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A Study on Psychogenic Nonepileptic Seizures (Pnes) at a Tertiary Care Center

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ABSTRACT
Psychogenic nonepileptic seizures are paroxysmal events that resemble epileptic seizures with regards to their behaviour or experience, but are without epileptiform activity on EEG. Differentiating PNES from true seizures is essential in providing the correct treatment and avoiding morbidity and potentially life threatening risks that can occur with misdiagnosis. To study the clinical profile of patients presenting with psychogenic nonepileptic seizures and to assess the underlying psychological stressors responsible for the patient's illness. Patients who presented with PNES episodes between September-August 2021-2023 were analysed. Detailed history regarding the semiology of the episode was taken and neurological examination was performed on all the patients. All the patients underwent necessary investigations including Magnetic Resonance imaging (MRI) brain and Video Electroencephalogram (EEG) monitoring. A total of 70 cases were studied. Most of the patients were young females with Female: Male ratio is 7:3. Mean age was around 23 years. Ten patients had co-morbid true seizures. Most common psychological stressors observed were loss of family member, family disputes, educational stress. Patients with PNES pose substantial economic burden to the health care system. Delay in diagnosis and treatment may result in significant psychological and physical morbidity to the affected patient. A multidisciplinary approach is necessary to treat such patients. Seizures, epilepsy, psychogenic seizures, pseudoseizures, stressors, semiology of seizure.

INTRODUCTION

Psychogenic non-epileptic seizures (PNES) are episodes of altered movement, emotion sensation or experience, which appear similar to epileptic seizures but are not accompanied by the associated electrical brain activity[1]. Prevalence of PNES has been estimated at between 2 and 33 per 100,000[2] with PNES patients representing between 9-50% of those seen in epilepsy services[3]. In recent guidelines, PNES are understood to be psychogenically determined[4] and the diagnosis is categorized as a psychiatric disorder. Most are classified in the Diagnostic and Statistics Manual of Mental Disorders (DSM-5) as a conversion disorder[5]. To diagnose PNES is a challenge, due to the heterogeneity of the events and lack of specific markers. There are no pathognomonic clinical features for PNES[6].

Providing an accurate diagnosis of PNES can be challenging[7,8] with diagnostic delays of several years being typical[9,10]. Misdiagnosis of epilepsy is common in this group and patients are often exposed to multiple unnecessary investigations, outpatient visits and medical treatments at great personal and economic cost[11,12].

Aims and objectives:

- To study the clinical profile of patients presenting with psychogenic nonepileptic seizures and to identify the underlying psychological stressors responsible for the patient's illness

MATERIAL AND METHODS

Patients who presented with episodes suggestive of psychogenic nonepileptic seizures to the Government General Hospital, Guntur, between September 2021 and August 2023 (24 months) were analyzed. A total of 70 patients were identified. Detailed history regarding the duration of the illness, number of episodes per week, semiology of the episodes was collected. Acute precipitating events and the underlying psychological stressors were identified with a comprehensive analysis Fig 1 and Table 1-4.

A detailed neurological examination was performed and the chance of coexistent true epileptic seizures was enquired into. Routine investigations along with MRI Brain, EEG and Video EEG were performed on all the patients. All the patients were encouraged to have an episode by suggestion in the examination room to determine the exact semiology of the episode and also during the video EEG monitoring to look for any epileptiform discharges. Patient's reaction to the diagnosis of PNES has been noted and treatment response monitored over time Fig 2 and Table 5-8.

RESULTS

Sex distribution: fourty nine (70%) out of 70 patients were females and 21 (30%) were males.

