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SPECIFIC AND NON-SPECIFIC BRONCHIAL HYPERREACTIVENESS IN ALLERGIC RHINITIS

Qobiljonova Sh. R.

Akhmedova P. B.

Abstract
Allergic diseases attract more and more attention of doctors of different specialties every year. Despite the fact that allergic diseases have been known to man for more than two and a half thousand years, in the modern world the problems related to the issues of diagnostics, therapy and prevention of allergopathology remain very relevant.

Introduction

Over the past decades, the problem of allergology has assumed the scale of a global medical and social problem. Allergy is called the "disease of civilization". In highly developed countries, the percentage of people suffering from allergies (mainly among the young population) is significantly higher than in developing countries. Environmental pollution with industrial waste, unfavorable social conditions, increased consumption of various drugs, intensive use of disinfectants at home and in production, the use of pesticides and herbicides in agriculture, changes in the quality of food, the use of genetically modified products - the combined effect of these factors on the body of a modern person creates conditions for high allergen loads. As additional studies have shown, over the past 30 years, the prevalence of allergic diseases has doubled everywhere every 10 years. At present, the problem of allergic rhinitis can be considered one of the most urgent. In terms of prevalence, medical and social significance, impact on health, the quality of life of patients with AR ranks first among other allergic diseases. Over the past few decades, there has been a steady increase in the number of patients suffering from this pathology in European countries. In the structure of allergopathology , the proportion of AR is very high (60-70%). According to the results of epidemiological studies, AR affects about 20% of the population of all age groups. The prevalence of pathology in most European countries ranges from 10 to 32%, in the UK - 30%, in Sweden - 28%, in

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New Zealand and Australia - 40%, in South Africa - 17%. In Russia, up to 25% of the population has rhinitis symptoms. In the USA, more than 35 million residents seek help with AR symptoms every year. AR limits patients "in physical, psychological and social aspects of life. AR is the cause of reduced quality of life. This is often due to the fact that rhinitis often precedes the development of bronchial asthma (BA) (in 32-49% of patients), worsens its course, significantly increasing the number of calls to emergency medical care. Modern therapy of AR involves the elimination of etiologically significant allergens, allergen-specific immunotherapy (ASIT), pharmacotherapy and patient education. ASIT occupies a leading position in the treatment of atopic diseases. However, the existing certain inconveniences associated with frequent visits to an allergist, the possibility of developing systemic adverse reactions, and the existing group of people for whom ASIT is contraindicated are a prerequisite for finding new effective and safe means for the treatment of AR.

Objective of the study. To conduct a comprehensive clinical and diagnostic assessment of the effectiveness of pathogenetic and restorative therapy for patients with seasonal allergic rhinitis.

Objectives of the study. To assess the immune status of patients during an exacerbation of seasonal allergic rhinitis (SAR). To introduce interval hypoxic training as a restorative therapy for seasonal allergic rhinitis in adult patients. To evaluate the use of a hypoxic test as an optimal criterion for preparing a patient for interval hypoxic training and its effectiveness. To identify and compare the effect of restorative therapy and pathogenetic therapy on the level of expression of apoptosis markers by lymphocytes in the peripheral blood and nasal secretion of patients with SAR. To identify and compare the effect of restorative therapy and pathogenetic therapy on the activation of basophils in the peripheral blood and nasal secretion of patients with seasonal allergic rhinitis.

Results of the study: To identify and compare the effects of fluticasone propionate, sublingual allergen-specific immunotherapy, interval hypoxic training and monoclonal antibodies to IgE on the immune status of patients with seasonal allergic rhinitis. To assess the quality of life of patients with seasonal allergic

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rhinitis before and after restorative and pathogenetic therapy. To assess a new method of treatment with monoclonal antibodies to IgE in patients with severe seasonal allergic rhinitis.

For the first time, the dependence of the activity of basophils in the peripheral blood of patients with SAR on the severity of clinical manifestations and the nature of the therapy of the disease was shown. For the first time, monoclonal antibodies against E. were used to treat patients with a severe form of seasonal allergic rhinitis. New information was obtained reflecting the molecular mechanisms of activation of effector cells (lymphocytes and basophils) of the peripheral blood and nasal mucosa in patients with seasonal allergic rhinitis during sublingual allergen-specific immunotherapy, treatment with monoclonal antibodies to and intranasal fluticasone propionate . For the first time, restorative therapy for seasonal allergic rhinitis in adults using interval hypoxic training has been developed and implemented. The diagnostic value of determining the activation of peripheral blood basophils in patients with seasonal allergic rhinitis during an exacerbation of the disease and against the background of various treatment methods has been demonstrated, allowing one to assess the severity of the disease and the effectiveness of the therapy. Preliminary immunological examination of patients with seasonal allergic rhinitis determines the choice of therapy in accordance with the severity of the disease. Sublingual Allergen-specific immunotherapy has the most pronounced suppressive effect on the immune status of patients sensitized to wormwood pollen. The use of monoclonal antibodies to can be recommended for the treatment of patients with severe seasonal allergic rhinitis. Interval hypoxic training restores the immune status of patients with seasonal allergic rhinitis.

