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CLINICAL PHENOMENOLOGY OF TIC DISORDERS IN CHILDREN: A SERIES OF CLINICAL CASES

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Abstract. *Tic disorders in children are a common neurological pathology, ranging from transient benign forms to chronic and disabling ones, such as Gilles de la Tourette syndrome (CJT). The article presents three typical clinical cases reflecting the spectrum of tic hyperkinesis: Transient tics in a 7-year-old child with complete regression on the background of non-drug correction. Chronic motor tics in a 9-year-old girl who required a combination of cognitive behavioral therapy and pharmacotherapy. Gilles de la Tourette syndrome in a 12-year-old boy with comorbid psychiatric disorders, demonstrating the need for a multidisciplinary approach. Special attention is paid to differential diagnosis, the role of stress factors, as well as modern treatment methods, including behavioral techniques (habit reversal training), pharmacotherapy (clonidine, risperidone) and psychosocial support. The importance of early intervention to improve the prognosis and quality of life of patients is emphasized.*

Keywords: *tics, Tourette's syndrome, children, hyperkinesis, cognitive behavioral therapy, antipsychotics.*

The urgency of the problem.

Tic hyperkinesis is one of the most common motor disorders in pediatric neurological practice, occurring, according to epidemiological studies, in 5-20% of school-age children. These conditions represent a heterogeneous group of disorders that range from transient benign forms to chronic progressive disorders such as Gilles de la Tourette syndrome. Despite significant progress in the study of the pathophysiology of tics, many aspects of their etiopathogenesis remain unclear. Modern research indicates a complex interaction of genetic factors, disorders of neurotransmitter metabolism (mainly dopaminergic and serotonergic systems) and the influence of environmental triggers. The issue of differential diagnosis of various forms of tic disorders and the development of personalized approaches to therapy is of particular relevance [8].

Tourette syndrome or Gilles de la Tourette syndrome (TS) is the most severe form of tic hyperkinesis and is characterized by the presence of multiple motor tics, as well as one or more vocal tics. The disease is based on tic hyperkinesis - fast, violent, stereotypical movements that resemble voluntary ones and affect the muscles of the face, body and limbs, while changing in severity during the day, provoked by excitement, mental and physical stress and disappearing during sleep [8]. The first clinical manifestations of TS appear in childhood, on average, from 4 to 7 years old [10]. Diagnostic criteria for TS, according to ICD-10 (F.95.2), are represented by the following symptoms [3]:

1. Multiple motor and one or more vocal tics, although not always simultaneously;
2. Tics occur many times during the day, usually paroxysmally, almost daily or intermittently, for a year or more;

3. The number, frequency, complexity, severity and localization of tics vary;

4. The tic is not associated with diseases such as Huntington's disease, viral encephalitis, intoxication or drug-induced movement disorders.

Today, tic hyperkinesis remains one of the most pressing problems in neurology and psychiatry. In the child population, according to B. Kadesjö and C. Gillberg (2000), the prevalence of tics varies from 0.5% to 1.1% [4]. According to a 2018 epidemiological study among children aged 6 to 16 years in China, the prevalence of tic disorder was 2.5% [7].

The prevalence of TS in children in Brazil is 0.43%, reaching a maximum of 1% by the age of 9 [6]. N. Khalifa and A. von Knorring (2007) [7] identified TS in 0.6% of schoolchildren, which causes social and psychological problems in the integration of schoolchildren with tic hyperkinesis into the general educational process and productive interaction of patients with normotypic children. In Scandinavian countries, according to research data for 2008-2016, the prevalence of tics varied from 0.15% to 1.23%, and on average by the age of 12, TS was diagnosed in 0.43% of children, it is noteworthy that the incidence among boys is 4 times higher than among girls [9]. In the adult population, tics occurs 5-10 times less frequently than in children, according to various estimates, from 50 to 659 cases per 1,000,000 adults [1]. The results of M. Bloch et al. (2006) indicate that 25% of tics that once existed in children persist in the adult population [9]. Thus, it is in childhood that patients with tics and tics seek medical attention the most, and accordingly, such patients need personalized approaches to diagnosis, rehabilitation, drug and behavioral therapy. To verify the correct diagnosis of TS, it is important to remember that symptoms can be caused, for example, by drug use or neurological diseases such as myoclonus, Huntington's chorea, restless legs syndrome, or neuropsychological disorders such as attention deficit hyperactivity disorder and obsessive-compulsive disorder. Therefore, it is always necessary to assess the presence or absence of certain symptoms characteristic of TS [6]:

1. The patient's ability to voluntarily exercise inhibitory control over the manifestation of a tic.

2. The presence of "precursor impulses". That is, unstructured sensations, perceptions or mental experiences that arise as a result of increased internal tension that precedes and finds subsequent relief in the expression of the tic.