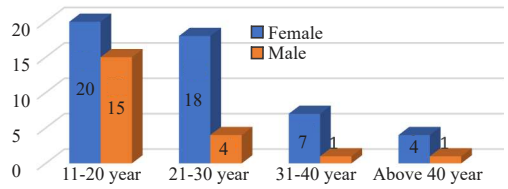

Fig. 1: Age distribution

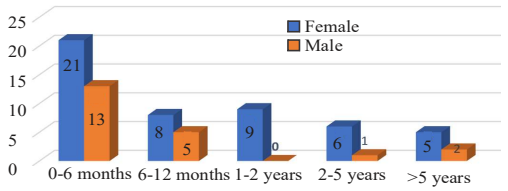

Fig. 2: Duration of symptoms

Table 1: Age at first episode

	Female	Male	Total
AGE			
11-20 years	20	15	35
21-30 years	18	4	22
31-40 years	7	1	8
>40 years	4	1	5
Total	49	21	70

Table 2: Number of episodes per week

	No. of patient	Percentage
Episodes/week		
1-5 episodes	47	67.1
6-10 episodes	20	28.6
>10 episodes	3	4.3

Table 3: Duration of episode

Duration	Female	Male	Total
1-2 min	7	2	9
3-5 min	13	7	20
6-10 min	16	6	22
11-20 min	7	3	10
>20 min	6	3	9
Total	49	21	70

Table 4: Association with epilepsy

Epilepsy	Yes	No	Total
Female	6	43	49
Male	1	20	21
Total	7	63	70

Age distribution:

- Mean age distribution = 24.77±10.053 years
- Mean age distribution in females = 26.63±10.12 years
- Mean age distribution in males = 20.42±8.62 years

Duration of symptoms:

- Mean duration of illness = 1.64±2.108 months
- Mean duration in females = 1.86±2.17 months
- Mean duration in males = 1.12±1.91 months

Age at first episode

Number of episodes per week: Correlation between duration of illness and number of episodes/week was

Table 5: Semiology of pseudoseizure episode

Semiology	Female	Male	Total
Vigorous movements of limbs with pelvic thrusting and side to side head movements	18	10	28
Hyperventilation followed by spasm of limbs and opisthotonic posturing of entire body	12	4	16
Sudden loss of consciousness with prolonged flaccidity of the body and eye closure	8	4	12
Hyperventilation followed by sudden loss of consciousness and tight eye closure and crying	8	2	10
Hyperventilation followed by spasm of jaw and weird limb movements with tight eye closure	3	1	4

Table 6: Comparison with true GTCS patients (age and sex matched)

Featutre	Pnes patients (n = 70)	True GTCS patients (n = 70)
Ictal crying	28	None
Ictal speaking	16	None
Frothing from mouth	2	64
Uprolling of eyeballs	None	70
Urinary incontinence during/after the episode	1	54
Tongue bite [lateral]	None	61
Injuries during the episode	None	70
Occurrence in sleep	Never	67
Occurrence when lonely	Never	41
Awareness during the episode	43	None
Post ictal confusion	None	67
Post ictal headache	3	34
Post ictal fatigue	36	49
Recall of ictal episode event later	52	None

Table 7: Underlying stressors

Stressor	No. Of patients	Percentage
Parental divorce/family disputes	26	37.14
Academic stressors at school/college	23	32.86
Previous history of head trauma	19	27.14
Death of a family member	12	17.14
No obvious underlying stressor	11	15.71
Childhood sexual/physical abuse	8	11.42
Illnesses with severe pain	6	8.57
Early marriage	12	17.14

Table 8: Patient reaction to diagnosis

Reaction	No. Of patients
Acceptance	34
Denial	17
Sadness	11
Relief	4
Anger	4

found to be positive. Correlation between age at 1st episode and number of episodes/week-Early age at onset was associated with more number of episodes in a week.

Duration of episode: Out of 6 female patients with co-morbid true seizures, 3 had history of generalised tonic clonic seizures (GTCS), 2 had focal seizures with dyscognitive features, while 1 patient had history of Juvenile myoclonic epilepsy. One male patient with epilepsy had focal seizures with dyscognitive features.

