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Brief Communication

Diagnostic assessment and case formulation in psychogenic nonepileptic seizures: A pilot comparison of approaches

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ABSTRACT

Management of psychogenic nonepileptic seizures (PNES) is complex, requiring multidisciplinary care. A standardized assessment approach to PNES is lacking, yet use of a comprehensive model may alleviate problems such as mental health aftercare noncompliance. Although a biopsychosocial (BPS) approach to PNES balancing predisposing, precipitating, and perpetuating (PPP) variables has been described, it is unclear how this formulation style is perceived amongst clinicians. We predicted preference of a comprehensive, "BPS/PPP" assessment style by those most involved in PNES diagnosis and care (i.e., neurologists and psychologists). Sixty epileptologists, psychiatrists, and psychologists completed a survey featuring a fictional PNES case followed by assessment style options ("Multiaxial," "Narrative," and "BPS/PPP"). Epileptologists and psychologists ("nonpsychiatrists") differed from psychiatrists in PNES case formulation choice, with nonpsychiatrists preferring the robust BPS/PPP approach and with psychiatrists opting for less comprehensive Multiaxial and Narrative assessments ($p = 0.0009$). Reasons for choosing the BPS/PPP by nonpsychiatrists included ease of organization, clear therapeutic goals, and comprehensive nature. Alternatively, psychiatrists cited time constraints and familiarity as reasons to prefer briefer Multiaxial or Narrative approaches. This pilot assessment of acceptability of a BPS/PPP approach to PNES case formulation, thus, reveals important gaps in formulation priorities between neurologists and psychiatrists. Implications and future directions are explored.

1. Introduction

Psychogenic nonepileptic seizures (PNES) are classified in DSM-5 as a conversion (or functional neurological) disorder characterized by paroxysmal episodes resembling epileptic seizures yet lacking electrical correlation as measured by the gold standard diagnostic approach, video-electroencephalography (v-EEG) [1]. Patients with PNES often present significant treatment challenges, with many hinging largely on patient acceptance of the diagnosis and the recommended treatment [2].

While a psychological basis for PNES has long been proposed [3,4], a wide range of nonspecific factors interact to cause PNES. A comprehensive multifactorial model that incorporates predisposing, precipitating, and perpetuating factors (the "3 Ps" or PPP) has been proposed to enhance the clinician's communication of the diagnosis and treatment to their patients with PNES [5]. Only a few of the many biopsychosocial (BPS) factors contributing to PNES include a history of childhood adversity such as parental loss or sexual abuse (*predisposing*), adult life events or psychiatric comorbidity (*precipitating*), and fear-avoidance or dysfunctional family unit (*perpetuating*) [6]. Stone and Carson [7] have fused the BPS and PPP contributions into an assessment style conducive to robust case conceptualization.

We propose that adoption of a "common language" informed by this multifactorial, etiologic, and pathomechanistic model of PNES will enhance communication within the multidisciplinary health-care team as well as between caregivers and patients. Improved communication and understanding are expected to result in further improvement of diagnosis, treatment, and both clinician and patient experiences. A first step in achieving this goal is to assess existing acceptability and utility of such a fused "BPS/PPP" case formulation model by clinicians currently involved in the care of patients with PNES (epileptologists, psychiatrists, psychiatry residents, and psychologists). We hypothesized higher preference for a nuanced, BPS/PPP formulation approach amongst those diagnosing PNES (epileptologists) and those treating PNES (behavioral health clinicians, particularly psychologists/therapists) when compared with those making the acute assessments (psychiatrists) and, thus, embarked on testing this premise. Further rationale regarding this purposeful yet seemingly arbitrary distinction between the "psychiatry" group and the "nonpsychiatry" group is elaborated in the Discussion section.

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2. Methods

The study was approved by the Institutional Review Board of the Cleveland Clinic Foundation. A completed survey indicated consent. An electronic survey consisting of a single case vignette followed by two questions was distributed to four cohorts of licensed independent practitioners at an academic medical center (Cleveland Clinic) with extensive epilepsy and consultation psychiatry services: 1) epilepsy clinicians (epileptologists, epilepsy fellows, and epilepsy advanced nurse practitioners; n = 30); 2) consultation psychiatry group (staff level psychiatrists with experience consulting on PNES; n = 19); 3) psychiatry trainee group (psychiatry residents; n = 30); and 4) psychologists (n = 20). The survey featured a fabricated clinical vignette of a typical patient with PNES on an EMU (Fig. 1). Respondents were asked to rank in order of preference between three possible formulation approaches: Multiaxial, Narrative, and Biopsychosocial Psychiatric formulations (Fig. 1). Respondents were also asked to briefly explain the rationale for their choices. Both descriptive trends of the responses with use of percentages and Fisher exact test analysis of cohorts are presented.

