Treatment of Functional Seizures

Treatment for functional seizures, also termed psychogenic nonepileptic seizures, is multidisciplinary and begins as soon as the diagnosis is suspected.

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Functional seizures (FS), also termed psychogenic nonepileptic seizures (PNES), represent a complex clinical entity, and treatment and best management strategies remain limited. Psychotherapy remains the primary treatment modality for FS and should be multidisciplinary with a team-based approach, including a neurologist, a mental health professional, and other clinicians, along with family and other social supports when possible. In this article, we review all the essential parts of a treatment course for FS—from communication of the diagnosis to engagement in treatment and long-term outcomes. We also explore barriers to care and review different treatment modalities.

Communicating the Diagnosis

A nonjudgmental attitude from the medical team is an overarching principle of treatment that should inform communication of the diagnosis. This is especially relevant because many people with FS have experienced negative interactions with the health care system, often leading to feelings of being dismissed and invalidated. By maintaining an openly supportive attitude and simultaneous confidence in the assessment, diagnosis, and treatment plan, the patient may be allowed to reexperience the medical system in a more trusting manner. Initial reactions to the diagnosis are associated with specific outcomes (eg, anger leads to poor prognosis and relief to a positive prognosis).1

As soon as the diagnosis of FS is suspected, clinicians should consider how the diagnosis will be communicated and how patients will access treatment. Previous experiences with the diagnosis of FS and the health care system should be noted to help maximize engagement in treatment.

Communication of the diagnosis can improve symptom severity and decrease medical utilization for a subset of individuals with FS.2,4 It remains unclear how long this initial improvement after diagnosis can be sustained without further intervention, or whether other functional symptoms may replace FS over time. The following are the most important elements to emphasize during discussion of the diagnosis of FS: 1) reassuring the individual that the symptoms are genuine and not considered fake or volitional; 2) providing a name for the disorder (eg, FS, PNES, or dissociative seizures; 3) explaining how the diagnosis was (or will be) confirmed; 4) offering a biopsychosocial formulation that takes into account predisposing, precipitating, and perpetuating factors and a mechanism for the disease (ie, an involuntary habit developed, usually in response to an initially stressful context, that has automatized over time); and 5) stating there are treatments that work.5 How symptoms originated and what triggers each FS episode may not always be evident at this early stage. Some may readily associate their symptom onset and/or each episode to a known stressful or traumatic experience.

The explanation of the diagnosis should not be seen as a one-time discussion, but rather a process that may require multiple contacts with the individual and their family. Exposure to online educational materials (eg, neuro-symptoms.org or nonepilepticseizures.com) and patient advocacy groups (eg, fndhope.org) allows people with FS to digest information on their diagnosis at their own pace. Self-help books (eg, Psychogenic Nonepileptic Seizures: A Guide by Lorna Myers) or documentaries (eg, Dis-sociated, available for free on YouTube.com) can offer additional information and create a sense that the diagnosis is a well-recognized medical entity rather than a rare disease that needs to be hidden.

Targeting Engagement is a Key to Success

Many persons with FS have a difficult time adhering to treatment recommendations.6 The diagnosing neurologist should remain available after the diagnosis is established, especially to facilitate engagement in treatment. Motivational interviewing (MI) is a communication strategy designed to engage a person’s intrinsic motivation to generate change and has been shown to improve adherence to psychotherapy after the diagnosis of FS is presented.7 Initial discussions after diagnosis should include a plan on how to prevent unnecessary
exposure to medical interventions, including how to communicate with emergency personnel to avoid inappropriate trips to the emergency department. Other specific tasks for the neurologist involve management of any comorbid neurologic conditions (eg, headaches or epileptic seizures), management or tapering of medications (eg, removing antiseizure medications [ASMs] in those without epileptic seizures and only FS), providing recommendations related to work and driving restrictions, and remaining available for consultation in case new semiologies or neurologic symptoms arise.8

Another important factor to consider for improving engagement in treatment is the individual’s acceptance of the FS diagnosis. If doubts continue to arise regarding the validity of diagnosis and additional workup is pursued, the individual with FS is likely not at a point at which the recommended treatments will be effective, because most of their effort will be devoted to searching for a new diagnosis. In these circumstances, it is reasonable to focus on providing education about the diagnosis before proceeding to further treatment recommendations.