Semiology of the pseudoseizure episode: Vigorous movements of limbs with pelvic thrusting and side to side head movements were the most common symptoms of pseudoseizures seen in 28 (40%) patients, followed by hyperventilation followed by spasm of limbs and opisthotonic posturing of entire body seen in 16 patients.

Comparison with true gtcs patients (age and sex matched): Earlier age at presentation has been associated with more vigorous symptoms of PNES.

Underlying stressors: Those patients with history of childhood physical and sexual abuse had the onset of symptoms at an early age. Academic stress has been identified as an important avoidable factor responsible for precipitating a PNES attack. 28 out of 70 patients studied were students attending school or college out of which 23 had history of academic stressors (especially those students of 10th standard and intermediate). Academic stressors included peer pressure, parental pressure, pressure from institution side and examination stress. Sixty students were made to stop attending school/college in view of recurrent seizure episodes. Twelve female patients had history of early marriage (before 18 years of age) and all the patients had their first symptom of nonepileptic seizures within 1 year of marriage. When questioned about their stressors most of the patients complained of adjustment problems with the husband's family.

MRI Brain, EEG, video EEG: MRI Brain was performed on all the patients. Three patients with coexistent complex partial seizures had hippocampal sclerosis, while the MRI was normal in all the remaining patients. EEG revealed no abnormality in 63 patients of true PNES. Video EEG recording with at least 1 episode occurring during the recording showed no abnormal epileptiform discharges.

Drug history: Thirty out of 70 patients had their first consultation at our department. In the remaining 57

Table 9: Treatment response based on reaction of the patient

	Completely free of PNES episodes	Still having some PNES episodes	No. Of patients
Reaction			
Acceptance	29	5	34
Denial	7	10	17
Sadness	5	6	11
Relief	4	0	4
Anger	1	3	4

Table 10: Treatment response based on duration

	Completely free of PNES episodes	Still having some PNES episodes	Total
Duration			
0-6 months	29	5	34
6-12 months	10	3	13
1-2 years	4	5	9
2-5 years	2	5	7
>5 years	1	6	7
Total	46	24	70

patients, 7 had coexistent true epilepsy and all the patients were on antiepileptic drugs. Those patients with associated true seizures were being treated as drug resistant seizures.

Patient reaction to diagnosis

Treatment: All the patients were started on sertraline, dose adjusted, counselled regarding the nature of illness and referred to psychiatry for cognitive behavioural therapy.

DISCUSSION

Female: Male ratio is 7:3.

- Mean age at presentation= 24.77±10.053 years.
- Mean age in females= 26.63±10.12 years.
- Mean age in males= 20.42±8.62 years.
- Average delay in diagnosis is around 2-3years in our study.

Sixty seven percentage presented with 1-5 episodes in a week while >10 episodes in a week were seen in only 4% Academic stressors and early age at marriage are potential avoidable risk factors for psychogenic nonepileptic seizures and need to be addressed during the process of treating the patient. Those patients with history of long duration illness are likely to deny the diagnosis and are less likely to respond to cognitive behavioral therapy and pharmacotherapy. Inadvertent use of antiseizure medication (ASMs) has to be avoided in cases of PNES as this may result in adverse effects which can be detrimental to the patient.

CONCLUSION

Psychogenic nonepileptic seizures showed a female preponderance with 7:3 ratio. In our experience every 5th seizure patient we came across, turned out to be a nonepileptic seizure. Average delay in diagnosis was around 2 years. Age of onset and duration of illness determine the severity and frequency of the episodes. 85% had underlying stressors which means the disorder is potentially reversible or preventable. Fivety percentage has accepted their diagnosis without any further questioning and since any illness is an interaction between self and the external environment and most of them were free of further episodes, addressing the underlying stressors can make a significant impact. One should be very careful when dealing with those who have comorbid epilepsy to prevent unnecessary escalation of antiepileptic drug doses.

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