3. Variability. Tics can vary in duration, frequency, intensity, and location of the motor or vocal act, which clearly distinguishes them from purely neurological stereotypes observed in diseases such as Parkinson's disease or chorea.

A clinical case of transient tics.

Patient: A., boy, 7 years old. Anamnesis: A child from the first pregnancy, which proceeded without complications, the birth is urgent. Early development was normal. Heredity is not burdened by neurological and psychiatric diseases. Complaints during treatment: Parents noticed that during the last 3 weeks the child periodically has rapid eye twitching (frequent blinking), as well as sniffling. Tics increase with excitement (for example, during school exams) and practically disappear while playing or watching cartoons. Neurological status: There are no focal neurological symptoms. Cognitive functions are preserved, and behavior is age-appropriate.

Diagnostics: Neurologist's consultation: diagnosis of "Transient tic disorder" (F95.0 according to ICD-10). EEG – without epiactivity. Psychiatric consultation: signs of anxiety against the background of adaptation to school, but without criteria for anxiety disorder.

Treatment: Behavioral therapy is recommended (ignoring ticks, reducing stress levels). Relaxation sessions and regime moments are scheduled (increased sleep time, limited gadgets). No drug therapy was required.

Dynamics: After 2 months, the tics completely regressed. Follow–up during the year - no relapses were noted.

A clinical case of chronic motor tics.

Patient: A girl, 9 years old. Medical history: Pregnancy and childbirth without pathology. At the age of 5, she suffered stress (her parents' divorce), after which the first tics appeared – twitching of the shoulders. Over the course of the year, the ticks changed: blinking and bouncing joined. Periods of remission lasted up to 2-3 months, then hyperkinesis resumed. Complaints during treatment: Persistent motor tics (nodding, closing eyes) that persist for more than a year. They increase with fatigue, decrease during the holidays. The child is aware of tics, but can only suppress them for a short time. Neurological status: No local symptoms. There is mild anxiety, but no signs of depression or obsessive-compulsive disorder (OCD).

Diagnostics: EEG: no significant changes. MRI of the brain: the norm. Psychiatric consultation: chronic tic disorder (F95.1).

Treatment: Cognitive behavioral therapy (CBT), including habit reversal training. An atypical antipsychotic (risperidone) was prescribed in a low dose due to the severity of tics.

Dynamics: After 6 months of therapy, the tics became less frequent, but did not completely disappear. After 2 years, stable remission with rare episodes of hyperkinesis under stress.

A clinical case of Gilles de la Tourette syndrome.

Patient: A boy, 12 years old. Anamnesis: The first tics appeared at the age of 6 (blinking, coughing). By the age of 8, vocal tics (grunting, repeating words) had joined in. At the age of 10, complex motor tics (bouncing, punching in the chest) and coprolalia (rare episodes) appeared. Complaints during treatment: Multiple motor (grimacing, throwing up hands) and vocal (barking, echolalia) tics, which significantly worsen the quality of life. The child is bullied at school, social anxiety has appeared. Neurological status: No focal symptoms. Comorbid disorders are expressed: OCD (compulsive hand washing), ADHD.

Diagnosis: EEG: without epiactivity. Genetic study: polymorphisms in genes associated with CGT (SLITRK1). Diagnosis: Tourette's syndrome (F95.2).

Treatment: Combination therapy: clonidine (reduces tics and ADHD symptoms), risperidone (if clonidine is ineffective). Individual educational program at school. Family psychotherapy.

Dynamics: After a year, there is a 60% reduction in ticks and an improvement in socialization. Coprolalia persists, but less frequently. The psychiatrist and neurologist are still being monitored.

Conclucion. Tic hyperkinesis in children is a heterogeneous group of disorders, ranging from mild transient forms to severe chronic ones, including Gilles de la Tourette syndrome. The presented clinical cases illustrate key aspects of diagnosis, differential approach, and therapy depending on the type and severity of tics.

