Pediatric Neuropsychiatric Disorders Associated with Streptococcus

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Pediatric Neuropsychiatric Disorders Associated with Strep or PANDAS is a neuroimmunological disorder of childhood. It has been well documented and in fact, was first described over a hundred years ago in the context of Sydenham’s chorea associated with rheumatic carditis. PANDAS usually presents as a constellation of OCD and Tics following an acute infection with group A β-hemolytic Streptococcal infection. It is estimated in up to 50 percent of cases, the actual infection may go undetected or be asymptomatic and not be evident until the child presents with the onset of OCD and Tics. The pathology of PANDAS is related to a cross-reactivity of the strep antibodies with the caudate nucleus in the extra pyramidal area of the brain (the area responsible for OCD, Tics, Parkinson’s and other movement disorders). Antineuronal antibodies form against the caudate, binding and “turning it on” causing excessive movements, obsessions, and compulsions. This cross reactivity explains the lag that is often seen between onset of strep infection and illness symptoms, which may at times be 2-3 weeks in length as the antibodies are mounting in the body.

The exact prevalence of PANDAS as an etiology of OCD and Tics in children is not known; however, children who present with an acute onset of symptoms, especially in light of a recent URI, should have a further investigation including strep cultures, ASO titers, and AntiDNAse antibodies. The ASO titers are likely to be elevated early in the illness, and it is often not for 2-4 weeks that the AntiDNAse antibodies begin to rise as well. PANDAS typically presents in children ages 5-9 and will have a “waxing and waning” course if left untreated. Most children with PANDAS will continue to react to strep over a 2-3 year period and then seem to stop doing so especially as they approach adolescence. Why some children seem to react to strep in this manner and others is not clear; however, PANDAS is found more commonly in children of family members with other immunological disorders as well as OCD, Tics, and ADHD, and it may represent an inherent vulnerability of a child to OCD and Tics.

Clinical symptoms of PANDAS often include not only Tics (which may be simple or complex) and OCD, but many children also present with restlessness similar to chorea, significant insomnia (related to OCD phobias and fears around the dark, monsters, break-ins, or recurrent nightmares), transient arthralgias, and enuresis and encopresis. The symptom onset tends to be sudden, and the parents can often report the day that the symptoms first began. Additionally, it is not uncommon for children to report “hallucinations” associated with their phobias (i.e., “seeing strangers in their bedroom at night” or “feeling bugs crawling on their skin”). Phobias and obsessions may be severe to the point where the child refuses to separate from parents (fear of something bad happening to family members), are unable to go to another room or floor alone (fear of being harmed), and unable to sleep at night (fear of vampires/monsters/break-ins or nightmares). Many patients with OCD will actually experience intrusive images of these fears at times that come uninhibited and can be very distressing. These images can include images of them hurting others (fear of hurting another), car crashes (fear of accidents), and even sexualized images, the nature of which may be shameful to the patient and therefore may prevent the patient from disclosing unless specifically asked. These images can also occur at night in the form of recurrent nightmares that many
patients state will “play like a movie” over and over in their head. Fears of having these nightmares may be so great as to prevent the child from being able to sleep at night and may require antihistaminics to treat. Compulsions associated with these obsessions may be visual (i.e., checking locks) or internal (i.e., “special saying to ward off evil”). In fact, many children’s rituals may be hidden, and a child may be doing sometimes hundreds of mental rituals a day without anyone being aware. It is also very easy for parents and teachers to be pulled into these rituals as a child may seek “reassurance” as part of their ritual, and the parent may be unwittingly reinforcing the OCD behaviors and fears.

The treatment for PANDAS centers around treating the acute strep infection and preventing exposure or reinfection. Children with PANDAS should have a 10-day course of either Amoxil or Augmentin and should be monitored closely for any recurrent strep. Because of the high prevalence of asymptomatic cases, any symptoms of sore throat, sudden headaches, fever, or upset stomach (N/V/pain) should prompt strep cultures, and siblings should also be screened routinely as well. Studies out of NIMH have shown that antibiotics do in fact improve and shorten the course of PANDAS for children. For those children who have high rates of reinfection, there may be a role for prophylaxis antibiotic treatment (fall through late spring), IV IG treatment, or in severe cases tonsillectomy. In some cases, the use of an SSRI for several months to help alleviate OCD symptoms until titers can come down is also warranted. The SSRIs should be started low and titrated to effect. It should be noted that in many cases, the anxiety disorders and OCD require higher doses of the SSRIs in order to control OCD symptoms completely (i.e., 40-60mg of Prozac a day).

Additionally, children should be referred to a good cognitive behavioral therapist who specializes in Exposure Relapse Preventive Therapy (ERP) with children. Parents should also be referred for support as the stress and burden of caring for these children during acute exacerbations can often be extreme. The OC Foundation of Boston has several support groups and lists of providers in the area who specialize in OCD for families and can be found online (www.ocfboston.org). The National PANDAS Association (through the National Institute of Mental Health) has a wealth of information and resources for families as well as ongoing studies that families can opt to participate in on new experimental treatment options that may be available.