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FEATURES OF THE SENSITIZATION SPECTRUM IN PATIENTS WITH ATOPIC  
BRONCHIAL ASTHMA AND ALLERGIC RHINITIS IN HOT CLIMATES  
(REVIEW ARTICLE)

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**Abstract:** In the modern world, atopic bronchial asthma (ABA) and allergic rhinitis represent a fairly broad gradation group among common allergic diseases that affect millions of people around the world. The prevalence of these nosological units depends on various factors, including genetic predisposition, environment, and, importantly, climatic conditions. Scientists have previously noted that in hot climates, the spectrum of sensitization in patients can change, which in turn requires special attention from medical professionals and researchers.

**Key words:** bronchial asthma, allergic rhinitis, allergic diseases, sensitization

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Today, ABA is characterized by the presence of chronic airway inflammation, which in turn can lead to episodic exacerbations and deterioration of the quality of life. The main symptoms include shortness of breath, wheezing, and coughing. Allergic rhinitis, on the other hand, is an inflammation of the nasal mucosa and can be accompanied by itching, sneezing, and nasal discharge. These pathologies often occur in direct correlation with each other, which in turn is verified in patients as comorbidity of both conditions simultaneously [2,14,36].

The clinical manifestations of asthma and rhinitis vary depending on a variety of factors, including air quality, pollution levels, and allergen concentrations. In particular, a hot climate often contributes to an increase in the number of allergens in the air, such as pollen and fungal spores, thereby aggravating the condition of patients [8, 16].

**Climate impact on sensitization**

The study of the clinical condition revealed a significant influence of this factor on the sensitization spectrum in patients with atopic bronchial asthma and allergic rhinitis. Studies show that climatic factors such as heat and high humidity can contribute to an increase in the level of plant pollen and allergens, thereby leading to a more pronounced allergic reaction and exacerbation of symptoms [5,11,28].

In hot climates, vegetation often blooms longer and more intensively, *посредственно способствуя* mediating contributing to an increase in the amount of allergens in the air. For example, high-carbon plants, such as cereals, can release pollen in large quantities, especially in spring and summer. This process leads to an increased amount of allergens, causing an adverse effect, and acts as an aggressive and provoking factor for a sensitive cohort of patients [4,26].

Sensitization is a well-known process in which the patient's immune system begins to recognize certain allergens as a potential threat and reacts excessively to them. In response to the administered allergens, specific IgE antibodies are produced, which leads to the release of inflammatory mediators such as histamine and cytokines. In hot climates, this reaction can be more pronounced due to high temperature and humidity, which in turn creates favorable conditions for the reproduction of allergens [13,22,31].

The most common allergens that cause sensitization are represented by the pollen group *xx* allergens, *x* such as ragweed and cereals, as well as household allergens, such as dust mites and mold. Considering the above, it should be noted that the existing relationship between climatic factors and sensitization allows achieving the most significant indicators in the treatment of these combined pathologies. When presenting the results of analysis of the allergen spectrum, it is necessary to note their significance in the diagnosis of sensitization mechanisms in patients with bronchial asthma and allergic rhinitis [7,15,23].

### **Diagnostic features**

Important diagnostic studies of ABA and allergic rhinitis include several mediocre stages that follow each other. At the initial stage, the doctor conducts a detailed survey in order to identify the symptoms and factors, that aggravate the course of these nosological units. This is followed by specific allergy tests, such as skin tests or blood tests for IgE [6,12,17].

It is important to take into account regional features, including climate and seasonal changes that may affect the exacerbation of symptoms and the range of allergens. In hot climates, it is especially important to take into account the amount of pollen, fungal spores, and other signs that may indicate increased sensitization [1,11,13,0,30].

### **Management and treatment methods**

Management of ABA and allergic rhinitis in hot climates requires a detailed and integrated approach. First of all, this includes *навигация* or minimizing contact with allergens. For example, it is recommended to monitor pollen levels through specialized applications and avoid going outside during the peak of plant flowering [2, 3, 24].

The importance of pharmacotherapy (фармакотерапи), as one of the most important links in treatment, is not excluded. Antihistamines, corticosteroids, and bronchodilators often act as symptomatic therapy. However, the choice of drugs should depend on the individual characteristics of the patient and the results of diagnostic tests [22, 26].

Today, immunotherapy is another method that can help patients with allergic diseases. This method involves the gradual introduction of an allergen into the body in order to increase its tolerance to it. It should also be noted that immunotherapy has a rather significant place in the treatment of this cohort of patients, taking into account such a factor as жаркий (the hot climate), where the level of allergens is significantly higher [19, 27, 31].

### Current research prospects for patients with combined course of ABA and allergic rhinitis

However, the influence of climate on the allergenic spectrum and sensitization has been significantly studied by most authors, and today it remains a relevant topic for research. It is important to note that further research will allow us to detail the mechanisms of sensitization and pathophysiology of allergic diseases in hot climates. The study of various allergens and their interactions with the environment will allow разработку (development) of more effective methods of diagnosis and treatment. In the modern world, направлением (direction) the use of innovative technologies, such as genetic diagnostics and molecular testing, for more detailed determination of sensitization in patients is a fairly accessible and significant area of research (определения сенсibilизации у пациентов [18, 28, 18, 28]).

### Conclusion

ABA and allergic rhinitis are a rather serious combined pathology, that significantly worsens the patient's quality of life, in particular in patients living in hot climates. The study of the spectrum of the sensitization spectrum and the influence of climatic factors on the level of allergens makes it possible to improve the diagnostic approach and позволяет (allows) provide more effective treatment in this group of patients. It is very important to continue research in this area in order to develop and implement innovative methods to combat allergic diseases and thereby improve the quality of life of people suffering from them.

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