Other barriers that may impact engagement in treatment include prior negative experiences with the health care system, avoidance of discussing psychologic factors, attachment to purely somatic explanatory narratives, the presence of multiple other symptoms, and pending litigation or disability claims. These treatment-interfering variables should be promptly identified and addressed. The use of validation, trauma-informed care principles, and a pragmatic approach that focuses on recovery can often help patients refocus their efforts on participating in their treatment.

Treatment
Psychotherapies

Compared with other neuropsychiatric disorders, evidence-based treatments for FS remain limited. The most robust literature comes from psychotherapy interventions. A 2017 meta-analysis of 13 studies found that 82% of persons with FS who completed a psychotherapy treatment protocol had a reduction in seizure frequency of 50% or more.9

Of all psychotherapy modalities, cognitive-behavioral therapy (CBT) has been studied the most rigorously in modern clinical trials. The largest clinical trial conducted for FS (or any phenotype of functional neurologic symptom disorder [FND]) to date randomly assigned 368 participants to receive standardized medical treatment (SMT) or CBT plus SMT.10 Although follow-up at 12 months revealed no significant difference seizure frequency between the treatments, those who had CBT plus SMT rated their FS as less bothersome, had a longer period of seizure freedom prior to follow-up, and reported better health-related quality of life, less impairment in psychosocial functioning, less overall psychologic distress, and fewer somatic symptoms. Other smaller pilot randomized controlled trials have shown efficacy of CBT compared with the control interventions.11

Paradoxical intention (using imagery exposure to induce FS) and operant conditioning (positive reinforcement and punishment through withdrawal of privileges) have also been evaluated in randomized clinical trials for treatment of FS but are not routinely practiced. Both therapies were superior to the control interventions in their respective trials, although there were limited sample sizes and some methodologic variabilities.12,13

Psychotherapy modalities studied in uncontrolled trials and readily available in clinical practice include interpersonal psychodynamic psychotherapy, group psychotherapy, prolonged exposure for FS with comorbid posttraumatic stress disorder (PTSD), mindfulness-based psychotherapy, and an inpatient multidisciplinary program.14-18

A more detailed description of each of these psychotherapeutic modalities can be found in the Box. Nearly all psychotherapy modalities include some form of psychoeducation and many offer similar or overlapping tools (eg, grounding and distraction techniques, relaxation training, emotion recognition, and regulation skills training). Although the largest randomized, controlled trial for FS evaluated the efficacy of CBT, with positive results in many secondary outcomes measures, clinicians may choose other treatment modalities based on other factors. For example, individuals with pragmatic tendencies may find it easier to understand their symptoms as resulting from tangible cognitive and behavioral factors (eg, trigger leads to distorted thinking/emotion which leads to maladaptive behavior). Persons eager to understand past emotional and interpersonal conflicts as they inform current symptoms may do well with an interpersonal psychodynamic approach. Those who fulfill criteria for PTSD and FS, might be amenable to treatment that targets both simultaneously with a trauma-based treatment. Individuals who resonate with an approach that increases awareness and acceptance of internal states might do well with mindfulness-based therapy.19

Remaining flexible in terms of psychotherapeutic modality also allows treating clinicians to change strategies over time based on an individual’s needs.

Other Treatment Modalities

Psychopharmacologic Treatment. The only double-blind, placebo-controlled, randomized clinical trial for FS did not demonstrate sertraline to be superior to placebo, although the study may have been underpowered.21 In a subsequent 4-arm trial, the addition of sertraline to CBT did not seem to confer further benefit in the treatment of FS.22 Based on this evidence, currently, no pharmacotherapy is recommended for the treatment of FS.

