



PHYSIOLOGICAL FEATURES OF THE IMMUNOLOGICAL STATUS IN PATIENTS WITH ALLERGIC CONJUNCTIVITIS

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ABSTRACT: *An important element of clinical ophthalmology is clinical immunology, which considers pathological processes from the point of view of a violation of the immune system. These disorders can play the main etiopathogenetic role or be a factor complicating the pathological process. However, in contrast to human medicine, in veterinary clinical ophthalmology, the issue of the role of the immune system has been insufficiently studied. The problem of allergic diseases is one of the most important for modern practical medicine. Increasing from year to year, the prevalence of various manifestations of allergies is extremely high in different countries of the world.*

Keywords: immune system, allergic eye lesions, technogenic transformations, pollinosis

According to the World Health Organization for 2018, the incidence of allergic conjunctivitis (AK) covered from 5-22 to 40% of the population. It should be noted that over the past decades, there has been a pronounced trend towards an increase in the incidence. The variety of antigens and the possibility of the development of several variants of the body's immune response determine the polymorphism of the clinical symptoms of allergic eye lesions, the diagnosis and treatment of which is a difficult task. According to the WHO, allergic diseases in most developed countries are among the ten common diseases.

Insufficient knowledge of the role of the immune system in the mechanism of ophthalmic diseases complicates the solution of a number of important practical issues. Immunological studies reveal the pathogenetic mechanisms of many diseases, allow to control and predict the course of the pathological process, contribute to the development of methods of immunodiagnostics and the selection of immunotropic drugs [4, 5].

World information in recent years indicates not only the widespread prevalence of allergic diseases, but also a steady upward trend. Every year, about 35% of the world's population seek medical help with clinical manifestations of allergies. One of the main reasons for the increase in the incidence of this pathology is the living conditions of a modern person, which change the reactivity of the body. These conditions usually include: environmental pollution, widespread use of chemicals in everyday life, and others. The main sources of air pollution in the city are vehicles and industrial enterprises [1, 8].

In addition, in almost 50% of patients with systemic allergies (after 2-3 years of deformation of the allergophon due to the underlying disease), allergic conjunctivitis inevitably occurs as a concomitant pathology [6].

In modern conditions, the active relationship between man and the environment leads to its significant change and complication. Complexes of natural and social factors acquire new qualities that affect the health of the population. The ubiquitous changes in the structure, dynamics and nature of human pathology are determined not so much by geographic, climatic, natural focal features, but by global technogenic transformations, which in one way or another cause environmental pollution [3, 4].

The presence in the Republic of Uzbekistan of enterprises of the chemical, electrical industry, construction industry, mechanical engineering and metalworking determines the presence in the atmosphere in high concentrations of various specific pollutants [2].

According to expert estimates, the entire territory of the Bukhara region falls into the zone of very high environmental load, the so-called "uncomfortable" one. Annually on the territory of the region falls from 200 to 700 kilograms of the total flow of dust and salts, negatively affecting the state of the atmospheric air and causing enormous damage to water, soil, flora and fauna. The ecological crisis of the Aral Sea region is to blame. Sand and salt from the dried up part of what was once one of the largest seas on the planet spreads up to 500 kilometers from the epicenter. Bukhara region is a transboundary region: on the one hand, emissions from industrial enterprises in Navoi and Kashkadarya regions; on the other hand, emissions of harmful, carcinogenic substances from industrial enterprises of the neighboring Republic of Turkmenistan. Another transboundary problem is the pollution of the Zarafshan River by sewage and drainage waters of the Samarkand and Navoi regions.

In modern conditions, research aimed at studying and timely diagnosis of the state of the environment and the incidence of diseases of the population largely depends on the creation and functioning of environmental health monitoring. Until recently, the issues of organizing and improving allergic assistance to the population were resolved in isolation from a comprehensive analysis of environmental, socio-hygienic and other factors leading to the development of allergic diseases [5, 7]. Uzbekistan is distinguished by an abundance of vegetation, the flowering period of plants covers a fairly wide range (February November). All this undoubtedly contributes to the development of sensitization and the occurrence of allergic conjunctivitis.

Allergic conjunctivitis, according to the international guidelines Current ocular therapy (2000), affects approximately 15% of the total population. According to Yu.F. Maychuk, 91.2% of patients suffering from hay fever have eye lesions, and according to the latest data of M.N. Fridlander (2017), allergic conjunctivitis affects approximately 15% of the world's population. According to the generally accepted clinical classifications of AK, the following forms of the disease are distinguished: spring catarrh, atopic conjunctivitis, seasonal pollinosis conjunctivitis, chronic allergic conjunctivitis and drug allergy. According to Yu.F. Maychuk, the first three clinical forms account for more than 80% of all eye allergies [2].

For effective treatment of allergic conjunctivitis, first of all, it is necessary to formulate a clear concept of the pathogenesis of the disease, which will become the basis for choosing the appropriate group of drugs [3].

