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Review

Psychogenic non-epileptic seizures—Definition, etiology, treatment and prognostic issues: A critical review

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ABSTRACT

In this review we systematically assess our currently available knowledge about psychogenic non-epileptic seizures (PNES) with an emphasis on the psychological mechanisms that underlie PNES, possibilities for psychological treatment as well as prognosis. Relevant studies were identified by searching the electronic databases. Case reports were not considered. 93 papers were identified; 65 of which were studies. An open non-randomized design, comparing patients with PNES to patients with epilepsy is the dominant design. A working definition for PNES is proposed. With respect to psychological etiology, a heterogeneous set of factors have been identified. Not all factors have a similar impact, though. On the basis of this review we propose a model with several factors that may interact in both the development and prolongation of PNES. These factors involve psychological etiology, vulnerability, shaping, as well as triggering and prolongation factors. A necessary first step of intervention in patients with PNES seems to be explaining the diagnosis with care. Although the evidence for the efficacy of additional treatment strategies is limited, variants of cognitive (behavioural) therapy showed to be the preferred type of treatment for most patients. The exact choice of treatment should be based on individual differences in the underlying factors. Outcome can be measured in terms of seizure occurrence (frequency, severity), but other measures might be of greater importance for the patient. Prognosis is unclear but studies consistently report that 1/3rd to 1/4th of the patients become chronic.

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1. Introduction

Psychogenic non-epileptic seizures resemble epileptic seizures, have no electrophysiological correlate or clinical evidence for epilepsy, whereas there is positive evidence for psychogenic factors that may have caused the seizure.[1–3] With their somatic appearance and underlying psychological or psychiatric problems, these seizures appear on the boundaries of the medical and mental health services, although most patients seem to be seen in tertiary epilepsy centres. The incidence of PNES in the general population is relatively low, estimated at about 1.5/100,000 persons per year; about 4% of the incidence of epilepsy.[4,5] However data from epilepsy centres estimate a much higher incidence rate. In 25–30% of the patients referred to tertiary epilepsy centres for refractory epilepsy a diagnosis of PNES is obtained.[6,7] A complicating factor is that between 5 and 40% of these patients with PNES has a concomitant diagnosis of epilepsy or has a past history with epileptic seizures.[8,9]

Although diagnosis can be difficult, the differential diagnosis between PNES and epilepsy has improved in the last 30 years, especially since the introduction of simultaneous video-EEG monitoring.[6,9,10] Diagnosing PNES is important because of the potential iatrogenic hazards such as potentially serious side effects of antiepileptic drugs and failure to recognize pseudo status-epilepticus with a potential hazard of intubation.[5,11] The failure to recognize the psychological nature of these seizures also delays implementation of appropriate psychological treatment.[5] Social stigma attached to the diagnosis of epilepsy is considerable and patients that suffer such a stigma for a longer period can become hostile when the diagnosis changes from epilepsy to PNES.[12]

The differential diagnosis is thus a very important aspect and a first step in the treatment of PNES. However, when the medical diagnosis is only focused on excluding epilepsy, it can become a pure 'negative' process and consequently PNES becomes a non-disease.[13] A positive diagnosis is necessary in which the underlying psychological mechanisms are evaluated that can be used for treatment aspects. LaFrance and Devinsky[14] call this ''borderland diagnosis'' referring to the fact that the diagnosis is best made by neurologists with expertise in clinical neurophysiology, especially long-term monitoring and V-EEG, whereas treatment is best initiated by psychologists whose experience affords them a familiarity with psychological constructs and conflicts. Theories regarding the psychological etiology of PNES are however very diverse. This probably reflects the heterogeneity of the psychogenic etiology of PNES that can be a symptom of various affective and psychiatric factors.[15,16] Literature is also hindered by variation and inconsistent use of terminology As yet there is no accepted model to explain the psychogenic features leading to PNES, but there are indications that often more than one factor or psychogenic mechanism operates in PNES.[17] Also comparatively little research has been done on treatment and prognosis for patients with PNES.

In this review we therefore systematically assess the current knowledge about PNES with an emphasis on the psychological mechanisms that underlie PNES, psychological treatment, as well as prognosis. We not only aim at identifying relevant factors, which has been done excellently in some other reviews, but also attempt to organize such factors in an explanatory model. Such a model arranges factors in their relationships and can provide options for therapy and research. Although we can learn from other psychosomatic disorders and their theoretical background, such as conversion disorders, PNES are unique in their aspect, especially because of the paroxysmal nature. This implies that models for other psychosomatic disorders cannot easily be transferred to PNES.

2. Methods

Relevant studies were identified by searching the electronic databases psycINFO, EMBASE, MEDLINE, PubMed and Online Contents. Articles included were identified by searching the terms: 'non-epileptic seizures'; 'non-epileptic attack disorder'; 'psychogenic non-epileptic seizures'; 'pseudo epileptic attack disorder'; 'psychogenic pseudoseizures'; 'psychogenic seizures'; 'dissociative episodes', 'hysterical seizures' with regard to etiology and treatment. In all cases 'seizures' were also replaced by 'fits' and 'attacks'.

Titles of articles and abstracts extracted during the search were reviewed for relevance, and if found to be applicable, the full-text article was retrieved. After selecting the articles, the search was expanded by using the PubMed function 'related articles'. In addition, reference lists of all articles that were identified in the electronic investigation were scanned. Further articles and conference papers were identified through hand searches in the library holdings of Kempenhaeghe and Maastricht University. Articles were included if they were published in English, Dutch or German. Case reports were not considered. Articles were included when published after 1980–2005 (26 years).

3. Results

A total of 93 papers were identified; 65 of these were studies and 28 reviews. Table 1 provides the main characteristics of the studies and Table 2 shows the reviews.

3.1. Description of the studies

Some comments on the results in Table 1 are in order. The dominant type of design is the open non-randomized comparative study. The studies are therefore not protected against the effects of bias, especially selection bias. Patients with epilepsy are mostly used as the comparator. This may seem obvious since the symptoms resemble epileptic seizures, but this is not logical when studying for example the underlying psychopathology or etiology which is presumed to be very different in epilepsy versus PNES. In many cases patients with PNES have been in the diagnostic process as 'epileptic patient' for many years. The effect on daily life may therefore not be different. Also, the sample size is mostly rather limited; the majority in the range of 20–30 patients. Given the high variability of the symptoms and underlying characteristics in these patients, it is doubtful whether any of the studies achieves sufficient power to allow formal conclusions. The larger studies are retrospective studies and mostly studies on patient files. The only exceptions are postal questionnaire studies.