The Etiology of Psychogenic Non-Epileptic Seizures: Toward a Biopsychosocial Model

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KEYWORDS

• Psychogenic non-epileptic seizures • Conversion
• Dissociation • Epilepsy • Pseudoseizures • Etiology

Many paroxysmal neurologic disorders cause impairment of consciousness, but most patients are diagnosed with one of three: epilepsy, syncope, or psychogenic nonepileptic seizures (PNES). In one study, a neurologist was able to establish a diagnosis in 87% of 158 consecutive patients newly referred to her clinic, with 43% having epilepsy, 25% syncope, 12% PNES, and 7% other disorders.[1] The authors of another study, which reportedly captured all patients experiencing a blackout who first presented to a neurologist, emergency room, or primary care physician, believed that 57.4% had epilepsy, 22.3% syncope, and 18.0% PNES.[2]

Although PNES are therefore among the most important differential diagnoses of epilepsy, they are not well understood, and are therefore often not well treated.[3–5] Diagnostic delay, the mistreatment of PNES as epilepsy (or less commonly of epilepsy as PNES), and poor communication between patients and doctors remain commonplace. Neurologists have a crucial role in explaining the disorder to patients.

PNES are episodes of altered movement, sensation, or experience resembling epileptic seizures, but not associated with ictal electrical discharges in the brain. They are a behavioral response to mental, physical, or social distress characterized by a temporary loss of control. The most common semiology involves excessive movement of limbs, trunk, and head resembling tonic–clonic seizures. PNES with stiffening and tremor, or atonia and unresponsiveness also occur.[6]

Most experts assume that PNES are an unintentional manifestation of emotional distress. They are called ''dissociative convulsions'' (F44.5) in the International Classification of Diseases (ICD-10) and ''conversion disorder with seizures or convulsions''

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(300.11) in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). However, experts recognize that PNES are occasionally simulated (in malingering and factitious disorders).[7]

PNES have been the subject of many recent review articles, which have focused on the differential diagnosis,[8] the process of making the diagnosis,[9,10] the relationship with neurologic pathology,[11] the management by neurologists,[12] and further treatment by psychotherapists.[13–16] This article focuses on developing an explanatory model for PNES that integrates the results of a wide range of studies. It is aimed at general neurologists, psychiatrists, and clinical psychologists who would like to gain a better understanding of a complex disorder. Reflecting the author's expertise in the area, it focuses on adults.

ETIOLOGIC FRAMEWORK

PNES occur in a heterogeneous patient population. No single mechanism or even contributing factor has been identified that is necessary and sufficient to explain PNES in all patients. PNES are best understood based on the biopsychosocial, multifactorial etiologic model outlined in **Fig. 1**.

In most patients several interacting causes can be identified. *Predisposing factors* increase vulnerability to the development of PNES in later life. *Precipitating factors* occur over the days to months before the onset of seizures and seem to cause PNES to start. *Perpetuating factors* make it harder for patients to regain control of seizures or aggravate the problem once seizures have started. *Triggering factors* seem to start recurrent seizures within seconds or minutes. Even if one factor seems to play a predominant role in a particular patient, other factors are likely to have contributed and should not be ignored.

PREDISPOSING FACTORS

Genetic factors

The relationship between inherited factors or childhood antecedents of a particular disorder such as PNES and its later development is typically indirect or probabilistic. Many other factors codetermine whether PNES will develop in an individual. Little is currently known about specific genetic factors conferring vulnerability or resilience

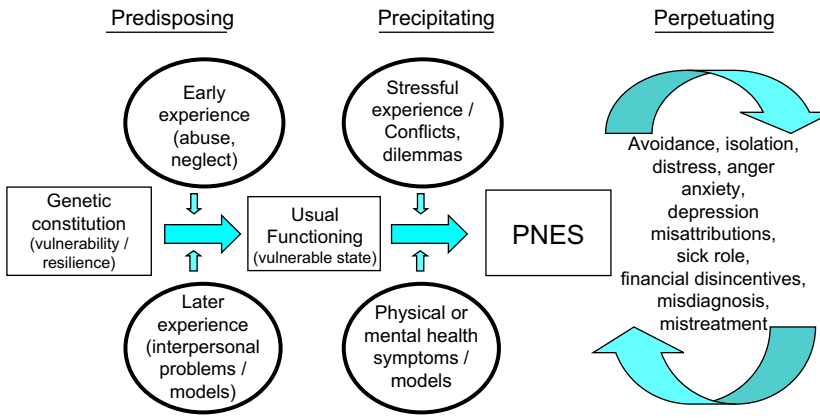

Fig. 1. Etiology of psychogenic nonepileptic seizures: a multifactorial model.