



Psychiatric disorders in patients with psychogenic non-epileptic seizures, with and without comorbid epilepsy

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Summary

Purpose: The aim of this study is to describe similarities and differences in epidemiological, psychiatric and semiologic variables between patients with psychogenic none epileptic seizures (PNES) and comorbid epilepsy (mixed PNES), and patients with PNES without comorbid epilepsy (pure PNES).

Results: Forty-three patients with PNES diagnosed by Video-EEG were included. Twenty-four had pure PNES, and nineteen mixed PNES. Female population, age, duration of PNES, psychiatric institutionalization, psychopharmacotherapy, dissociative disorders and posttraumatic stress disorder (PTSD), were significantly higher in the pure PNES patients. Suicide attempts, antiepileptic therapy, conversive, affective and personality disorders were frequent in both groups. In the analysis of seizure semiology, the total lack of responsiveness was significantly higher in the mixed PNES group.

Conclusions: Pure PNES patients showed similarities and differences in the psychiatric profile, with a greater prevalence of dissociative disorders and PTSD, factors related to psychiatric severity.

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Introduction

Psychogenic non-epileptic seizures (PNES), is diagnosed when disruptive changes in behavior, thinking or emotion, resemble epileptic seizures (ES), are present without epileptic cause (paroxysmal neuro-

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nal discharges detectable by EEG), and are not originated from another medical illness.^{1–8} Usually, the PNES diagnosis emerges from an erroneous judgment of "epilepsy" which is frequently due to an inadequate interpretation by the physician, of the episodes reported by the patient or their relatives. In the case of patients with epilepsy who develop PNES, it is the patient or the family who give the label of "epileptic seizures". Recognition of this entity increased significantly in the last years, following the setting-up of Video-EEG.^{3,9–11}

Psychiatrally, PNES represents an underlying psychiatric disorder, categorized in Axis I of DSM IV, and many studies showed high rates of conver-
sive, dissociative and other coexisting disorders in these patients.^{12–19} Different psychiatric factors like sexual abuse, trauma and posttraumatic stress disorder (PTSD), dissociative disorders, and personality disorders, have been associated with poor outcome of PNES.^{20,21}

PNES accounts for approximately 20% of all intractable seizure disorders referred to epilepsy centers and have been found to occur also in epileptic patients with a frequency that ranges from 20 to 60%.^{1–6} A few studies compared psychiatric aspects of pure PNES patients with mixed PNES–epilepsy patients, showing differences and similarities in the psychiatric profile.^{20,22–28} The results are controversial, and different diagnostic methodologies were used. Higher rates of personality disorders were reported in mixed patients, and somatoform and anxiety disorders were found to be more frequent in pure PNES patients.^{20,22,24,26}

The aim of this study is to compare epidemiological, psychiatric, and semiologic variables of two groups of patients, pure PNES (PNES patients without co morbid epilepsy) and mixed PNES (patients with both epilepsy and PNES).

Material and methods

Subjects

The Epilepsy Reference Center of Ramos Mejía Hospital serves a population with high rates of refractory epilepsy. In this study we included 43 Argentinian patients with PNES, diagnosed by ictal Video-EEG. All patients were admitted in the Epilepsy Center from July 2000 to December 2005 designed as having refractory epilepsy. Two groups of PNES patients were identified after Video-EEG performed by qualified epileptologists.

Group 1—Patients with pure PNES.

Group 2—Patients with mixed PNES and ES

The following variables were analyzed and compared between groups: sex, age, duration of PNES (time to reach diagnoses), neurological and psychiatric institutionalization history, antiepileptic drugs treatment, psychopharmacological history, and suicide attempts. We have not considered antiepileptic drugs in the variable "psychopharmacological history", neither benzodiazepines. In G2 the time to reach PNES diagnosis was determined after recognition real epileptic seizures (ES) from PNES, both suffered by these patients.

Diagnostic criteria for PNES were:

- 1- Atypical paroxysmal behavioral episodes recorded in the Video-EEG monitoring, without electroencephalographic ictal activity (almost one attack recorded).
- 2- No other clinical, electroencephalographic, neither neuro-imaging evidences suggestive of epilepsy or another neurological or medical disorder.

PNES patients who also have other recognized paroxysmal behavioral episodes, with clear clinical, electroencephalographic, and imaging evidences suggestive of coexisting real epileptic seizures, supported by Video-EEG results, were included in Group 2. In this group, epileptic seizures diagnosed according to International League Against Epilepsy criteria (ILAE),²⁹ were clearly differentiated from PNES.

