

Evaluation of Patients with Pseudoepileptic Seizures

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ÖZET

Psödoepileptik Nöbetleri Olan Hastaların Değerlendirilmesi

Psödoepilepsi nöbetleri klinik görünüm olarak epilepsi nöbetlerine benzeyen fakat merkezi sinir sisteminde herhangi bir fizyolojik bozukluğun eşlik etmediği tablolardır. Epilepsi nöbetlerine eşlik edebildiği gibi onları çok iyi taklit de edebilir. Bu çalışmada Temmuz 1987 ve Eylül 1991 tarihleri arasında Virginia Üniversitesi Epilepsi Merkezi'ne başvuran hastaların dosyaları taranmış ve eşzamanlı video EEG analizleri sonucu psödoepilepsi nöbeti tanısı alan hastalar incelenmiştir. Bu durumda olduğu belirlenen 51 hastanın tıbbi ve sosyal özgeçmişleri, nöbetlerin klinik olarak gözlenmesi, EEG çekimleri ve psikiyatrik muayenelerinin sonuçları değerlendirilmiştir. Sonuçta 31 hastada sadece psödoepilepsi nöbetleri olduğu saptanırken, 11 hastada hem psödo hem de gerçek epilepsi nöbetleri belirlenmiştir. Dokuz hastada ise her ne kadar video kayıtları ile doğrulanamadıysa da, öyküdeki risk faktörleri gözönüne alınarak muhtemel epilepsi nöbetleri olduğu kanısına varılmıştır. Sonuçlar literatür ile karşılaştırılmış ve bir kez daha psödoepilepsi nöbetlerini gerçek epilepsi nöbetlerinden gelişmiş tekniklerle bile ayırmanın güçlüğü vurgulanmıştır.

Anahtar kelimeler: *Psödoepilepsi nöbetleri, psikojenik nöbetler, epilepsi*

SUMMARY

Pseudoepileptic seizures (PES) are clinical events that resemble epileptic attacks but are not associated with physiological central nervous system dysfunction. They may accompany epileptic seizures or closely resemble them.

In this study we reviewed the files of patients admitted to the University of Virginia Epilepsy Center and investigated the patients with PES as discharge diagnosis based on the analysis of simultaneous video and EEG recordings between July 1987 and September 1991. Fifty-one cases were identified. Their medical and social histories, clinical observation of seizures, EEG features and psychiatric examinations were obtained and evaluated. 31 patients were diagnosed as pure PES, 11 patients were determined to have both epileptic and PES and 9 patients were believed to have probable epileptic events because of risk factors in the history, although they did not correlate with video recordings. We compared our results with the literature and reaffirm that differentiating PES from genuine epilepsy remains difficult even with the advanced techniques currently in use.

Key words: *Pseudoepileptic seizures, psychogenic seizures, epilepsy*

Pseudoepileptic seizures (PES) are clinical events which resemble epileptic attacks but which are not associated with physiologic central nervous system dysfunction. They are not always easy to diagnose as they may accompany epileptic seizures or closely resemble epileptic seizures. These patients may be unsuccessfully treated with antiepileptic drugs or referred to epilepsy centers as intractable. Sometimes the referring physician suspects a nonepileptic origin but needs confirmation by objective data. After the investigation with advanced techniques such as ambulatory monitoring and/or video telemetry, these patients may then receive the accurate diagnosis of

pseudoepileptic seizures, usually of psychogenic origin.

We evaluated the characteristics of patients with PES whose diagnoses were based on the analysis of simultaneous video and EEG recordings, their medical and social history and clinical observation and assessment of seizures.

PATIENTS and METHODS

Files of 855 patients hospitalized at the University of Virginia, Highland Epilepsy unit between the years July 1987-September 1991 were reviewed and included in the study if they received "PES" as primary or secondary discharge diagnosis. Insufficiently documented cases, symptomatic psychiatric paroxysms (like amnesic fuges) were excluded. All patients were referred for frequent seizures or seizure-like episodes refractory to medication. A complete medical history and neurologic and general examina-

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Table I. Description of patients.