Psychiatric comorbidities, however, may require the use of psychopharmacologic treatment. Choosing which
antidepressant or anxiolytic medication is most appropriate when simultaneously treating FS should be based on evidence-based principles for the identified comorbidities. Clinical judgment should be used as to when it is appropriate to initiate medications to treat psychiatric comorbidities. Individuals with FS can be sensitive to side effects, and, therefore, dose escalation of any medication should be done slowly and cautiously. There is no role for ASMs in the treatment of FS and use of any ASM should be clinically justified with an indication other than FS. The indication for any medication prescribed during the treatment of FS should be openly and clearly discussed with the patient to prevent distracting patients from active participation in psychotherapy and mistakenly relying on the more passive role that patients may have in psychopharmacologic treatment.

Neurostimulation Therapies. Given recent advances in our understanding of the underlying pathophysiology of FS and FND in general, noninvasive neurostimulation therapies have become an area of research interest. In a case series, 7 people with FS showed improvement in episode frequency with 30 sessions of repetitive transcranial magnetic stimulation over the right temporoparietal junction. In a single case report, positron emission tomography (PET)-guided transcranial direct current stimulation was associated with significant reduction in seizure frequency. At this point, neurostimulation treatment of FS remains experimental; although promising, more evidence of efficacy and effectiveness is needed. An advantage of neurostimulation is the possibility of pairing the stimulation with other proven effective therapies (eg, psychotherapy) that might enhance neuroplasticity and, therefore, could maximize clinical benefit.

Measuring Treatment Success
Studies have typically used seizure frequency as a primary means of judging treatment efficacy. It is worthwhile, however, to account for additional seizure characteristics (eg, duration or severity). Episodes of FS are typically difficult to track, although through treatment patterns of reduced episode length, retained awareness, or increased ability to recognize a prodrome and move to a safe location would all be signs of therapeutic success. Treatment should aim to improve ability to function and remain engaged in personal relationships and work or school. Maintaining function and engaging in relationships and daily activities may require the use of accommodations, vocational rehabilitation, or occupational therapy.

Other treatment goals include overall improved mental health and reduced unnecessary medical utilization. At times, FS may abate only to be seemingly replaced by worsened anxiety or mood symptoms. Although this may appear to be a step sideways, these psychiatric symptoms are often more actionable and a part of patients’ journeys towards wellness. Comorbid psychiatric diagnoses are the rule rather than the exception in people with FS, and management of those conditions should be part of the overall treatment plan (see Psychiatric Comorbidities in Functional Neurologic Symptom Disorder in this issue).
Long-term Outcomes in FS

There is some evidence that medical utilization may decrease for people with FS after a video-EEG established diagnosis. Studies evaluating seizures years after diagnosis vary in methodology, time frame, and treatment exposure. Most of these studies indicate that a broad percentage of those with FS remain symptomatic (45%-83%) in the previous year when assessed 1 to 16 years after diagnosis. The data seem slightly more favorable when exposure to treatment is confirmed in the patient cohort. It remains unknown whether newly available evidence-based treatments make a difference in long-term outcomes (eg, symptom recurrence, quality of life, or employment). Poor outcomes are correlated with comorbid epilepsy and psychiatric illness, more elaborated seizure semiology, and younger age of onset, whereas better outcomes have been correlated with accepting the diagnosis, higher education, shorter duration of illness, higher level of functioning, and good social supports.

Although most evidence-based psychotherapies for FS are short-term, this is to a degree a reflection of limitations in clinical trial design as well as resource availability. Consideration of longer term treatments and/or occasional booster sessions to reinforce skills previously learned in therapy may be necessary to maintain previous gains and improve long-term outcomes. Reduction in seizure frequency is a reasonable treatment goal and improvement in functioning and quality of life, at times involving vocational rehabilitation services, should also be an important focus of treatment. Many experts advocate for functioning and quality of life to be the primary foci of treatment, rather than seizure frequency.

Conclusion

Treatment for FS should start as soon as the diagnosis is suspected and involves several tasks, including assembling a treatment team, communicating the diagnosis, engaging the patient in evidence-based treatment, and long-term planning. Current evidence supports psychotherapy as the main modality of treatment for FS, with CBT having the most robust data from clinical trials. Although other modalities have lower levels of evidence for efficacy, these may offer benefit for specific subgroups of individuals or at different timepoints over the course of treatment. Other modalities have not yet shown sufficient evidence of efficacy, although new therapies such as neurostimulation are being investigated.