

Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections

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ABSTRACT

Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections (PANDAS) is a rare disease in pediatric age group which constitute a unique manifestation associated with obsessive-compulsive disorder (OCD) and tic disorder in children.

However, this diagnosis has carried a lot of controversies, related mainly to its management. Here we are presenting one case of PANDAS syndrome who was treated successfully with full course of antibiotic for 10 days, where all his symptoms disappeared completely in subsequent days including suicidal attempts. PANDAS should be considered in children with neuropsychiatric disorders (tics, obsessive behavior etc.) especially if symptoms associated within a period of infection such as febrile illness or sore throats.

Keywords

Autoimmune diseases, Streptococcal infections, Obsessive-compulsive disorder.

Introduction

Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections (PANDAS) occurs because of cross-reactive antibodies produced in response to group A streptococcal infections similar to that of rheumatic fever and Sydenham chorea [1-6] as well as other several studies have shown the role of immunological factors in the causation of obsessive-compulsive disorder in this syndrome.

The prevalence of PANDAS in united states according to the National Institutes of Health (NIH) Genetic and rare Disease information Centre (GARD) is unknown. Probably because it is a new emerging disease entity over the last two decades and we need to have more prospective well controlled studies.

Obsessive-compulsive disorder (OCD) is characterized by the presence of recurrent, unwanted thoughts (obsessions) and repetitive abnormal behaviors, create psychological distress and significant impairment [2].

Several treatments option exist including tonsillectomy, antibiotic treatment, prophylaxis, intravenous immunoglobulin (IVIG), and psychiatric medications/therapy.

PANDAS treatment for the best need multidisplenary team which involve a pediatrician, neurologist, and psychiatrist.

Our Case

This is 13 years old, boy, complaining of abnormal behavior (aggressiveness) Inform of screaming, nervousness and hitting other, started suddenly, continuous for 10 days, associated with a feeling that his family used to ignore him, hence he started to threaten them that he will commit suicide.

The family decided to be seen by a psychiatrist who start him on anti-depressant medication. But the child continued medication for 7 days with no improvement.

No history of Visual disturbance, neck stiffness, headache, trauma, fever, Projectile Vomiting, sore throat, cough, Skin rash, chronic illness or previous admission. No history of altered level of consciousness, Weakness or Abnormal movement like tics.

Parents are medically free. Father 58 years old, retired and mother 45 years, housewife with Negative consanguinity, got 6 siblings all are normal.

All live with parent with good outcome and good relationship. He is student at first intermediate class with good performance.

On examination: Patient was a febrile, all his vitals were normal including oxygen saturation and RBS. Speaks normally and fluently with comprehensive language but was nervous, no good eye to eye contact, not interested to the surrounding, no signs of depression with absent insight. Symmetrical facial expression, reactive pupils and normal eyes movement, and no signs of meningeal irritation. Normal power, tone, and reflexes. Throat, and other systemic examination were normal. Initial Professional diagnoses was Psychiatric illness with? Underlying cause, most likely PANDAS syndrome.

To roll out other etiologies of acute encephalopathy such as drugs, brain tumors, or auto immune disorders.

Investigation: Revealed CBC, RBS, LIVER, RENAL, BONE PROFILE, ESR, CRP, CSF analysis and culture are normal. URINE AND BLOOD CULTURE, DRUG level for hashish and marijuana, and CT brain all were normal.

Hospital course

Patient Clinically was conscious, alert, oriented, but agitated and obsessive, with good oral intake, activity. Patient started initially ceftriaxone and acyclovir. Meanwhile He was reviewed by pediatric psychiatric and neurologist. They recommend sending ASO titer and throat culture and started haloperidol PRN. ASO titer was high (832) but the throat swab was normal, however the patient diagnosed most likely Pediatric autoimmune neuropsychiatric disorder associated with group A streptococcus (PANDAS). So, antibiotic changed to oral amoxicillin.

