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A Case of PANDAS Treated With Tetrabenazine and Tonsillectomy

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Abstract

PANDAS (pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections) is a rare clinical syndrome characterized by the presence of tics, Tourette syndrome, obsessive-compulsive disorder, or chorea in the context of an immediately precedent streptococcal infection. In this report, we describe the case of an 11-year-old boy who developed PANDAS with severe choreic movements. The criteria for PANDAS diagnosis were met. Moreover, serum antibrain antibodies were present. The patient was initially treated with tetrabenazine 12.5 mg twice daily with remission of the neurological symptoms. Subsequently, the patient underwent tonsillectomy and has been asymptomatic since, with antistreptolysin O titer levels in range.

Keywords

PANDAS, autoimmune disorders, chorea, tetrabenazine

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PANDAS (pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections) is a rare clinical syndrome characterized by the presence of tics, Tourette syndrome, obsessive-compulsive disorder, or chorea in the context of an immediately precedent streptococcal infection.[1] Five criteria define PANDAS: (1) the presence of tic disorder and/or obsessive-compulsive disorder, (2) prepubertal onset; (3) episodic course characterized by acute, severe onset and dramatic symptom exacerbations; (4) adventitious movements (choreiform) present during the symptom exacerbation; (5) temporal association between group A β-hemolytic streptococcal infection and onset or exacerbation of symptoms.[1] Therapy for PANDAS includes immunosuppressive agents in the acute stages,[2] while neurological symptoms have been treated with compounds such as haloperidol, clonidine, and serotonin reuptake inhibitors.[3]

Here, we describe the case of an 11-year-old boy who developed PANDAS with severe chorea that we successfully treated with tetrabenazine.

Case History

An 11-year-old boy with no preceding illnesses and no family history presented with choreic movements and tics. The problem started abruptly 3 years ago with the onset of abnormal, involuntary movements of both upper limbs and tics of the eye and lips. At the time, the patient was hospitalized and antistreptolysin O titer of 694 U/mL was found (normal range, 0–200 U/mL) along with other signs of inflammation. Cardiology examination was normal, as well as electrocardiogram and echocardiogram. Antibiotic treatment was started with the combined penicillin preparation reinforced diaminocillina (Farmitalia; 1200 units once monthly), and a near-complete remission of the symptoms was observed. Chorea and tics appeared again approximately 6 months after antibiotic treatment was discontinued (antistreptolysin O titer, 782 U/mL).

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Diaminocillina treatment was started again, but no improvement of neurological symptoms was observed.

When the patient came to our attention, he displayed choreic movements of both upper limbs, along with several tics. These signs were exacerbated by stress and moderately interfered with activities of daily living such as handwriting and the ability to play soccer. Abnormal involuntary movements scale was 19. When admitted into our day hospital, the following tests were run with the consent of both parents: antistreptolysin O titer, 846 U/mL; erythrocyte sedimentation rate, 8 mm/hr; electrocardiogram, normal; electroencephalogram, normal; cardiology examination, normal; echocardiogram, normal. Brain magnetic resonance imaging (MRI) did not show any anomalies. Parents denied the consent for positron emission tomography (PET) or single photon emission computed tomography (SPECT).

Serum levels of human brain antibodies were qualitatively tested by immunoblotting (Euroline Test Kit, Euroimmun, Lubeck, Germany). Anti-Ri-ANNA-2, amphiphysin, and Hu were intensely positive.

With the consent of both parents, treatment with diaminocillina 12 000 units once monthly was continued, and a therapy with tetrabenazine 12.5 mg twice a day was initiated, with prompt relief from choreic symptoms. Indeed, at week 2 from beginning of tetrabenazine therapy, abnormal involuntary movements scale score was 4.

Five months after the beginning of tetrabenazine treatment, the patient underwent tonsillectomy to normalize antistreptolysin O titer levels, which were still elevated (658 U/mL).[4] Six weeks after the surgery, tetrabenazine therapy was discontinued, whereas the antibiotic treatment was maintained. Two weeks after discontinuation of tetrabenazine and 8 weeks after tonsillectomy, abnormal involuntary movements scale score was 3 and antistreptolysin O titer was 156 (within normal range). Since then, our patient has remained in remission with antistreptolysin O titer within normal range.

Discussion

We describe the case of an 11-year-old boy with recurrent tonsillitis whose symptoms associated with chorea were exacerbated by tonsil infections and who fulfilled the diagnostic criteria for PANDAS. The case diagnosis was indeed confirmed by the presence of antibrain antibodies.[5]

To control the involuntary movements, because of the young age of our patient, we aimed at using a compound that proved more tolerable than haloperidol and that could achieve a good improvement of the chorea.

Tetrabenazine is, to date, the only drug that was approved by the United States Food and Drug Administration for the symptomatic treatment of chorea in Huntington's disease.[6]

To our knowledge, this is the first case of neurological symptoms of PANDAS treated with tetrabenazine. However, tetrabenazine has been used in chorea due to encephalopathies and toxic agents in the pediatric population.[7]

Our patient underwent tonsillectomy, which led to a remission of symptoms and normalization of antistreptolysin O titer levels.[4]

Our study proposes for the first time the use of tetrabenazine in children with PANDAS as an alternative to haloperidol and other compounds for the control of chorea and confirms the importance of tonsillectomy in the treatment of multiple tonsillitis that sustain raised antistreptolysin O titers, thereby triggering the onset of PANDAS.

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