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Reports

Neuropsychiatric Considerations for the Assessment of Psychogenic Non-epileptic Seizures in Youth: A Trainee Perspective

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Psychogenic nonepileptic seizures (PNES) are paroxysmal events that present the outward appearance of epileptic seizures but lack underlying epileptiform discharges. Up to 20% of children who undergo video electroencephalogram monitoring have PNES. The International League Against Epilepsy (ILAE) provides guidelines for the assessment and management of pediatric PNES. PNES is also often comorbid with neurodevelopmental disorders. Distinguishing between PNES, epileptic seizures, and other neuropsychiatric conditions can be challenging. This article highlights some of the diagnostic challenges, utilizing ILAE guidelines, from the perspective of a developmental neuropsychiatry trainee.

Nonepileptic seizures (NES) are a subtype of Functional Neurologic Symptom Disorders.[1] NES are paroxysmal events, which present with the outward appearance of epileptic seizures (ES) but lack the underlying epileptiform discharges that would typically be captured as electroencephalographic (EEG) abnormalities.[2] Within pediatric populations, an estimated 3.5%–20% of children who undergo video electroencephalogram (VEEG) monitoring have NES.[3]

As a fellow training in developmental neuropsychiatry, I am often consulted to evaluate children with suspected NES. Distinguishing between NES, ES, and other neuropsychiatric conditions can be challenging. The International League Against Epilepsy (ILAE) issued guidelines in 2023 for the assessment and management of pediatric NES. In summary, they recommend: (1) taking a comprehensive developmental history; (2) obtaining a description of the events; (3) assessing potential stressors; (4) reviewing data, including VEEG, video recordings, and imaging, along with parent, school, and self-reports; and (5) avoiding use of invasive provocation techniques or deceit.[4]

The ILAE proposes several diagnostic levels of certainty for the diagnosis of NES. These levels are based on objective signs and subjective symptoms of the event (semiology), whether the event was witnessed by the clinician in-person or on video, the clinician's level of experience, whether the semiology witnessed is typical of NES while on or off VEEG, and whether there is lack of corresponding EEG findings. While these ILAE consensus recommendations provide much-needed guidance, from a trainee's perspective, additional clarification can show how to apply these guidelines while caring for patients. In this article, I explore the most recent ILAE guidelines for the assessment of pediatric NES and highlight important challenges in the diagnosis of NES in specific populations.

A thorough developmental history can help provide diagnostic clarity when evaluating NES. In my experience, children referred with concerns of NES often have underlying neurodevelopmental disorders (NDD) like attention-deficit/hyperactivity disorder (ADHD), intellectual developmental disabilities (IDD), or autism spectrum disorder (ASD). The evidence bears this out; in a nationwide matched cohort study of 5- to 17-year-olds with NES in Denmark, researchers found 11.5% of youth had co-occurring NDD and 6.8% met criteria for intellectual disabilities.[5] Individuals with NDD also have higher rates of ES than the general population, with estimates up to 46% in individuals with ASD.[6]

Distinguishing between the presentations of NDD, NES, and ES can be difficult since they often share overlapping features. For example, repetitive motor behaviors observed in ASD may resemble automatisms seen in NES or ES. Dyskinetic movements or spasms in individuals with cerebral palsy could also be mistaken for NES or ES. Thorough understanding of an individual's neurodevelopment and premorbid baseline (prior to the onset of seizure-like symptoms), along with a careful diagnostic workup, can help disentangle the complex overlapping features that can be present for individuals with NDD, NES, and ES.

Careful attention to detail can aid in differentiating between NES and ES. Diagnosis is further complicated by the fact that the clinical presentation of NES varies at different

ages. On studies of age-related differences in NES, children younger than 6 demonstrated fewer motor behaviors but more frequent staring, stereotyped behaviors, and movements during sleep. Conversely, older children and adolescents experienced more motor behaviors, such as tonic-clonic movements and associated vasogenic syncope.[7,8] Adults, on the other hand, may have more frequent eye closure, speech changes, vocalization during the "tonic-clonic" phase, tongue biting, and pelvic thrusting, which is rarely seen in youth.[9]

Early in my career working with adults, I learned NES were the result of traumatic life events, akin to the psychoanalytic concept of conversion disorder, which is often thought to involve a history of physical or sexual trauma. However, the current pediatric literature does not fully support this. In a study by Plioplys et. al on-risk factors for pediatric NES, utilizing sibling controls, subjects with NES faced significantly more lifetime adversities and had more comorbid medical, neurological, and psychiatric issues compared to their siblings. Contrary to the adult NES literature, there was no statistically significant difference in the frequency of physical and sexual abuse in the youth with NES and controls.[10] Instead, precipitating risk factors more often included school difficulties, fears of rejection, family discord, and interpersonal conflicts.[8] Understanding the broad range of psychosocial and other stressors associated with pediatric NES may help clinicians navigate and avoid potentially harmful assumptions (e.g., the assumption that all patients with NES must have a history of sexual or physical abuse) which may unnecessarily stigmatize children and their families.

The last 2 ILAE recommendations pertain to VEEG monitoring and ethical considerations, emphasizing the importance of best practices and avoidance of unprofessional diagnostic interventions. The current standard for diagnosing a NES is to use VEEG monitoring to capture the individual's typical seizure event. The absence of electrographic changes consistent with an epileptic seizure during a witnessed event is considered gold-standard evidence for NES. Historically, the use of provocation techniques such as intravenous saline to induce NES were commonplace. However, there has been increasing awareness about the ethical concerns surrounding this practice, and the current ILAE recommendations do not condone deceit or invasive provocation techniques.

Evaluating for pediatric NES can feel like a daunting task for a trainee or early career psychiatrist, especially when the history and clinical presentation is complex or seems nebulous. Utilizing the latest ILAE guidelines and best practices while maintaining high ethical standards provides a solid framework for the approach to evaluating patients with pediatric NES. However, I believe that expanding on these guidelines and stressing the importance of a thorough neurodevelopmental history with an emphasis on NDD can help clarify the diagnosis and can distinguish among overlapping features of NDD, ES, and NES. Growing evidence also shows distinct differences between adult and pediatric NES with respect to precipitating factors, psychosocial stressors, and clinical presentation. Understanding these unique differences is not only very important for accurate diagnosis, treatment, clinical care and support, but can also prevent unnecessary stigmatization of children and their families by avoiding incorrect assumptions regarding associations between NES and sexual trauma. I hope that by highlighting some of these unique challenges that are part of evaluating pediatric NES will help other early career clinicians navigate the process of diagnosing and treating pediatric patients with this complex neuropsychiatric diagnosis.

Take Home Summary

Updated guidelines provide recommendations for evaluation and treatment of pediatric nonepileptic seizures. Emphasis on neurodevelopmental history, co-occurring neurodevelopmental disabilities, differing presentation by age, and appreciating stressors, may help with diagnostic clarification of nonepileptic seizures, while avoiding stigmatizing children and families.

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