In subsequent days' patient showed marked improvement of all his symptoms and discharge home to continue amoxicillin for 7 days.

At follow up in the clinic he was doing very well, and all his symptoms disappeared completely including obsessive behavior, aggressiveness, and suicidal thoughts, and given appointment for further follow up.

Discussion

Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcus (PANDAS) is a rare syndrome, but important

to be recognized by a pediatrician. Sometimes PANDAS resulting from a subclinical infection of tonsillitis or not known to have a clear history of a sore throat in the past few months like our case. The affected child usually presents by a neurological symptoms like tics, abnormal behavior and/or obsessions/compulsions that worsen in relation to acute infection caused by group A beta hemolytic (GABHS) streptococcus [3].

Currently PANDAS is a clinical diagnose, as there are no specific or pathognomonic tests available to confirm the diagnoses. That's why it need a high index of suspicion by a pediatrician. The national institute of mental health NIMH has laid down the classical description of PANDAS through five criteria, 1-presence of obsessive-compulsive disorder, tics, or both 2-symptoms appear between 3years of age and puberty (although later is possible) 3-sudden onset of symptoms with a relapsing -remitting course 4-Association of symptoms and a group A streptococcal infection, 5-presence of neuropsychiatric symptoms.

Our patient got 4 out of 5 of the criteria as he was neither showed any of obsessive manifestations nor tics in the past. Moreover, the exact time lag between the streptococcal infection and the worsening of neuropsychiatric symptoms has not been defined in the diagnostic PANDAS criteria. Swedo et al. proposed a period of 6 months between a GABHS infection and onset of obsessions/compulsions or tic disorder, as well as 6 weeks between GABHS infection and neuropsychiatric exacerbations [4]. Some patient may need imaging studies especially if the disease was subclinical or need antipsychotic treatment to stop abnormal movements.

Treatment of PANDAS

Include multidisplenary, pediatrician, neurologist, and psychiatrics. Treatment with antibiotic improve the manifestation of PANDAS [5], however in our patient, it was a dramatic and complete disappearance of his symptoms in few days.

Conclusion

Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcus (PANDAS) is a rare disease, but important condition to be recognized by a pediatrician. Early diagnoses and prompt treatment can prevent the significant sequelae's of social, emotional, educational and family disturbances. Past history of group A beta hemolytic streptococcal infection might be absent or subclinical, hence high index of suspicion is warranted. All related investigation including throat swab and ASO titer are mandatory. Antibiotic therapy helps in disappearance of all neuropsychiatric disorders within a short time.

Reference

1. Kirvan CA, Swedo SE, Snider LA, et al. Antibody-mediated neuronal cell signalling in behavior and movement disorders. *Neuroimmunol.* 2006; 179: 173-179.
2. Kalra SK, Swedo SE. Children with obsessive-compulsive disorder are they just little adults. *J Clin Invest.* 2009; 119: 737-746.
3. Swedo SE, Seidlitz j, Kovacevic M, et al. Clinical presentation

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- of pediatric autoimmune neuropsychiatric disorders associated with streptococcal infection in research and community setting. *J Child Adolesc psychopharmacol.* 2015; 25: 26-30.
4. Franklin ME, Sapyta J, Freeman JB, et al. Cognitive behavior therapy augmentation of pharmacotherapy in pediatric obsessive-compulsive disorder the Pediatric OCD Treatment Study II POTS II randomized controlled. trial *JAMA.* 2011; 306: 1224-1232.
 5. Murphy ML, Pichichero ME. Prospective identification and treatment of children with pediatric autoimmune neuropsychiatric disorder associated with group A streptococcal infection PANDAS. *Arch Pediatr Adolesc Med.* 2002; 156: 356-361.
 6. SE O, Leonard HL, Garvey M, et al. Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections clinical description of the first 50 cases. *Am J Psychiatry.* 1998; 155: 264-271.