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Examining Pediatric Tourette Syndrome

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### Examining Pediatric Tourette Syndrome

When I was in first grade, my parents started noticing strange twitches and noises that I would repeat. After about two years of doctors' visits and several misdiagnoses, I was diagnosed with Tourette's Syndrome. There is a widespread belief that TS is a swearing disease, that is not always the case. I, like 90 percent of people with Tourette's, never uncontrollably swear or shout offensive things. Even so, elementary school was hard for me. Kids would try to mimic the strange motions I was making and ask me why I couldn't stop. Then my tics would intensify with the added anxiety and stress from my classmates judging me, and the cycle went on.

By the time middle school came around, I had experimented with dozens of medications, but couldn't find one to suppress my symptoms without all kinds of side effects. There is no cure for TS, so I thought it was just something I was always going to have to live with, a part of me. I'd played soccer since a young age and noticed there would be a short time frame where my tics were forgotten. This was while I was on the field running around. I thought that maybe my tics could be cured if I continued playing soccer. However, as soon as I stopped running, the tics would reappear. That is when I started to experiment with natural remedies for the suppression of my tics. I have tried out my fair share of both pharmacological methods and natural remedies over the years and found success in different areas.

Tourette Syndrome is a common childhood-onset neurobehavioral disorder characterized by motor and phonic tics (Jankovic & Kurlan, 2011). A key defining characteristic of Tourette Syndrome is premonitory sensory urges. These commonly occur prior to tic execution and distinguish tics from other hyperkinetic movement disorders (Jankovic & Kurlan, 2011). The purpose of this paper is to provide information about Tourette Syndrome and examine both natural and pharmacological treatment options in the pediatric population.

### **Pharmacological Treatment**

There are numerous pharmacological techniques used to treat Tourette Syndrome, including oral medications, intramuscular injections, and in some severe cases, deep brain stimulation surgery. Current FDA-approved medications are neuroleptic antipsychotic drugs. These include haloperidol and pimozide, which block D2 dopamine receptors. However, in order to maintain long term tic control, chronic therapy is required with medications. Kurlan mentions that “in a controlled trial of patients whose tics were controlled after 1–3 months of pimozide therapy, those in whom therapy was withdrawn (placebo group) relapsed (required an increase in drug dosage) after a mean of 37 days compared to 231 days in patients staying on the drug” (2014, p.163). For those who do not mind continuous pharmacological therapy, this is not an issue. Unfortunately, there are side effects that coincide with these medications too. Some common side effects of antipsychotic drugs are sedation, depression, increased appetite, and parkinsonism (Kurlan, 2014).

Intramuscular injections for Tourette Syndrome treatment consist of botulinum toxin, which has the ability to reduce tics and uncomfortable premonitory sensations and pain (Kurlan, 2014). The most common tics treated this way are eye blinking, neck, and shoulder twitches. Every individual is different and each patient has a preference of whether they choose to utilize pharmacological or nonpharmacological treatment.

### **Nonpharmacological Treatment**

Nonpharmacological methods include habit reversal cognitive behavioral therapy, cannabinoids, and dietary modifications. Regarding habit reversal therapy, McGuire mentions that "HRT is a multiple component intervention that can include psychoeducation, awareness training, competing response training, generalization training, self-monitoring, relaxation

training, behavioral rewards, motivational procedures, and social support" (2016, p.1192). During habit reversal therapy, a therapist is often used in the beginning to help the patient recognize when they are performing tics. The therapist will point it out until the patient can identify it for themselves. Patients are then able to recognize warning signs, such as thoughts, feelings, or urges. When a patient feels that a tic is coming, they are able to perform a competing response that takes the place of the tic, such as squeezing the hands into fists. A benefit of this is that it can be done anywhere without anyone likely to notice.

Cannabinoids have also recently been introduced as a form of treating tics in the Tourette Syndrome patient. It is speculated that the central CB1 receptor system may be involved in the pathophysiology of Tourette Syndrome (Muller-Vahl, 2013). Along with that, "cannabinoids act through specific receptors: predominantly in the central nervous system located CB1 receptor and a CB2 receptor that is expressed primarily by immune tissue", which explains the beneficial effects of cannabinoids in patients with TS (Muller-Vahl, 2013). Cannabinoids are generally well tolerated; however, side effects may include dizziness, tiredness, and dry mouth in some users.

Many patients have also found success with dietary modifications. Interventions can refer to any alteration in an individual's diet, including supplements, vitamins, and food. "Caffeine is a competitive antagonist at adenosine receptors and has been shown to enhance the effects of dopamine agonists," therefore facilitating the expression of tics (Ludlow & Rogers, 2017). Caffeine precipitated tics can be managed by simply limiting caffeine intake based on personal observations. Refined sugars are another substance that may be related to worsening tics. According to Muller-Vahl et al., "TS respondents have reported a worsening of their tics after the consumption of refined white sugar" (2008). This is due to the reduction of D2 receptors and extracellular dopamine caused by increased sugar intake. Limiting refined sugars is another easy

way to manage and treat tics in Tourette Syndrome. On another note, specific vitamins may be helpful in reducing tic urges. One of the most positive aspects regarding vitamin consumption is that there are really no side effects. Vitamins include magnesium and iron that, with additional sources incorporated into the diet, can show positive effects on tics.

### **Conclusion**

Children with Tourette Syndrome often struggle socially with their diagnosis growing up. With a multitude of treatment options, it can be made easier for children and their families to manage the disorder in the way best suited to each individual. Pharmacological and nonpharmacological interventions are both possible forms of treatment that show effective results in many cases.

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