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PANDAS SYNDROME ORIGIN AND WAYS TO PREVENT THE CONNECTION

Salomov Shokhabbos Nozimjon ugli

Student of Andijan State Medical Institute

Annotation: Pandas syndrome is a neuropsychic pathology of an autoimmune nature that develops in children due to streptococcal infection. The symptom complex of the disease is extremely diverse-from sudden anxiety and neurosis-like obsessive states to hyperkinesis and involuntary shouting of words. The diagnosis is made on the basis of a psychiatric examination and laboratory confirmation of the presence of streptococcal infection. Treatment includes antibiotics, intravenous administration of immunoglobulin, and psychotropic medications. Sometimes the symptoms completely regress without therapy.

Key words: pandas sysndrome, neuropsychic pathology, therapy.

PANDAS is an English-language abbreviation in which P means childhood, A – autoimmune, N – neuropsychiatric, D-disorder, A – associated, S – with streptococcal infection. The term was first used in 1998 by the American pediatrician S. Shvedo and his colleagues. According to some sources, the disease occurs in one child out of 200. The true prevalence of the condition is unknown. Children of prepubescent age (from 7 to 12 years) are usually affected. Boys are more likely to get sick, the ratio with girls is 2.6-4.7:1.

Reasons

It is assumed that the occurrence of pathology is associated with a previous infection caused by beta-hemolytic streptococcus group A(BSA), for example, acute angina, scarlet fever or chronic tonsillitis. Due to the peculiarities of the cell wall structure, the bacterium is able to trigger autoimmune reactions, namely, the production of autoantibodies that attack the body's own cells and tissues, including brain cells.

By itself, the presence of streptococcal bacteria in the human body does not ensure the development of the disease, much depends on the immunogenetic predisposition. The syndrome occurs only in individuals whose blood contains specific D8/17 alloantigens on B-lymphocytes. The same marker is found in patients with another autoimmune pathology associated with HSA-acute rheumatic fever.

Pathogenesis

The pathological reactions of PANDAS syndrome are based on immune autoaggression. Along with other pathogenic properties (virulence, toxin production), BSA has the phenomenon of molecular mimicry. The structure of the bacterial wall of Streptococcus is very similar to the structure of the membranes of some cells of the central nervous system.

In addition to the pathogenic pathogen, antibodies developed against BSA attack cells of the basal ganglia located in the caudate nucleus, pale ball, striatum, etc. These subcortical structures of the brain regulate motor (coordination of movements, skeletal muscle tone) and vegetative (control of the respiratory rate and heartbeat, activity of the gastrointestinal tract) functions.

The basal ganglia are directly involved in the processes of higher nervous activity – memory, emotional reactions, and the speed of information processing. Damage to these parts of the nervous system determines the main clinical picture of PANDAS syndrome. According to most experts, the penetration of autoantibodies into brain tissue is associated with high permeability of the blood-brain barrier in children.

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Symptoms

The disease occurs and proceeds acutely, which distinguishes it from most neuropsychic disorders of childhood of a different etiology. The clinical picture varies significantly. The child becomes restless, irritable, emotionally unstable, his mood changes sharply and often, his concentration of attention is lost, memorization of new information and learning ability deteriorates.

The most typical obsessive-compulsive states are: repetitive actions (blinking, tilting the head to the side, shrugging), the desire to perform motor rituals (high lifting of the leg when descending stairs, repeatedly tying and untying the laces on shoes). Falling asleep is disturbed.

It is characterized by unreasonable anxiety or fear. Often there is spontaneous uncontrolled shouting of words or repeated clicking, smacking, involuntary muscle twitches, tics, sweeping non-rhythmic movements of the limbs or head (hyperkinesis). Possible paroxysmal frequent sneezing, hiccups, sniffing for several hours.

A distinctive feature of PANDAS syndrome is the spontaneous disappearance of symptoms during sleep. The average duration of an attack is 10-12 weeks, after which recovery occurs. Sometimes there is a tendency to a wave-like flow, especially often this is observed in chronic tonsillitis, the exacerbation of which leads to a relapse of neuropsychiatric manifestations.