Number of patients	: 51 (5.96 % of all admissions)
Sex	: 10 males, 41 females
Race	: 7 Black (14.5 %), 44 White (85.5 %)
Age at admission	: 8-63 years (Mean: 31.2)
Age at onset	: 1-55 years (Mean: 24.3)
Age 17 <	: 8 patients (15.6 %)
Age 17 >	: 43 patients (94.4 %)
Number of admission	: 24 patients single, 27 patients multipl
Duration of hospitalization	: 2-50 days (Mean: 10.8)

Table II. Clinical features.

Three groups according to the presence of genuine epileptic seizures were identified.

Group 1: 31 patients defined as PES

Group 2: 11 patients were identified to have both epileptic and PE seizures

Group 3: 9 patients with PES suspected to have epileptic seizures in addition because of risk factors in the history with pathologic baseline EEG and neuroimaging studies but could not be confirmed with seizure and video EEG correlation.

	Group 1 (n=31)	Group 2 (n=31)	Group 3 (n=9)
Mean age at onset	27.7 (SD 13.3)	14.1 (SD 10.7)	24.5 (SD 15.3)
Neurologic abnormalities	1	5	2
Risk factors for epilepsy	6	9	7
EEG			
anormal	22	2	6
slightly abnormal	9	-	3
epileptiform abnormal	-	9	-
Varieties of seizures:			
single	20	-	5
multiple	11	11	4
Seizures characteristics:			
Postictal confusion	9	5	-
Incontinence	6	6	-
Aura	8	3	-
Follow up (17 only)			
seizure free	6	2	1
no change	1	3	1
improved	1	1	1

tions were performed on all of them. Serum antiepileptic drugs were monitored. At least two standart 21 channel EEGs were performed; including periods of alertness, hyperventilation, photic stimulation and sleep. Ambulatory EEG with video monitoring was performed in the majority of the patients. Description of patients are on Table I.

Social and Psychological Situation

Marital status: 21 married, 23 single, 2 widowed; 6 living with a partner;

Employment: 14 employed, 10 unemployed, 11 student, 3 pensioner, 13 housewives.

Twentysix patients reported serious problems with their families. Seven patients were sexually abused as children, 1 was raped as teenager, 2 had homosexual relationships.

RESULTS

Fifty one patients were admitted to the unit diagnosed as PES with or without epilepsy 31 (60.7 %) had PES only (Group 1), 11 (21.5 %) had definite epileptic seizures with PES (Group 2) and 9 (17.6 %) had unproved but suspected epilepsy (Group 3). Eight (15.6 %) patients were in pediatric age group (17<). Younger age at onset in Group 2 was noted. Comparing the group means by ANCOVA there is statistically significant difference between group 1 and 2 for age at onset ($p=0.004$). There was a remarkable difference between age at onset and admission too. A chi-square test of independence was performed for other variables such as type of seizures, presence of neurologic and EEG abnormalities and presence of risk factors for epilepsy (trauma, febrile convulsions, birth injury, family history) and all of them were significantly related with groups respectively ($p=0.01, 0.03, 0.001, 0.001$).

The most common type of seizure was characterized by bilateral convulsive movements resembling generalized tonic-clonic seizures in 24 patients, unilateral limb movements occurred in 5 patients, complex seizure-like automatisms and altered behaviour in 13 patients, staring spells in 11 patients and unresponsiveness with falling in 5 patients. Seizure type did not show any specific significant differences between groups.

Seizure frequency and time too did not differ between groups; 10 several times/day in 20 patient, 1-6 times/day in 16 patients, 1-3 times/month in 10 patients and less often in 4 patients. Twenty patients were on single, 21 were on multiple AEDs, 5 were on tranquilizers during admission. Incontinence was noted in groups 1 and 2. EEG status and other clinical features are shown in Table II.

The initiation of the attacks was related to overt trauma in nine patients. In five patients with probable and in two patients with documented epilepsy either kind of attacks started following a head injury with loss of consciousness. More interestingly, in two patients with epilepsy and PES the seizures began after severely stressful events, prior to which they had been entirely normal.