3. Results

Please see Fig. 2 for complete results and statistical analyses. The total response rate for the survey was 61% (60/99). The epilepsy clinicians (response rate: 73%, 22/30) preferred the BPS/PPP formulation (62%) over the Multiaxial (33%) and Narrative (5%) formulations; reasons for preferring the BPS/PPP formulation included comprehensive

Please use the following clinical scenario in answering the following questions:

28 year old female with a PMH of asthma, migraines, fibromyalgia, and depression is admitted to the epilepsy monitoring unit for evaluation of seizure-like episodes x 12 months. Episodes are brief periods of unresponsiveness with forced eye closure, no incontinence/tongue biting, no sensorimotor issues/confusion upon resolution; 3 such episodes occur while on video-EEG without electrographic correlate. Psychogenic nonepileptic seizures (PNES) is diagnosed. Psychiatry is consulted to address PNES. Evaluation reveals a history of depression and anxiety since adolescence, as well as a family history of maternal substance abuse/bipolar disorder and a close sister with epilepsy. The patient also has a history of early separation from parents at age 6 (including foster home care). She was admitted numerous times for asthma exacerbations during childhood and adolescence. Her primary care physician currently prescribes Lexapro 10mg, Seroquel 50mg at bedtime, and Xanax 0.5mg BID PRN (rarely used).

Socially, patient is single, lives alone with her 2 children (their father is uninvolved), and has sole social support in "sometimes abusive" boyfriend (no physical abuse). She completed high school and started medical technician training, but stopped 2 years ago due to worsening depression and chronic pain; she currently seeks disability. She denies any overt "stress" in her life. Core psychiatric symptoms include chronic insomnia, difficulty concentrating, low energy, some irritability, and chronically-low mood, but no suicidal ideation, intent, or plans, and no symptoms of mania, psychosis, or confusion. She adds that her depression has "been better since being in hospital."

Please rank the following formulation styles in order of preference:

1) **Multiaxial Psychiatric Formulation**
Axis I: Major Depressive Disorder; rule-out Conversion disorder/PNES
Axis II: deferred
Axis III: Migraines, Asthma, Obesity, Fibromyalgia
Axis IV: social isolation, unemployment/disability, medical burden
Axis V: GAF 65

2) **Narrative Psychiatric Formulation**
28 year old female with PMH asthma, obesity, fibromyalgia, and migraines, admitted to the EMU for evaluation of seizure-like episodes and diagnosed with PNES by VEEG. Risk factors for PNES include family history of psychiatric illness, personal history of depression, history of neglect, unemployment/disability status, and lack of social supports.

3) **Biopsychosocial/3P ("BPS/PPP") Psychiatric Formulation**
28 year old female with PMH asthma, obesity, fibromyalgia, and migraines, admitted to the EMU for evaluation of seizure-like episodes and diagnosed with PNES by VEEG. Risk factors for PNES include:

CASE FORMULATION	BIOLOGICAL	PSYCHOLOGICAL	SOCIAL
PREDISPOSING (early)	Family history of psychiatric illness (genetic loading)	Early separation (dysfunctional attachment); early inability to communicate distress; early family/learned epilepsy experience	Foster care home, chaotic upbringing
PERPETUATING (ongoing)	Somatic hyper-vigilance (migraines, asthma, fibromyalgia), obesity	Chronic reliance on medical care; dependence, denial/minimization, and somatization traits; chronic depression; alexithymia	Single mother status/low social support; unemployment
PRECIPITATING (acute)	Worsening pain and depressive symptoms prior to PNES onset	Learned helplessness secondary to abuse; depression leading to career loss; sick identity formation	Social isolation; primary gain in hospital admission

Fig. 1. Sample PNES vignette case and formulation options presented in a survey.