THE EFFECT OF ADENECTOMY IN CHILDREN WITH PANDAS SYNDROME ON NEUROPSYCHIATRIC DEVELOPMENT

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Abstract.

Children presenting with obsessive–compulsive disorder (OCD) and/or tic disorders with an abrupt onset or relapsing course, particularly in temporal association with streptococcal pharyngitis, may meet diagnostic criteria for Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections (PANDAS). Current hypotheses suggest that the pathogenesis of PANDAS involves molecular mimicry and autoimmune cross-reactivity between antigens of group A β-hemolytic streptococcus and neuronal tissue, especially structures of the basal ganglia, resulting in neuroinflammation and dysregulation of cortico–striato–thalamo–cortical circuits. These mechanisms may explain the sudden onset and fluctuating course of neuropsychiatric symptoms in affected children.

In this context, adenectomy and tonsillectomy have been proposed as potential interventions aimed at reducing chronic streptococcal colonization, recurrent infections, and persistent immune activation. Surgical removal of lymphoid tissue has historically been considered in children with recurrent tonsillitis; however, its role in modifying autoimmune neuropsychiatric processes remains unclear. Existing literature provides conflicting data regarding the effectiveness of adenectomy in preventing exacerbations or improving the long-term neuropsychiatric outcomes in PANDAS patients, which necessitates further investigation.

Early recognition of autoimmune neuropsychiatric syndromes associated with streptococcal infection, timely differentiation from other movement and behavioral disorders, and selection of rational treatment strategies represent important challenges in pediatric neurology and psychiatry. In contrast to Sydenham chorea, PANDAS is characterized by focal motor or vocal tics, obsessive–compulsive symptoms, emotional lability, and behavioral regression, typically with disease onset between 5 and 12 years of age. Establishment of clear diagnostic algorithms may contribute to earlier diagnosis, reduction of diagnostic delays, and avoidance of unnecessary therapeutic or surgical interventions.

Keywords: children, adenectomy, PANDAS syndrome, obsessive–compulsive disorder, tics, autoimmune neuropsychiatric disorders.

Objective.

To investigate the influence of adenectomy on streptococcal antibody titers, the timing of onset of OCD and/or tic disorders, and the clinical severity of neuropsychiatric manifestations in children diagnosed with PANDAS syndrome.

Materials and Methods.

The study included 56 children (mean age 10 years; 12 girls) who underwent comprehensive clinical evaluation. Assessment methods included detailed analysis of prenatal, perinatal, and family history; physical and neurological examination; review of medical records; standardized psychological testing; and laboratory evaluation of antistreptolysin-O (ASO) and anti-deoxyribonuclease B (anti-DNase B) titers. Based on surgical history, patients were divided into two groups: a surgical group consisting of children who had previously undergone adenectomy (n = 19) and a non-surgical group (n = 37). Comparative analysis was performed to evaluate differences in the severity of OCD and tic symptoms, immunological markers of streptococcal exposure, and diagnostic classification of pediatric

autoimmune neuropsychiatric disorders associated with streptococcal infection.

Results.

Comparative analysis revealed no statistically significant differences between the surgical and non-surgical groups regarding streptococcal antibody titers, age of onset of neuropsychiatric symptoms, clinical severity of OCD or tic disorders, or PANDAS classification. In the majority of cases, adenectomy was performed before the onset of neuropsychiatric manifestations and did not demonstrate a preventive or therapeutic effect on subsequent symptom development. These findings suggest that surgical removal of adenoidal tissue alone does not sufficiently modify the autoimmune mechanisms underlying PANDAS syndrome and does not prevent the occurrence or progression of neuropsychiatric symptoms.

Conclusion.

The present study demonstrates that adenectomy is not associated with significant changes in streptococcal antibody concentrations or clinical severity of OCD and tic disorders in children with PANDAS syndrome. These results indicate that adenectomy should not be considered an effective standalone intervention for the prevention or treatment of PANDAS-related neuropsychiatric symptoms. Management of affected children should focus on a multidisciplinary approach, including neurological, psychiatric, immunological, and infectious disease evaluation. Further prospective, longitudinal studies with larger sample sizes are required to clarify the role of surgical interventions in the management of PANDAS syndrome.

Keywords:

children, adenectomy, PANDAS syndrome, obsessive–compulsive disorder, tic disorders, streptococcal infection, autoimmune neuropsychiatric disorders.

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References / Foydalanilgan adabiyotlar

1. Swedo S.E., Leonard H.L., Garvey M. et al.

Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections: clinical description of the first 50 cases.

American Journal of Psychiatry. 1998;155(2):264–271.

2. Cunningham M.W.

Molecular mimicry, autoimmunity, and infection: the cross-reactive antigens of group A streptococci and their sequelae.

Microbiology Spectrum. 2019;7(4).

3. Chang K., Frankovich J., Cooperstock M. et al.

Clinical evaluation of youth with pediatric acute-onset neuropsychiatric syndrome (PANS): recommendations from the PANS Consensus Conference.

Journal of Child and Adolescent Psychopharmacology. 2015;25(1):3–13.

4. Murphy T.K., Kurlan R., Leckman J.

The immunobiology of Tourette's disorder, pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections, and related conditions: a way forward.

Journal of Child and Adolescent Psychopharmacology. 2010;20(4):317–331.

5. Pavone P., Parano E., Rizzo R., Trifiletti R.R.

Autoimmune neuropsychiatric disorders associated with streptococcal infection: Sydenham chorea and PANDAS.

Journal of the Neurological Sciences. 2006;243(1–2):15–24.