Forty-three patients with PNES were included in this study. Twenty-four patients (56%) had no evidence of epileptic seizures co morbidity, and were included in the pure PNES group (G1). Nineteen patients (44%) had clear evidence of epileptic seizures co morbidity and were included in the mixed epilepsy group (G2).

Instruments

All 43 patients included in this study were assigned to standardized psychiatric interviews. Extensive historical and psychiatric data, together with information about social background, were obtained from each patient, supplemented by information from family or friends and medical records.

Psychiatric assessment

After PNES diagnoses, all patients underwent psychiatric interviews using DSM IV instruments: SCID I Spanish Clinical Version for Axis I for psychiatric disorders, and SCID II to determine the presence of personality disorders.^{30–32}

First, all types of PNES recorded in the Video-EEG were considered the "core syndrome" for making a

DSM IV psychiatric diagnoses based in PNES semiology. Conversive, dissociative, and other non-conversive disorders (e.g. anxiety disorders, factitious disorders) were categorized attending to PNES semiology, considering both video-semiology and psychiatric assessment.^{30,32,34} Subsequently, other psychiatric disorders codified in Axis I accompanying PNES, were considered as co morbid psychiatric disorders (e.g. affective disorders, anxiety disorders, posttraumatic stress disorder, psychotic disorders). Personality disorders were codified in Axis II. Patients with a history for mental retardation (attendance to school for mental retarded), were excluded.³⁴

Once the diagnostic protocol was completed, psychiatric therapy was indicated in all patients with PNES.^{33,34} In addition, treatment with antiepileptic drugs (AEDs) was continued in Group 2.

Analysis of PNES semiology

All patients with one or more PNES episodes recorded in the Video-EEG were reviewed, and the presence of the following signs and symptoms were determined according four independent categories.

- 1- Motionless.
- 2- Hyper motor activity.
- 3- Total lack of responsiveness: This was considered when all along the attack the patient did not contact, listen, nor answer neither remembers the seizure after the attack.
- 4- Presence of aura. We distinguished three types of auras:
 - a- Somatic aura: presence of clinical symptoms (pain, autonomic symptoms, headache, dizziness, etc.);
 - b- Sensorial aura (different types of hallucinations or illusions);

- c- Psychic aura (psychological symptoms such as anxiety, fear, other emotions, etc.).

Statistical analysis

All the variables studied were compared between the groups. Data were assessed by bivariate analysis using independent test (Pearson chi square) and two tailed *t* test was used for continuous data (SPSS for Windows).

Results

Differences in epidemiological variables were found between the groups:

There was a prevalence of female patients in G1 ($p = 0.03$). G1 patients were older ($p = 0.05$) and mean duration of PNES since onset until the moment of diagnosis was longer ($p = 0.03$).

Epidemiological variables related to psychiatric treatments were significantly different between the groups: psychiatric institutionalization ($\chi^2 = 5.04$, $p = 0.025$) and psychopharmacological treatment ($\chi^2 = 5.2$, $p = 0.022$), were more frequently found in G1.

Suicide attempts, neurological institutionalization history, and use of antiepileptic drugs did not differ between the groups (Table 1).

Psychiatric diagnoses. DSM IV, Axis I and Axis II

Conversion and dissociative disorders were diagnosed frequently, considering PNES as the core syndrome. Conversion disorders were found equally in both groups (G1/G2, 83%/84%). Dissociative disorders were present in G1 with a significative difference compared to G2 ($\chi^2 = 4.9$, $p = 0.026$). Only one

Table 1 Epidemiological characteristics of PNES patients ($n = 43$)

	Pure PNES group ($n = 24$)	Mixed PNES group ($n = 19$)	Total ($n = 43$)
Females*	19p. (79%)	10p. (53%)	29p. (67%)
Males	5p. (21%)	9p. (47%)	14p. (33.5%)
Age (years)*	33.42 ± 14.08	28.53 ± 8.3	31.2 ± 12
Duration of PNES (years)*	8.79 ± 8.4	3.47 ± 2.89	6.4 ± 7
Partial epilepsy	—	17p. (89.5%)	17p. (39.5%)
Generalized epilepsy	—	2p. (10.5%)	2p. (5%)
Suicide attempts	6p. (25%)	4p. (21%)	10p. (23%)
Psychiatric institutionalization*	8p. (33%)	1p. (5%)	9p. (21%)
Psychopharmacology* treatment history	16p. (67%)	6p. (31.5%)	22p. (51%)
Neurologic institutionalization	9p. (37.5%)	6p. (31.5%)	13p. (30%)

* $p < 0.05$.

