

ETIOLOGY OF SECONDARY IMMUNODEFICIENCY DISORDERS

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Annotation: Secondary immunodeficiency is a disease of the immune system that occurs in children and adults, which is not associated with genetic defects and is characterized by the development of repeated, prolonged infectious and inflammatory pathological processes that do not respond well to etiotropic treatment. There are acquired, induced and spontaneous forms of secondary immunodeficiency. Symptoms are caused by a decrease in immunity and reflect a specific lesion of a particular organ (system). Diagnosis is based on the analysis of the clinical picture and data from immunological studies. Vaccination, substitution therapy, and immunomodulators are used in the treatment.

Secondary immunodeficiency – immune disorders that develop in the late postnatal period and are not associated with genetic defects, occur against the background of initially normal reactivity of the body and are caused by a specific causal factor that caused the development of a defect in the immune system.

Key words: immunomodulators, vaccination, substitution therapy.

The causal factors that lead to impaired immunity are diverse. Among them are long-term adverse effects of external factors (environmental, infectious), poisoning, toxic effects of drugs, chronic psychoemotional overload, malnutrition, injuries, surgical interventions and severe somatic diseases that lead to a violation of the immune system, a decrease in the body's resistance, the development of autoimmune disorders and neoplasms.

The course of the disease can be hidden (there are no complaints and clinical symptoms, the presence of immunodeficiency is detected only in laboratory tests) or active with signs of an inflammatory process on the skin and subcutaneous tissue, upper respiratory tract, lungs, genitourinary system, digestive tract and other organs. In contrast to transient changes in the immune system, in secondary immunodeficiency, pathological changes persist even after the elimination of the causative agent of the disease and the relief of inflammation.

A wide variety of etiological factors, both external and internal, can lead to a pronounced and persistent decrease in the body's immune defense. Secondary immunodeficiency often develops with general exhaustion of the body. Prolonged malnutrition with a deficiency in the diet of protein, fatty acids, vitamins and trace elements, impaired absorption and breakdown of nutrients in the digestive tract lead to disruption of the maturation of lymphocytes and reduce the body's resistance.

Severe traumatic injuries of the musculoskeletal system and internal organs, extensive burns, and serious surgical interventions are usually accompanied by blood loss (along with plasma, complement system proteins, immunoglobulins, neutrophils, and lymphocytes are lost), and the release of corticosteroid hormones designed to maintain vital functions (blood circulation, respiration, etc.) is even greater it inhibits the immune system.

Chronic viral infectious diseases (HIV, cytomegalovirus infection, Epstein-Barr viruses and other herpes viruses, more rarely measles, rubella, viral hepatitis, etc.) play a leading role in the development of secondary immunodeficiency, causing suppression of cellular and humoral immunity. Bacterial and fungal infections and parasitic diseases have an adverse effect on the immune status.

A pronounced violation of metabolic processes in the body in somatic diseases (chronic glomerulonephritis, renal failure) and endocrine disorders (diabetes, hypo - and hyperthyroidism) leads to inhibition of chemotaxis and phagocytic activity of neutrophils and, as a consequence, to

secondary immunodeficiency with the appearance of inflammatory foci of various localization (most often pyoderma, abscesses and phlegmons).

Immunity decreases with prolonged use of certain medications that have an overwhelming effect on bone marrow and hematopoiesis, which disrupt the formation and functional activity of lymphocytes (cytostatics, glucocorticoids, etc.). Radiation exposure has a similar effect.

In malignant neoplasms, the tumor produces immunomodulatory factors and cytokines, as a result of which the number of T-lymphocytes decreases, the activity of suppressor cells increases, and phagocytosis is inhibited. The situation is aggravated by generalization of the tumor process and metastasis to the bone marrow. Secondary immunodeficiency often develops in autoimmune diseases, acute and chronic poisoning, in people of senile age, with prolonged physical and psychoemotional overload.

Symptoms of secondary immunodeficiency

Clinical manifestations are characterized by the presence in the body of a prolonged, resistant to etiotropic therapy, chronic infectious purulent-inflammatory disease against the background of a decrease in immune protection. However, the changes may be temporary, temporary, or irreversible. There are induced, spontaneous and acquired forms of secondary immunodeficiency.

