

## **What is PANDAS?**

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The pediatric OCD community has recently been alive with discussion of P.A.N.D.A.S., or Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections. This long-winded mouthful of a condition is relatively new to the pediatric mental health world, and is still only in the hypothesis stage. Researchers both at MGH and across the country are very interested in exploring this relative of obsessive-compulsive spectrum disorders.

There is an increasing body of evidence that suggests there is a subset of kids who develop acute-onset OCD with notable tic and motor symptoms. In the prototypical P.A.N.D.A.S. case, a child suddenly begins exhibiting OCD-like behaviors. Over the course of a few days or weeks, a previously asymptomatic child can become functionally incapacitated by his/her new obsessions, compulsions, and noted motor tics. This rapid-onset condition can be very scary for families, and most parents don't know where to turn for treatment.

- Sudden onset of OCD
- Challenges with eating, and at the extreme end, anorexia
- Sensory issues such as sensitivity to clothes, sound, and light
- Handwriting noticeably deteriorates
- Urinary frequency or bedwetting
- Small motor skills deteriorate - a craft project from yesterday is now impossible to complete
- Tics
- Inattentive, distractible, unable to focus and has difficulties with memory
- Overnight onset of anxiety or panic attacks over things that were no big deal a few days ago, such as thunderstorms or bugs.
- Suddenly unable to separate from their caregiver, or to sleep alone
- Screaming for hours on end
- Fear of germs and other more traditional-looking OCD symptoms

### **What's causing it?**

The PANDAS hypothesis is based on the notion that an infection may be causing rapid-onset OCD. Most commonly, a child's strep throat (which may be so subtle it goes undetected) turns into a debilitating autoimmune condition. For this reason, any children experiencing sudden-onset OCD symptoms are now given a strep test. Clinicians are discovering that many cases of sudden-onset OCD may actually be caused by an underlying infection.

The central hypothesis of P.A.N.D.A.S. derives from neurobehavioral changes associated with Sydenham's chorea, a potential subsequent outcome of acute rheumatic fever. Amongst children who acquire rheumatic fever, some (20-30%) go on to develop Sydenham's chorea, classically exhibiting uncontrollable tics and motor hyperfunction. Researchers noted that some previously asymptomatic kids experienced acute-onset OCD accompanied with tics and movements. These symptoms were similar to those seen in Sydenham's chorea, and hence the hypothesis of P.A.N.D.A.S. was born.

In these children, an immune response to group A beta-hemolytic streptococcus (GABHS) infections may lead to inflammation of the basal ganglia in the brain. The result is a sudden-onset condition that appears similar to both pediatric OCD and Sydenham's chorea.

## **The PANS Hypothesis: Broadening the Scope**

An even newer line of thinking has categorized all rapid-onset pediatric OCD cases into an even broader category known as PANS, Pediatric Acute-onset Neuropsychiatric Symptoms. With PANS, a recent and observable infection is no longer a requirement. Rather, the PANS hypothesis is a broader grouping that includes children with (all three):

- 1.) Sudden onset of OCD symptoms that impair family/social/academic function
- 2.) Neurobehavioral changes including (2 of the below):
  - a. Anxieties
  - b. Sensory/Motor abnormalities
  - c. Behavioral regression (e.g. new onset impulsivity, hyperactivity)
  - d. Deterioration in school performance
  - e. Emotional lability/depression
  - f. Urinary symptoms
  - g. Anorexia
- 3.) Symptoms are not explained best by psychosocial, medication reactions, or outstanding metabolic disorder

## **Treatment & Further Research into PANDAS/PANS**

As the PANDAS/PANS hypotheses are still in the developmental stage of scientific research, the medical community is only in the early stages of formalizing standard treatment protocols. At this time, most research is aimed towards treating the (potential) underlying infection. Anecdotal evidence suggests that an antibiotic regimen (such as azithromycin) may target the underlying infection and cause a reversal of symptoms, although a full-scale placebo-controlled NIH treatment trial has yet to be done. Monitoring of immune markers in the central nervous system may soon provide critical insight into the etiology of this condition.

Stay tuned to MGH OCD for updates on PANDAS/PANS. Our pediatric OCD team is on the cutting-edge of this scientific research and we hope to help many of our young patients overcome this scary and debilitating condition.

## **More Reading & Weblinks**

International OCD Foundation

<http://www.ocffoundation.org/PANDAS/>

National Institute of Mental Health

<http://intramural.nimh.nih.gov/pdn/web.htm>

P.A.N.D.A.S. Network

<http://pandasnetwork.org/>

International PANDAS Foundation

<http://www.pandasfoundation.org/>