Table 2 Psychiatric diagnoses

Diagnoses in Axis I	Pure PNES group (n = 24)	Mixed PNES group (n = 19)	Total (n = 43)
PNES as the core syndrome			
Conversion disorder	20p. (83%)	16p. (84%)	36p. (84%)
Dissociative disorder*	17p. (71%)	7p. (37%)	24p. (56%)
Malingering	1p. (4%)	—	1p. (2%)
Panic disorder	1p. (4%)	—	1p. (2%)
Other Axis I comorbid disorders			
Posttraumatic stress disorder*	7p. (29 %)	1p. (5%)	8p. (19%)
Affective disorders	13p. (54%)	14p. (74%)	27p. (63%)
Somatoform disorders	9p. (37.5 %)	5p. (26%)	14p. (32.5%)
Anxiety disorders	6p. (25%)	2p. (10.5%)	8p. (19%)
Psychosis	—	4p. (21%)	4p. (9%)

DSM IV, Axis I.

patient with anxiety disorders (panic attack), and one case of malingering disorder simulating PNES, were found in G1 (Table 2).

Other current or past Axis I disorders not related to PNES as the core syndrome were analyzed in second place (co morbid disorders). Thirty-eight patients from the total population (88.37%) had one or more co morbid disorders in Axis I. More frequent disorders were somatoform disorders (pain, somatic complaints, autonomic dysfunction, etc.), affective disorders (major depression and dysthymia), and posttraumatic stress disorder (PTSD). PTSD was more frequently found in G1 ($\chi^2 = 4$, $p = 0.045$) (Table 2).

In Axis II, similar rates of personality disorders were diagnosed in both groups (71%/68%). The most common type of personality disorders found was Cluster B (borderline personality disorder, and histrionic personality disorders), and Cluster C (dependent personality disorder) (Table 3).

Psychogenic seizure semiology

The signs most commonly found were hypermotor features and the presence of aura. These results were similar in both groups. Motionless, were found with less frequency in the same proportion in both groups.

The presence of a total lack of responsiveness during the PNES, was significantly more frequent in G2 ($\chi^2 = 8.9$, $p = 0.003$), Table 4.

Discussion

Psychogenic non-epileptic seizures are commonly diagnosed in epileptic centers and may often be confused with epileptic seizures. Their psychogenic origin is now better accepted but their actual dynamics have not yet been understood. Nevertheless, psychiatric studies have found high rates of multiple and heterogeneous psychiatric disorders.^{11–17} The diversity of psychiatric diagnoses and the variability in the PNES outcome, suggest the involvement of multiple mechanisms in developing PNES, indicating that it constitute a heterogeneous psychiatric entity.¹⁹

The prevalence of epilepsy in PNES patients is elevated, and the fact of having epilepsy could contribute "per se" to the development of PNES, probably due to psychosocial and psychopathological reasons.^{22,23} Otherwise, in the pure PNES group, psychiatric disorders may represent a major factor involved in the developmental of PNES.

In our study, pure PNES group showed certain differences from mixed PNES patients.

As described in the literature there was a great female prevalence in both groups.^{7,14,16,20,21,30} However, a broader difference was found for the feminine predominance in the pure PNES group.

Older age and a longer duration of PNES-since-onset until the moment of diagnosis, was found in pure PNES group. In this group most of patients have been treated in different Health Care Centers

Table 3 Psychiatric diagnoses

Axis II	Pure PNES group (n = 24)	Mixed PNES group (n = 19)	Total (n = 43)
Personality disorders	17p. (71%)	13p. (68%)	20p. (46.5%)
Cluster A	1p. (4%)	6p. (31.5%)	7p. (16%)
Cluster B	8p. (33%)	4p. (21%)	12p. (28%)
Cluster C	8p. (33%)	3p. (16%)	11p. (25%)

Table 4 Analysis of PNES semiology

	Pure PNES group (n = 24)	Mixed PNES group (n = 19)	Total (n = 43)
Total lack of responsiveness*	6p. (25%)	12p. (63 %)	18p. (42%)
Hypermotor	19p. (79%)	14p. (73%)	33p. (77%)
Motionless	10p. (41%)	8p. (42%)	18p. (42%)
Aura	22p. (91%)	15p. (79%)	37p. (86 %)
-Somatic symptoms	10p. (41%)	5p. (26%)	15p. (35%)
-Sensorial symptoms	5p. (21%)	7p. (37%)	12p. (28%)
-Psychic symptoms	10p. (41%)	8p. (42%)	18p. (42%)

* p < 0.05.

before PNES diagnosis, and have been received both antiepileptic and psychotropic medications during years, without a clinical response. Mixed PNES patients were also treated with antiepileptic drugs without a clinical response, but psychopharmacotherapy and psychiatric institutionalization was not common in these patients. Both groups of patients included in this study, have been considered as having refractory epilepsy before PNES diagnoses.