The induced form includes disorders that occur due to specific causal factors (X-rays, prolonged use of cytostatics, corticosteroid hormones, severe injuries and extensive surgical operations with intoxication, blood loss), as well as in severe somatic pathology (diabetes mellitus, hepatitis, cirrhosis, chronic renal failure) and malignant tumors.

In the spontaneous form, the visible etiological factor that caused the violation of the immune defense is not determined. Clinically, this form is characterized by the presence of chronic, difficult to treat and often aggravated diseases of the upper respiratory tract and lungs (sinusitis, bronchiectasis, pneumonia, lung abscesses), digestive tract and urinary tract, skin and subcutaneous tissue (boils, carbuncles, abscesses and phlegmons), which are caused by opportunistic microorganisms. Acquired immunodeficiency syndrome (AIDS) caused by HIV infection is classified as a separate acquired form.

The presence of secondary immunodeficiency at all stages can be judged by the general clinical manifestations of the infectious and inflammatory process. This can be prolonged low-grade fever, enlarged lymph nodes and their inflammation, muscle and joint pain, general weakness and fatigue, decreased performance, frequent colds, repeated sore throats, often recurrent chronic sinusitis, bronchitis, repeated pneumonia, septic conditions, etc. At the same time, the effectiveness of standard antibacterial and anti-inflammatory therapy is low.

Diagnostics

Detection of secondary immunodeficiency requires a comprehensive approach and participation in the diagnostic process of various specialist doctors-allergist-immunologist, hematologist, oncologist, infectious diseases specialist, otorhinolaryngologist, urologist, gynecologist, etc. This takes into account the clinical picture of the disease, indicating the presence of a chronic infection that is difficult to treat, as well as the identification of opportunistic infections caused by opportunistic microorganisms.

It is necessary to study the immune status of the body using all available methods used in allergology and immunology. Diagnosis is based on the study of all parts of the immune system involved in protecting the body from infectious agents. The phagocytic system, complement system, and T - and B-lymphocyte subpopulations are studied. Studies are performed by conducting tests of the first (approximate) level, which allows you to identify gross general violations of immunity and the second (additional) level with the identification of a specific defect. When conducting screening tests (level 1 tests that can be performed in any clinical and diagnostic laboratory), you can get information about the absolute number of white blood cells,

neutrophils, lymphocytes and platelets (both leukopenia and leukocytosis, relative lymphocytosis, increased ESR occur), the level of protein and serum immunoglobulins G, A, M and E, hemolytic activity of complement. In addition, you can perform the necessary skin tests to detect delayed hypersensitivity.

In-depth analysis of secondary immunodeficiency (level 2 tests) determines the intensity of phagocyte chemotaxis, completion of phagocytosis, subclasses of immunoglobulins and specific antibodies to specific antigens, production of cytokines, T-cell inducers, and other indicators. The analysis of the obtained data should be carried out only taking into account the specific condition of this patient, concomitant diseases, age, the presence of allergic reactions, autoimmune disorders and other factors.

During the examination, a differential diagnosis is made with primary immunodeficiency, prolonged infectious diseases of viral, bacterial, fungal and parasitic nature, somatic diseases, endocrine disorders, neoplasms.

Treatment of secondary immunodeficiency

The effectiveness of treatment of secondary immunodeficiency depends on the correct and timely identification of the etiological factor that caused the appearance of a defect in the immune system and the possibility of its elimination. If a violation of immunity has occurred against the background of a chronic infection, measures are taken to eliminate inflammatory foci using antibacterial drugs, taking into account the sensitivity of the pathogen to them, conducting adequate antiviral therapy, using interferons, etc. If the causal factor is insufficient nutrition and beriberi, measures are taken to develop a proper diet with a balanced combination of proteins, fats, carbohydrates, trace elements and the necessary caloric content. Also, existing metabolic disorders are eliminated, normal hormonal status is restored, conservative and operative treatment of the underlying disease (endocrine, somatic pathology, neoplasms) is carried out.

An important component of the treatment of patients with secondary immunodeficiency is immunotropic therapy using active immunization (vaccination), replacement treatment with blood products (intravenous administration of plasma, leukocyte mass, human immunoglobulin), as well as the use of immunotropic drugs (immunostimulants). The expediency of prescribing a particular therapeutic agent and the selection of dosage is carried out by an allergist-immunologist, taking into account the specific situation. With the transient nature of immune disorders, timely detection of secondary immunodeficiency and the selection of the right treatment, the prognosis of the disease can be favorable.

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