

Original Research Reports

Psychogenic Nonepileptic Seizure Patterns in Patients With Epilepsy

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Background: Psychogenic nonepileptic seizures (PNESs) clinically resemble epileptic seizures (ESs) without concomitant electroencephalograph (EEG) changes. Although most studies focus on the differences between ESs and PNESs in different groups of patients, few studies have focused on patients with a comorbidity of PNESs and ESs. **Objectives:** The aim of this study, was to establish the pattern of relationships between PNESs and ESs in patients who had both types of events during long-term video EEG monitoring, expecting to find that PNESs would be longer, more frequent, and more dramatic than ESs. **Methods:** This retrospective study included only patients who had both ESs and PNESs during long-term video EEG monitoring. **Results:** 12 patients with both types of seizures during long-term video EEG monitoring were recruited. Taking into account the hypothesized

differentiating pattern (number of PNESs \geq ESs, duration of PNESs \geq ESs, and semiology of PNESs \geq ESs), in 8 patients, all 3 conditions were fulfilled; in 3, 2 conditions were fulfilled; and in only 1, none of the conditions were fulfilled. **Conclusion:** Although there are semiological similarities between PNESs and ESs in the PNES + ES group of patients, there is still a recognizable pattern of differences between these 2 states, with characteristics of PNESs resembling those of PNESs in patients with PNESs alone—dramatic and prolonged seizures. Provoking PNESs during long-term video EEG monitoring can cause diversion from the pattern, raising the suspicion of provoking pseudo-PNESs. Although this finding needs to be further investigated provocation should be used cautiously.

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Psychogenic nonepileptic seizures (PNESs) are defined as paroxysmal episodes in which epileptic semiology (ictal clinical manifestation) is manifested without the characteristic concomitant electrical discharges seen in epileptic seizures (ESs).¹

Epilepsy is considered a risk factor for PNESs with reported prevalence of up to 58%.^{2,3}

Although most studies focus on the differences between ESs and PNESs in different groups of patients, only few studies have focused on patients with a comorbidity of PNESs and ESs.¹

Although there are several clinical manifestations during events, which help differentiate PNESs from ESs, it is hard to make a certain diagnosis on clinical grounds alone. The management is even more

complicated in patients with comorbid ESs and PNESs, as these patients could suffer from a false epilepsy classification, a drug-resistant epilepsy, or a comorbidity of PNESs. Long-term video electroencephalograph monitoring (LTVEM) is the test of choice, which helps to differentiate between these states.⁴

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The aim of this study, was to establish the pattern of the relationships between PNEs—spontaneously occurring or provoked—and ESs in patients who had both type of seizures during LTVEM.

When examining the clinical aspect of an epileptic patient, the 3 main properties envisioned included the clinical manifestation of seizures (semiology), the duration of seizures, and the frequency of seizures.

The expectation was that the number of PNEs would be greater than that of ESs, the duration of PNEs would be longer than that of ESs, and the ictal clinical manifestations of PNEs would be more dramatic than those of ESs.

METHODS

The medical record of patients who underwent LTVEM in the unit from January 1, 2001 to October 1, 2013 was retrospectively reviewed, and patients selected who had a diagnosis of epilepsy and PNEs during monitoring. Only patients who had both types of seizures during LTVEM in one or more monitoring sessions were included in the study.

LTVEM was performed by using a 22-channel digital video electroencephalograph system, with the electrodes arranged according to a modified 10–20 system. During the admission, all patients were managed by a neurologist with subspecialty training in epileptology.

The video monitoring sessions' duration was 4–14 days. Patients were admitted for 1 of the following 3 reasons: (1) investigation (seizure classification), (2) treatment adjustment, and (3) presurgical evaluation.

Nonepileptic paroxysmal events mimicking ESs include syncope, rapid eye movement sleep behavior disorders, and restless leg syndrome.⁵ An event was classified as a PNEs when the video showed a semiology resembling that of an ES in the absence of electrographic paroxysmal changes during, after, or before a typical event.

All PNEs occurred spontaneously, in only 1 patient “saline provocation” (see the section [Discussion](#) for more detailed explanation on provocation methods for PNEs) was used to elicit a seizure when the patient underwent LTVEM in another center.

The 3 clinical properties that were used to differentiate PNEs from ESs included semiology, duration, and number of seizures.

Statistical analysis was done by using SPSS software, version 13.0 of the SPSS System for

windows. The paired 1-tailed *t*-test was used, with seizure type (ES or PNEs) as an independent variable and the mean duration of seizures and the number of seizures as dependent variables.

All data gathering was approved by the institutional review board.

RESULTS

From January 1, 2001 to October 1, 2013, 1024 patients underwent LTVEM in the unit, of which 353 patients were diagnosed with PNEs. In 80 of them, there were interictal epileptiform discharges, and only 12 patients had both types of seizures during LTVEM.

The mean age of patients was 32.6 ± 12.58 years, the mean number of antiepileptic drugs used was 3.08 ± 1.08 , and 9 of the 12 patients were women.

The clinical details of all 12 cases are summarized in [Table 1](#). Several important features emerged from the 12 cases described.

All patients had drug-resistant epilepsy, and 11 patients were treated with multitherapy. Overall, 9 patients had focal epilepsy, and in 8 patients the epilepsy was symptomatic. Of the 9 patients, in 8 the focal epilepsy was of temporal origin.

In 8 patients, the number of PNEs was higher; in 2, it was the same; and in 2, it was smaller when compared with that of ESs.

In 8 patients, the duration of PNEs was longer, in 1 it was similar, and in 1 it was shorter when compared with that of ESs. It is important to note that in 2 patients data regarding length of seizures were missing.

[Table 2](#) summarizes the differences between mean duration and number of PNEs when compared with that of ESs in patients with nonprovoked, spontaneously occurring PNEs.

Regarding semiology, in 5 patients, the semiology of the PNEs resembled that of the ES. In 6 patients, the semiology of the PNEs, though shared similarities with the semiology of the ES, was more demonstrative and had more motor involvement. In only 1 patient the semiology of PNEs was less demonstrative than that of ES.

The pattern of relationship between PNEs and ESs is summarized in the figure. All patients were informed of the existence of PNEs, and all patients were offered psychologic or psychiatric consultation.

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