Complications

Specific complications that pose a threat to the patient's life are extremely rare in PANDAS syndrome. Clinical symptoms of the disease significantly worsen the child's quality of life. Because of the lag in their studies, children are sometimes left for the second year or temporarily transferred to home education. Especially strongly the disease affects socialization in society.

Some disorders (severe anxiety, compulsions) can become the basis for the development of neurotic or mental disorders. Involuntary movements or increased motor activity in some cases lead to injuries. Suicidal tendencies or overly aggressive behavior are possible, in which the patient becomes dangerous to himself or others, which requires isolation of the patient and constant monitoring.

Diagnostics

Children with PANDAS syndrome are supervised by pediatricians, child psychiatrists, and neurologists. Diagnosis is difficult due to the variety of the clinical picture. Take into account the age (7-12 years), the presence of signs of streptococcal infection (pharyngeal hyperemia, tonsillitis, enlarged and painful cervical lymph nodes)or an indication of a previous sore throat. To clarify the diagnosis, an additional examination is prescribed, including:

- Laboratory blood tests. In the general analysis, there may be signs of inflammation – leukocytosis, an increase in ESR. Biochemical analysis reveals serological markers of streptococcal infection – elevated titers of anti-streptolysin-O(ASLO), anti-DNase B, and rheumatoid factor (RF).
- Immunological and bacteriological studies. To confirm the presence of BSA in the body, an immunochromatographic rapid diagnosis (streptatest) and bacterial culture of a pharyngeal and tonsillar smear are used.
- The EEG. When conducting 12-hour video-EEG monitoring on an electroencephalogram, increased convulsive activity and spike waves are detected during a night's sleep.

Determination of specific antibodies to basal ganglia in the blood significantly increases the reliability of the diagnosis, but this analysis is practically not used in clinical practice. Differential diagnosis is performed with Sydenham's chorea, Tourette's syndrome, temporal lobe epilepsy, etc. The following criteria for PANDAS syndrome are taken into account:

- presence of obsessive-compulsive disorders, tics;
- prepubertal debut;
- acute onset and paroxysmal course;
- association with HSA infection;

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- other neurological disorders.

Treatment of PANDAS syndrome

Depending on the severity of symptoms and mental status, patients may be treated on an outpatient basis or in a hospital setting. With severe behavioral disorders, round-the-clock monitoring is necessary. Some children have spontaneous regression of disorders. Special attention is paid to psychotherapy: individual conversations, training in special techniques for controlling tics and obsessive movements.

Sleep disorders are corrected by non-drug methods – a strict regime of waking up and going to bed, complete exclusion of the use of caffeine and caffeinated beverages (Cola, "energy"), distribution of activity throughout the day with the inclusion of physical exercises. The following medications are used:

- Etiotropic therapy. Since the main cause of PANDAS syndrome is HSA infection, for its eradication, all patients are prescribed antibacterial agents-phenoxymethylpenicillin, amoxicillin.
- Pathogenetic therapy. Immunomodulatory drugs are used to suppress autoimmune damage to the basal ganglia. In mild cases, NSAIDs are sufficient. For maladaptation, glucocorticosteroids or immunoglobulin are used. In extremely severe mental disorders, plasmapheresis or strong immunosuppressants (mycophenolate) are indicated.
- Symptomatic therapy. Anti – depressants-SSRI inhibitors-are effective for treating OCD symptoms. For increased anxiety, benzodiazepines or atypical antipsychotics are recommended.

Prognosis and prevention

PANDAS syndrome has a favorable prognosis. The life expectancy of patients does not differ from that in the general population. Fatalities are casuistry. All clinical signs in the vast majority of cases respond well to treatment, and some children may recover spontaneously without therapy.

To prevent exacerbation of chronic tonsillitis and subsequent neuropsychic attacks, antibiotic prophylaxis and courses of manual or hardware washing of tonsillar lacunae are carried out. If, despite these measures, relapses continue, surgical removal of the focus of persistent infection (palatine tonsils) is recommended – tonsillectomy.

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