All patients with PNES had at least one current and recognizable psychiatric illness categorized in DSM IV. Conversion disorders were common in both groups coinciding with the majority of reports,^{12–18} but dissociative disorders were more frequently found in pure PNES patients. Trauma and traumatic experiences have been considered a predispositional factor for developing dissociative experiences and dissociative forms of PNES.^{35–37} Historically since Freud and Janet, dissociation syndrome was related to trauma experiences.^{37,38} Trauma, particularly sexual abuse, has been proposed by many authors as a major factor in the pathogenesis of PNES, and high rates of PTSD have been usually reported^{13,35,36,39,40} among PNES patients. Some authors have determined a higher frequency of the trauma factor in the pure PNES group.^{26,39,40} In our investigations we observed PTSD with more frequency in the pure PNES group, but the differences were not statistically significant, probably due to the small sample. Dissociative disorder and PTSD, have been associated with poor outcome of PNES.^{20,21} In this sample, longer duration of PNES was observed in pure PNES group respect to the mixed PNES patients. Besides, epidemiological variables related to psychiatric morbidity like psychopharmacological treatment history, and psychiatric institutionalization, were significantly higher in pure PNES group. According to this, pure PNES patients included in this study, have a more severe psychiatrist compromise than mixed epileptic patients with PNES. In a recent study, Szaflarski et al. have mentioned more severe psychopathol-

ogy, in pure PNES compared to mixed epileptic patients with PNES.²⁸

Other psychiatric disorders, affective disorders (major depression and dysthymia), anxiety disorders, and psychoses were found in similar rates in both groups of patients. Kuyk et al.²² found a great prevalence of other somatoform disorders (not related to conversive disorder), in pure PNES patients. We did not find significative differences in these categories.

PNES patients have been described as having more risk of developing personality disorders,^{11–18} and clusters B and C personality disorders have been more frequently described in PNES population.⁴¹ The most common personality disorders found in this study were Clusters B and C disorders. Cluster A was found in a minor proportion. Galimberti et al.²⁰ found a great prevalence of Cluster B personality disorders in patients with PNES but they did not find any differences between the groups (pure and mixed PNES patients). On the contrary, Kuyk et al.²² found a greater proportion of personality disorders (Clusters C and B) in patients with mixed PNES. In this study we observed a high incidence of personality disorders equally in both groups.

Clinical seizure phenomena documented by Video-EEG, may be useful in distinguishing PNES from ES.^{42,43} In this study, we compared PNES semiology in both pure and mixed PNES groups.

The presence of total lack of responsiveness during the attack was significantly more frequent in the mixed PNES group as other authors reported.^{5–7} On the contrary, pure PNES patients contact, listen, and/or answer during the PNES. Pure PNES group had also greatest rates of dissociative disorders in psychiatric analysis. Dissociation can be described as a structured separation of mental processes (perceptions, emotions, memories and identity), ordinarily integrated in and accessible to conscious awareness.^{37,38} The quality of awareness and voluntary control of consciousness is disrupted in Pure PNES and in dissociation, in stead of complete loss off consciousness observed

in mixed group. This also explains why PNES patients can often respond on a low consciousness level during the attack.⁵ Resembling hypermotor seizures and the presence of aura was found in the majority of patients in both groups.

No differences were determined between the two groups by analyzing age, use of antiepileptic drugs, suicide attempts, and neurological institutionalisation.

In this analysis we included a small and exploratory clinical sample, obtained from an Epilepsy Reference Center in Argentina; consequently, the results are not necessarily generalizable. Certain differences were established between the groups. Pure PNES patients showed a different psychiatric profile, with a greater prevalence of dissociative disorders and PTSD, and major factors for severity including psychiatric institutionalization, psychopharmacological treatment history, and long-term evolution of PNES. Having applied widely contemporary used nosography, DSM IV/ICD 10, allowed us to describe the clinical features of the PNES patients and also orientated therapy. Larger studies are needed to confirm these preliminary findings.

There are still many controversies in the analysis of the more specific psychiatric factors that have been mentioned above. These controversies may be due to the few comparative studies carried out until now, and to methodological problems, such as the use of widely differing diagnostic methods.

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