Transient tics, as in the first case, occur more often at the age of 5-7 years against the background of stressful situations (adaptation to school, family conflicts) and in most cases regress independently within a few months. An important role in their relief is played by non-drug correction: stress reduction, behavioral therapy and normalization of the regime. However, even with a favorable course, dynamic monitoring is necessary, since some patients may transform into chronic forms.

Chronic motor tics (the second case) are characterized by persistent symptoms (more than a year) with periods of remission and exacerbation. Their course is often associated with comorbid conditions such as anxiety or ADHD. In such cases, in addition to behavioral techniques (habit reversal training), drug therapy may be required (for example, low doses of risperidone or clonidine). Long-term follow-up is of particular importance, since chronic tics can persist into adolescence and affect social adaptation.

Gilles de la Tourette syndrome (the third case) is the most severe variant of tic disorder, characterized by a combination of multiple motor and vocal tics, often with comorbid psychiatric disorders (OCD, ADHD, anxiety disorders). Treatment requires a multidisciplinary approach, including: Pharmacotherapy (alpha-2 agonists, antipsychotics, topiramate or tetrabenazine in resistant

cases); Psychotherapy (CBT, correction of concomitant disorders); Social support (individualization of education, work with family to minimize stigmatization).

REFERENCES

1. Alves, H.L.; Quagliato, E.M. The prevalence of tic disorders in children and adolescents in Brazil. Arq Neuropsiquiatr. 2014, 72(12):942-948. doi:10.1590/0004-282X20140174

2. Bloch, M.H.; Peterson, B.S.; Scahill, L.; Otka, J.; Katsovich, L.; Zhang, H.; Leckman, J.F. Adulthood outcome of tic and obsessive-compulsive symptom severity in children with Tourette syndrome. Arch Pediatr Adolesc Med. 2006, 160(1):65-69. doi:10.1001/archpedi.160.1.65

3. Chutko, L.S.; Surushkina, S.Yu.; Anisimova, T.I. Emotional disorders in adolescents with Tourette syndrome and their mothers. S.S. Korsakov Journal of Neurology and Psychiatry. 2018, 118(11):56-59. doi:10.17116/jnevro201811811156

4. Kadesjö, B.; Gillberg, C. Tourette's disorder: epidemiology and comorbidity in primary school children. J Am Acad Child Adolesc Psychiatry. 2000, 39(5):548-555. doi:10.1097/00004583-200005000-00007

5. Khalifa, N.; von Knorring, A. Prevalence of tic disorders and Tourette syndrome in a Swedish school population. Developmental Medicine & Child Neurology. 2003, 45:5. doi:10.1017/s0012162203000598

6. Kurvits, L.; Martino, D.; Ganos, C. Clinical features that evoke the concept of disinhibition in Tourette syndrome. Front Psychiatry. 2020, 11(21):21. doi:10.3389/fpsyt.2020.00021

7. Li, F.; Cui, Y.; Li, Y.; Guo, L.; Ke, X.; Liu, J. et al. Prevalence of mental disorders in school children and adolescents in China: diagnostic data from detailed clinical assessments of 17,524 individuals. J Child Psychol Psychiatry. 2022, 63:34–46. doi:10.1111/jcpp.13445

8. Nurmatova, D.A.; Zhukova, N.G.; Sayfitdinkhuzhaev, Z.F.; Okhunbaev, J.M. Morphometric Characteristics of Cerebral Structures in Gilles De La Tourette Syndrome. Personalized Psychiatry and Neurology. 2025, 5(1):2-9. https://doi.org/10.52667/2712-9179-2025-5-1-2-9

9. Surén, P.; Bakken, I.; Skurtveit, S.; Handal, M.; Reichborn-Kjennerud, T.; Stoltenberg, C.; Nøstvik, L.; Weidle, B. Tidsskr Nor Laegeforen. 2019, 139(17). doi:10.4045/tidsskr.19.0411

10. Yu, L.; Xu, H.; Jiang, Z.; Yang, H.; Cui, Y.; Li, Y. Comorbidity of physical illnesses and mental disorders in outpatients with tic disorders: a retrospective study using the outpatient care system. Front Neurol. 2024, 15:1397766. doi:10.3389/fneur.2024.1397766