In patients with seasonal allergic rhinitis, depending on the stage of the disease, features of the immune status were established that require adequate pharmacotherapy. Laboratory parameters of normal values of apoptosis of lymphocytes in the peripheral blood and nasal mucosa were determined in healthy volunteers. Traditional pathogenetic treatment of seasonal allergic rhinitis in combination with interval hypoxic training normalizes most of the altered immune and oxidative parameters. Activation of basophils and apoptosis of lymphocytes are directly dependent on the concentration of the administered allergen, which is prognostic in assessing the severity of the disease and the effectiveness of the treatment methods. The introduction of monoclonal antibodies to E has a systemic

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suppressive effect on the subpopulation composition of peripheral blood lymphocytes in patients with severe seasonal allergic rhinitis, in contrast to intranasal and allergen-specific immunotherapy. Pathogenetic therapy and interval hypoxic training significantly improve the quality of life of patients with seasonal allergic rhinitis.

During the exacerbation of seasonal allergic rhinitis (SAR), an increase in the serum level in the peripheral blood of patients is noted . The subpopulation composition of peripheral blood lymphocytes does not undergo significant changes. High expression on lymphocytes of peripheral blood and nasal secretion of patients with SAR during the exacerbation period inhibits programmed death of cells that have entered the early stage of apoptosis. An increase in the number of basophils and products in seasonal allergic rhinitis should be considered an unfavorable factor in the development of severe forms of the disease. A course of interval hypoxic training (IHT) consisting of 15 procedures of alternating intervals of normoxic and hypoxic exposure, carried out after pathogenetic therapy, optimally restores oxygenation processes in patients with seasonal allergic rhinitis. Conducting a hypoxic test is the main criterion for optimal assessment of the hypoxic effect on the patient's body. Seasonal allergic rhinitis leads to a decrease in oxygen supply to organs and tissues. IHT, along with improved tissue oxygen supply, contributed to a decrease in the severity of allergic rhinitis symptoms. Interval hypoxic training induces programmed lymphocyte death (apoptosis) at the local and systemic levels. The effect of fluticasone propionate, monoclonal antibodies and sublingual Allergen-specific immunotherapy in patients with seasonal allergic rhinitis consists of indirect inhibition of the expression of the antiapoptotic marker, followed by activation of phosphatidylserine and triggering apoptosis of lymphocytes in the peripheral blood and nasal mucosa. Against the background of therapy for SAR with monoclonal antibodies to IgE and slASIT , a marked decrease in the level of activated basophils and their synthesis of LTC4 at the local and systemic levels is observed. Basophil tolerance to the allergen is dose-dependent and is formed with the introduction of pollen concentration. Interval hypoxic training restores the immune status of patients with seasonal allergic rhinitis. Against the background of therapy with fluticasone propionate and sublingual Allergen-specific immunotherapy (slASIT) does not change the immune status of patients with SAR. Monoclonal antibodies to IgE have a

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suppressive systemic effect on the subpopulation composition of peripheral blood lymphocytes in patients with severe seasonal allergic rhinitis. Complex restorative and pathogenetic therapy of seasonal allergic rhinitis significantly improves the quality of life of patients. The introduction of monoclonal antibodies to IgE 2 months before the flowering of wormwood is a clinically effective and pathogenetically substantiated method of treatment, due to the binding of serum IgE monoclonal antibodies before the patient's body comes into contact with pollen. Interval hypoxic training in practical healthcare will significantly improve the quality of life of patients, reduce the need for additional medications, prevent the transformation of the disease into more severe forms and the development of complications. A hypoxic test is recommended before and after interval hypoxic training to assess the optimal duration of hypoxic exposure to the body of a patient with SAR. Determination of Bcl-2, annexin-V, Fas on lymphocytes of peripheral blood and nasal secretion of patients with SAR, the level of serum IgE in peripheral blood and basophil activity (the number of CD203c cells and their production of sulfidoleukotriene LTC4) before and after treatment is recommended to be included in the standard volume of seasonal and pre-seasonal examination of patients with SAR as important criteria for predicting the disease, assessing its severity and the effectiveness of the therapy.

Conclusions

It is recommended to administer monoclonal antibodies to IgE to patients with a history of severe seasonal allergic rhinitis who are tolerant to previous standard therapy (systemic and topical glucocorticosteroids , antihistamines) 2 months before the pollen season of causative plants. At the 16th week of therapy for severe SAR, it is necessary to examine the immune status of patients to assess the dynamics of cellular immunity in order to prevent the development of infectious complications. Conduct a laboratory assessment of the effectiveness of sublingual allergen-specific immunotherapy with wormwood pollen, determining the level of activation of basophils in peripheral blood and nasal secretions. Activation of basophils decreases when the threshold concentration of the allergen is reached of at least 1,000 PNU in patients with mild SAR, and at least 10,000 PNU in moderate and severe SAR.

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