Table III. Results of neuropsychological tests and psychiatric evaluation of 42 patients. Some patients have more than 1 diagnosis

Results	Number of Patients
Normal	2
Depressive disorder	8
Bipolar affective disease	2
Post traumatic stress disorder	1
Borderline personality	1
Somatoform disorder	1
Somatisation disorder	2
Atypical psychosis	1
Dysthymic disorder	1
Major depression	1
Anxiety disorder	4
Conversion disorder	5
Dependent personality	7
Schizoid personality	1
Mental retardation	7

A high percentage of psychiatric abnormalities with a broad spectrum of diagnoses were discovered (Table III).

DISCUSSION

There is still no unanimity of the terminology which describes these types of seizures. Almost every article employs different terms. While some favor "psychogenic (1), or hysterical seizures"; according to others psychogenic seizures describes the epileptic seizures triggered by psychogenic events. Some authors opine that "pseudoseizure" is pejorative and wrong and "non-epileptic attack disorder" is a better term because it is not accusatory (3). We prefer the term pseudoepileptic seizure (PES) rather than the other, as these patients are still having some seizures which resemble epilepsy (4).

In our study we estimated that 5.9 % of patients admitted to the unit during the study period were diagnosed as PES with or without epilepsy but there is a wide range in occurrence of PES, from 5-20 % in different series (2,5,6,7,8). 15.5 % of our patients were in pediatric age group. This compares with 12-20 % different papers which are consistent with our results (6,9). Like all other studies female to male ratio (5:1) is significantly high (10,11,12). Although race was not mentioned in previous studies black patients represented a small percentage but personal observation of the seizures revealed a tendency to more striking manifestations with exaggerated gestures.

Almost every type of seizure was encountered even with incontinence, so this is not a helpful criterion to differentiate PES from epileptic seizures (12).

More than half of the patients had multiple admissions and most of them had already been prescribed AEDs. In several other studies this point was noted and some patients had even undergone several treatments for status epilepticus (13). When the side effects and the cost of AEDs are taken into consideration, the seriousness of differential diagnosis between PES and epileptic seizures can be better appreciated. Age at onset is older in our PES group. Similar results were reported in other studies (11,14). Admittance to a reference center took quite a long time which means that these patients lived with equivocation or ineffective drug therapies for significant periods of time.

The high percentage of abnormal psychiatric evaluation (81.3 %) is also a consequential finding (10,15,16). This is mentioned in other studies but most of them stressed the occurrence of conversion reactions, histrionic personalities and depression but in our series there is a broad spectrum of diagnoses, so it is not easy to explain the etiology predicated only on hysteria or conversion. The existence of organic brain disease such as epilepsy and mental retardation is professed to favour PES (10,17). Sexual abuse is considered as another etiologic factor which, while convincing, was it is determined in only 7 of our patients. However, we believe that it is more common though the denominator is not well know. This was pointed out by other authors in different studies (12,18). We suspected epilepsy in 17.6 % of patients but were not able to verify it during the recording. But some remarkable points in their histories or EEG abnormalities tempted us to group these patients as PES with probable or possible epilepsy. Abnormal EEG results were also consistent with the results of other studies which proposes cerebral pathology (11,19). Nevertheless it is not a specific marker.

A striking feature was the inability to distinguish epilepsy from pseudoepileptic seizures on the basis of triggering events. Both cranial and psychic trauma figured in the etiologic history of patients with PES in other series (20), but there has not previously been convincing evidence that both epileptic and

PES seizures may start in response to psychic trauma in patients who had no previous history of epilepsy.

In conclusion, clinical features, history, additional diagnostic modalities, even including techniques such as video-EEG telemetry, may not be sensitive enough to definitively sustain the diagnosis of PES. In every patients with PES there must continue to be suspicion of epilepsy. Sexual abuse is important in the history. Seizure description or presence of incontinence is not helpful to exclude epilepsy. Baseline EEG may be abnormal in PES. Seizures may be missed even on video telemetric recordings. Psychic and cranial traumas can both trigger PE and epileptic seizures. Accurate diagnosis is important to avoid unnecessary or prolix usage of antiepileptic drugs.

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