According to modern concepts of the pathogenesis of AK, allergy is a complex multistage pathological process. One of the most important roles in it is played by mast cells, the number of which in the tissues of the eye and its appendages reaches 50 million. They have the ability to produce biologically active substances that determine the development of allergy symptoms. Allergy mediators include substances such as histamine, bradykinin, tryptase, leukotrienes, and prostaglandins. The release of mediators occurs after the interaction of antigens with antibodies from the Ig E group, the synthesis of which is performed by plasma cells, and this process is regulated by T-lymphocytes [4,5].

The immunological response that the eye tissue is capable of producing has its own unique characteristics, which are due to the specific properties of the blood supply and the lymphatic system of the organ of vision. The tissues of the eye and its adnexa have the ability to reproduce all types of allergic reactions [6].

In the development of a local allergic reaction in pollinosis, the "permeability factor" is important, which promotes the penetration of plant pollen through the epithelium of the conjunctiva and a violation of the barrier function of the mucous membrane (lack of Ig A, impaired activity of macrophages and granulocytes). There is a hypothesis that these disorders may be hereditary. After the onset of the local allergic process and the penetration of soluble allergens into the lymph and blood flow, the level of general sensitization of the body increases and tissues that are not exposed to direct contact with pollen are involved in the pathological process [7-9].

In the literature, you can find a number of classifications of AK, which are based on the pathophysiological features of the disease. Of particular interest are the clinical forms proposed by F.A. Bakhritdinova in 1990. The author identified the following forms of CD: conjunctival hyperemia of the eyelids, blepharoconjunctivitis, dermatitis of the eyelid skin, follicular conjunctivitis and acute allergic conjunctival edema.

The convenience of such a division of clinical forms of AK is that it makes it possible to more clearly establish the tactics of drug therapy.

According to Yu.F. Maychuk [10], there are 4 fundamental principles of AK treatment: local pharmacotherapy; elimination of a specific allergen; immunotherapy, which is possible in two versions: antigen-specific immunotherapy (ASIT) and nonspecific immunotherapy; training of patients in accordance with the developed educational program. All of these positions play an important role in complex treatment.

Local drug therapy is the basic position, since in many cases even AA monotherapy is effective for stopping the exacerbation of the disease. The main advantage of the local treatment of allergic conjunctivitis, in comparison with the systemic use of drugs, is the rapid onset of the therapeutic effect and the absence of side effects of drugs on the body as a whole, which is due to the extremely insignificant resorption of the drug into the blood [11].

Including pharmacological developments in recent years, local antiallergic drugs can be divided into 5 groups, differing in pharmacodynamics and clinical efficacy. The basic drugs are antihistamines, membrane stabilizing and dual-acting drugs. Additional group drugs include steroidal and non-steroidal anti-inflammatory, vasoconstrictor drugs, and tear substitutes [12].

Allergic conjunctivitis, which are based on the Ig E-mediated reaction of inflammation, have a common pathogenetic mechanism, and, therefore, they have general principles of therapy, in which the use of antihistamines is of the greatest importance. Antihistamines, depending on the presence or absence of side effects, are divided into three generations [13]. At the same time, antihistamines of the latest generation are effective not only in the treatment of allergic diseases, but are also used to prevent complications in respiratory infections, especially of viral etiology. Antagonists of H1 receptors from the group of antihistamines are considered the first choice drugs in the treatment of allergic conjunctivitis, since their therapeutic effect occurs very quickly (within the first 10-15 minutes), they require rare instillations and have practically no side effects [14]. Topical preparations of the latest generation, in particular olopatadin, are of great interest for ophthalmology.

Special attention should be paid to the use of tear substitutes and moisturizing drops for allergic conjunctivitis. At the initial stages of the disease, when the inflammatory process of the tissues of the lacrimal glands has not yet taken on an extensive character, hypersecretion of the aqueous part of the lacrimal fluid is observed in response to the slightest mechanical effect. However, permanent tissue

edema can lead to compression of the small vessels of the conjunctiva. In the future, vasospasm with deteriorating blood supply to the conjunctiva leads to a decrease in fluid filtration, which is necessary for the formation of the watery component of the tear. As a result, the total amount of secretion produced by these glands decreases. Tissue edema also contributes to mechanical compression of the ducts and the actual accessory glands of Wolfring and Krause, which leads to their destruction and a decrease in the production of mucin and lipids. Thus, with allergic conjunctivitis, the production of all components of the tear fluid decreases, that is, the basic secretion of tears is disrupted. In this regard, with a persistent decrease in lacrimation, the appointment of tear substitutes is justified. The data presented in his work by LB Chilingaryan indicate that representatives of the group of tear substitutes restore the tear film and stimulate the reparative processes of the cornea and conjunctiva even in cases of excessive tear production in allergic conjunctivitis.

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