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MODERN VIEWS ON ACROMEGALY AND IMMUNOMORPHOLOGY OF THIS DISEASE

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Abstract: Acromegaly belongs to the category of neuroendocrine diseases characterized by a pathologically high level of cellular proliferative activity, leading not only to the progressive development of multiple morphofunctional and metabolic changes in patients, but also to the accelerated exhaustion of the body's reserve capabilities.

Keywords: acromegaly, immune system, neutrophils.

Acromegaly is a pathological enlargement of certain parts of the body associated with increased production of somatotropic hormone (growth hormone) by the anterior pituitary gland as a result of its tumor lesion. It occurs in adults and is manifested by enlargement of facial features (nose, ears, lips, lower jaw), enlarged feet and hands, constant headaches and joint pain, impaired sexual and reproductive functions in men and women. It is diagnosed according to hormonal tests, X-ray of the skull, MRI of the brain. Treatment is carried out by medication, radiation and surgical methods.

Acromegaly begins to develop after the body stops growing. Gradually, over a long period, symptoms increase, and changes in appearance occur. On average, acromegaly is diagnosed 7 years after the actual onset of the disease. The disease is equally common among women and men, mainly at the age of 40-60 years. Acromegaly is a rare endocrine pathology and is observed in 40 people per 1 million population. Elevated levels of growth hormone in the blood cause early mortality from cancer, lung, and cardiovascular diseases.

It has been proven that under the influence of somatotropic hormone (STH), the maturation of lymphoid cells significantly increases and their transendothelial migration accelerates. In this regard, generalized hypertrophic and hyperplastic processes developing with acromegaly have a negative impact on the state of the immune system of patients.

The aim of the study was to study the characteristics of the state of the cellular link of the immune system and the activity of neutrophils in patients with acromegaly.

Materials and methods. The study included 15 patients with active acromegaly (7 men and 8 women), aged 31 to 69 years, who are in the regional registry of the endocrinological center of the clinical hospital. The population and subpopulation composition and the level of neutrophil chemiluminescence were studied in all patients. CD3+, CD4+, CD8+, CD16+, CD19+, CD25+ and CD95+ cells were determined by indirect immunofluorescence using appropriate FITC-labeled monoclonal antibodies. The study of spontaneous and zymosan-induced chemiluminescence (CL) of blood granulocytes was carried out using the De Sole P method, for 90 minutes on a 36-channel chemiluminescence analyzer "CL3606M".

The main results.

The study of the immune status in patients with active acromegaly revealed significant changes in the population and subpopulation composition of cells of the immune system. It was found that with acromegaly, the number of leukocytes in the peripheral blood decreases, but with an increase in the percentage of lymphocytes. Against this background, the percentage and absolute level of CD3+ cells decreases, but with an increase in the relative number of CD8+ lymphocytes and the percentage and absolute content of CD16+ and CD19+ cells. Also, in patients with acromegaly, an increase in the relative number of CD25+ lymphocytes and the percentage and absolute content of CD95+ cells was found. An increased percentage of CD8+ lymphocytes in patients, respectively, leads to a decrease in the value of the immunodifference index. When studying the parameters of chemiluminescent analysis of neutrophilic blood granulocytes, no statistically significant differences were found between the indicators of spontaneous CHL in patients with acromegaly and the control group. However, a significant increase in the area of the spontaneous chemiluminescence curve in active acromegaly is noteworthy. An increase in the area of the chemiluminescent curve in this disease is also detected during induction by opsonized ozone. Reactive chemiluminescence is based on the direct or indirect involvement of oxygen in the formation of highly reactive molecules emitting light. The main content of such reactions is the mobilization of oxygen by activated cells. In our study, when determining induced chemiluminescence, a significant increase in the maximum intensity value was observed, but no statistically significant differences in the activation index and the time to reach maximum intensity relative to the control values were revealed. The high level of chemiluminescence of phagocytic cells in response to zymosan stimulation indicates increased functional activation of leukocytes, intensive generation of cytotoxic products and active release of biologically active substances by neutrophil granulocytes that affect the production of other phagocytosis effectors in acromegaly.

Conclusion. Thus, the features of the functioning of the immune system in conditions of hypersecretion of STH and IGF-I are the development of a state of hyperreactivity of the immune system, characterized by increased activation of the cellular link of immunity, increased expression of early and late activation markers of lymphocytes responsible for proliferation and apoptosis, as well as a number of indicators of induced chemiluminescence of neutrophil granulocytes, reflecting a high degree of activity of phagocytic reactions which confirms the existing disorders in the immune response system in acromegaly.

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