35	1	0
Total	50	50

DISCUSSION

The diagnosis of PNES is essentially clinical, and sometimes it is very difficult to rule out epileptic seizure. Earlier studies have shown that PNES patients report more frequent stressful life events and have higher perceived stress[22-25] and this could aid in making the diagnosis. But studies have also shown stressful life event to be associated with epileptic seizure frequency.[38]

Clinical profile of the patients

The symptom profile which was more common in PNES patients were - Out of phase movement of limb, undulating body movement/ pelvic thrusting, eye closure with fluttering (resisting attempt to open), ictal weeping and crying, and duration of abnormal movement more than 5 minutes and less than 30 minutes.

The symptom profile which was more common in epileptic seizure patients were eyes open with upward/side-ways turning of eyeball, duration of abnormal movement less than 5 minute, incontinence of urine, incontinence of faeces, post ictal fatigue, Severe injury/burn /fracture.

The symptom profile in current sample of PNES patients and epileptic seizure patients is in consonance with finding of earlier studies.[5-13]

Stressful life event in patients of epileptic seizure and psychogenic non epileptic seizure

Role of psychologically traumatic events such as accident and sexual abuse has been considered central to the pathogenesis of PNES.[22-27]

PNES patients report more frequent stressful life events and have higher perceived stress than patients with epilepsy. Reuber et al. (2007) found a history of severe trauma in 90% of the PNES population studied, of which 41% of the women had suffered trauma from sexual abuse.

The present study did not find any significant difference in the number of stressful life events reported by patients of seizure and PNES in the prior 6 months ($t = -0.979$, $df = 98$, $P = 0.330$) to the onset of event or in the life time ($t = -0.037$, $df = 98$, $P = 0.971$).

The finding of this study is supported by a previous study in which patients with PNES did not experience more frequent recent or remote, positive or negative stressful life events than patients with epilepsy or healthy persons.[39] In this study there was no difference in absolute number of stressful life events in PNES patient and seizure patient, however the PNES patients perceived their stressful life events much more stressful as compared to patients with seizure.

The reason for such differences in the study could be explained by the fact that since its beginning sexual abuse and childhood trauma was considered to be central to the pathogenesis of hysteria. So any preceding stressful life event was seen as an important factor in the causation of hysteria, a claim whose validity is difficult to establish. Moreover, a wider variety of stressful life events may precipitate, perpetuate or be associated with PNES. Bowman and Markand (1996) found that 92% of their PNES patients reported at least one recent stressful life event, but many reported multiple events (e.g., accidents, life-role changes, personal illness, relationship conflict, or job loss). The stressful life events that have been linked with PNES has been so heterogeneous and number so variable that it is quite difficult to separate these group of patients from others based on the number of presumptive stressful life events experienced by them.

People with epilepsy have a "low seizure threshold" which is an intrinsic level of vulnerability to seizure activity. This threshold can be temporarily influenced by biochemical, metabolic or psychological factors.[30] Specific psychological changes or significant life events may act as facilitators or triggers of seizures in people susceptible to epilepsy.[40] Hence the difference in the finding of present study compared with previous studies in relation to the number of stressful life events could also be explained as, there is similar increase in the number of presumptive stressful life events in both groups PNES and epileptic seizure group. As the present study did not include normal group, so this explanation cannot be stated with certainty.

CONCLUSION

This study makes the point that one should not get biased in favour of psychogenic non epileptic seizure, based on stressful life event reported by the patients, as there is no difference in the number of presumptive stressful life event reported by the patients suffering from PNES and epileptic seizure.

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