

## Treatment of Functional Neurological Disorder- A Case Series

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### Introduction

Functional neurological symptom disorder (FND) encompasses both movement disorders and psychogenic seizures. It is characterized by neurologic symptoms, such as weakness, abnormal movements, or nonepileptic seizures, which are the result of an abnormal nervous system functioning rather than structural disease. This likens to a “software” (functional) problem rather than a “hardware” (structural) problem. FND is estimated to have a prevalence of around 2-12 per 100,000. While the exact cause of these conditions is unknown, it has been seen in patients with childhood traumas, anxiety, and depression. Clinical findings on examination provide evidence of incompatibility between the symptoms and recognized neurologic disease. However, the disorder causes distress and/or functional impairment. Patients sometimes experience debilitating symptoms that lead to significant distress and impact their quality of life. Symptoms can range from dizziness, weakness and tremors to episodes resembling epileptic seizures. Functional visual disturbance is common. These can significantly impact teenagers and their ability to participate in activities like school and sports in comparison to their peers.

First-line treatment for patients with functional neurological symptom disorder (conversion disorder) is education about the illness. Of most importance is identifying the underlying triggers and psychoeducation about any coexisting mental health diagnosis as well as the treatment of that condition.

Second-line treatment for patients with motor symptoms is physical therapy. The essential element of physical therapy for functional motor symptoms is encouraging normal movement and teaching patients to suppress abnormal patterns of voluntary movements or deficits.

Psychotherapy, specifically Cognitive Behavioral Therapy (CBT) has the best evidence for success in treatment. Cognitive therapy helps patients re-evaluate their thoughts and beliefs about the causes and consequences of their symptoms. Behavioral therapy aims to change problematic behavior; specific techniques include desensitization (which involves progressively greater exposure to feared and avoided situations and symptoms), progressive muscle relaxation, abdominal breathing exercises, and gradual increases in physical activity. In this paper we will present 3 cases that presented to our adolescent clinic and the treatment modalities that were used to treat FNDS.

### Subjects background

**Case 1-** A 14-year-old female presented to our office for evaluation after a diagnosis of psychogenic non epileptic seizure (PNES) disorder at an outside institution. The patient had an episode of shaking in the bathroom at school. She had witnessed an event in the emergency department in which her upper extremities were moving. An incidental lesion was found on pituitary gland on MRI thought to be a Rathke's cleft cyst, but imaging and EEG

were otherwise normal. An event was captured on video EEG but did not correspond to EEG changes. She presented to our clinic with worsening anxiety about having an attack at school and having to give up her favorite sports due to continuing attacks. In our practice we started her on Clonidine for sleep, Buspar for anxiety, and Florinef to help with the dizzy feeling she was experiencing. She started CBT and saw improvement in the frequency of her episodes and ability to deal with her baseline anxiety.

**Case 2-** A 15-year-old female with a known history of sexual abuse presented to our adolescent clinic. When she was age 9 she received counseling for 6 months, after the abuse had stopped. She presented to our office for evaluation of pseudoseizures. She was witnessed having a seizure at school where she was shaking and unresponsive for a full 25-30 mins. There was no documented postictal state. EEG performed while sleep, EEG performed while awake and Video monitoring, were all reported as within normal: meaning that no epileptical activity was identified in any of the 3 exams of the brain. She returned to school and had 3 more episodes in the 3 days subsequent days following her return. One of the episodes was filmed and it was inconsistent with a true seizure activity. We started her with extensive therapy, Florinef for dizziness, and Prozac. We instructed the school to no longer pay attention to her when another episode happened. She had one further episode at school, the staff did not pay attention to it and she got up within 1 minute of the episode beginning. She had no further episodes after that and remained stable with her medication and therapy.

**Case 3-** A 16-year-old female presented to our clinic having episodes of seizure like activity that had started 2 months prior. A thorough assessment of labs, imaging and neurological studies had been performed at a local children's hospital and specialty center. All tests and clinical evaluations performed were reported to be within normal limits and a neurology specialty center had ruled out the existence any neurologic condition. The episodes were described as unresponsiveness with fluttering of her eyes and twitching of her extremities which lasted from 2 minutes to 90 minutes. She had some memory of having the episodes. They started once a day and eventually progressed to 3-4 per day. She eventually had an EEG during which she had two episodes to which there were no corresponding EEG changes. Upon her evaluation in adolescent medicine, she was diagnosed with pseudoseizures and started on Prozac which was tapered to reach a higher dose. She attended a virtual outpatient psychiatry program as she could not be admitted to an in-person program due to the seizure risk. She had received a request from her school to attend virtually due to the seizure risk and she was not allowed in the building. We titrated up her dose of Prozac and her episodes decreased. We added Florinef for the dizziness and syncope/fainting that she was experiencing. She was then started on the oral contraceptive pill for her heavy periods after which, her episodes had reduced to only one per month. During our course of treatment, she also received school based psychotherapy, this allowed her to remain engaged in her daily activities while receiving treatment.

We also encountered another 3 cases in our practice in addition to those presented. Through treating these patients, we have seen that FNDS can present with anxiety or lead to a worsening of previous known mental health disorders. In our adolescent medicine clinic, we have had success with the use of selective serotonin reuptake inhibitors (SSRIs) and anxiolytics with these cases. For each patient the exact drug differed but much like the treatment of other diseases such as depression, each patient was able to find the right combination. All patients were given CBT to learn coping mechanisms and how to deal with the emotions related to their conditions. Trauma has been hypothesized as a predisposition to FND (Weber et al. 2023). In our sample there was only one case with an underlying trauma.

Furthermore, treating symptoms by using Florinef for dizziness has made a difference in the frequency of the neurological symptoms associated with FNDS.

## Discussion

While FNDS is not a common disorder, in each case the symptoms presented a significant challenge to normal functioning and participation in education and extracurricular activities. The prompt initiation of medication is important so that teenagers especially can rejoin their normal activities. A return to normality can help lessen the symptoms even further and help to reduce anxiety. Patients should be made aware that while there may not be a physical cause for their symptoms, the symptoms they experience are real and we can help alleviate them with medications and coping mechanisms. Our experience has reflected that of other clinical studies which use a combination of behavioral therapy and symptoms management.

While there are no firm evidence-based guidelines for the treatment of FNDS, other centers have used a variety of treatment modalities. This is due to the heterogeneity of the disorder itself with patients frequently having significant comorbidities as well. Previous randomized controlled trials showed that CBT was beneficial in the treatment of FNDS, specifically at reducing symptoms (Goldstein). A recent study found that short term psychodynamic psychotherapies are as effective as CBT in managing symptoms as well. An analysis was performed on medication treatment of patients with FNDS and found that they were more likely to be prescribed multiple medications for symptoms however it is more important to treat comorbid conditions than to use medications specifically for FNDS (O'Connell). Other centers have tried group therapy and dialectical behavioral therapy as modalities for treatment (Rancourt & Darkes 2019). We have found that in our patient population, treating their comorbid psychiatric disorders, starting talk therapy, specifically CBT, and treating any physical symptoms of FNDS an effective treatment that has led to success.

## Conclusions

In our experience, we have seen significant improvements in day-to-day functioning and overall symptoms in our adolescent patients when using a combination of CBT and SSRIs. Reassurance, guidance and challenging anxiety producing thoughts as well as encouraging usage of preventive coping skills is a crucial component of the multidisciplinary management. CBT helps patients to cope with the feelings that they may have regarding this diagnosis and learning coping skills to prevent symptoms. SSRIs are helpful at reducing overall anxiety and treating comorbid conditions. As in previous studies, we have seen in our practice that treatment should be individualized to cater to each specific patient's needs.

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