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Association of Allergic Rhinitis with Liver Diseases

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ABSTRACT

Allergic rhinitis occurs in most cases (in 88-98% of patients), accompanied by diseases of other organs and systems in the body. One of the main tasks of scientific research in modern medicine is to study in detail the interaction of the main and additional diseases in the body, that is, the influence of the pathological process in a particular member on another organ, the mechanism of their interaction, the clinical course of the disease, the peculiarities of examination and diagnosis in such cases.

Relevance of the problem. The liver is the largest organ in the body, which, along with the specificity of its anatomical and functional structure, simultaneously performs the following several functions [5]:

- ✓ Participates in the development of grass;
- ✓ Maintains and distributes in balance the amount of substances important for the body;
- ✓ The body stores substances important for life activity as reserves (for example, glycogen);
- ✓ Participates in the metabolism of protein, fat, carbohydrates, vitamins;
- ✓ Participates in the inactivation of harmonic and biogenic amines (histamine, serotonin, catecholamine). And when this function of the liver is impaired, allergic diseases are more severe;
- ✓ Barrier function-neutralizes and removes toxins from the body;
- ✓ Participates in the transport of immunoglobulins and responds to the quality of immunity;
- ✓ Participates in the synthesis of muxim substances for blood clotting;
- ✓ Participates in blood production.

All eczo - and endotoxins that have entered the blood are neutralized and excreted from the body as a result of biochemical reactions in hepatocytes. The liver is also involved in regulating the amount of antigens that have entered the body. If the detoxifying function of the liver is impaired, the antigen strain on the immune system increases. As a result, the amount of antibodies in the blood increases, the immune response increases, and allergy symptoms are

more pronounced[4;23].

In liver diseases, along with its other functions, the activity of inactivation of biological active substances (deamination of histamine and serotonin) is also impaired, as a result of which the clinical course of allergic diseases is complicated[2,24]. As we know, histamine is the main mediator responsible for the development of all symptoms of AR. That is, histamine participates in the development of edema in the nasal mucosa, causes increased capillary permeability, damage to the capillary wall and increased depolymerization of the main substance of connective tissue. Histamine and other mediators, formed in the acute phase of the allergic response reaction, are distinguished even in small quantities in the remission phase of ar, and occupy a special place in the origin of the chronic inflammatory process in ar. The acute phase of an allergic response characterized by nasal detachment, itching in the eyes and nose, paroxysmal aksa stroke occurs mainly due to histamine (Table No. 1.1) [7.22].

Table No. 1. The importance of biological active substances in the development of clinical signs of AR.

Clinical signs	Biological active substances	Functional changes
Itchy nose	Histamine, prostoglandins	Dryness and hyperemia of the nasal mucosa
Sneeze	Histamine, leukotreins	Tickling of nerve endings
Nasal adhesions, breathing through the mouth, changes in the timbre of the voice	Factors that activate histamine, leukothreins, bradykinin, thrombocyte	Swelling of the nasal mucosa, increased vascular permeability
The arrival of detachment from the nose, rhinorrhea	Histamine, leukotreins	Multiple formation and release of nasal secretion

Damage to the liver as a result of a pathological process also leads to a violation of its protective (barer) function, which develops as a result of a decrease in the phagocytic activity and antitoxic (detoxification) function of kupfer cells (star-shaped endotheliocytes) and other macrophagal elements[6;24].

Chronic liver damage, particularly chemical damage, continues to increase in terms of overall morbidity and mortality. Alternatively, the number of allergic diseases has also increased over the past 20 years. According to who, the level of toxic liver damage has increased 6-8 times worldwide since 1960 [1,3,8].

The liver is involved in many pathological processes, and its damage leads to a serious violation of the body's metabolism, immune response, detoxification and antimicrobial protective power. The liver is a member of the body that provides energy and plastic needs, and also performs a certain degree of disintaxication function, that is, it protects the body from both external and endogenous damage[9, 11].

About 95% of exogenous andendogenic toxic substances are neutralized in the liver. A large flow of chemicals, long-term strain of the protective biotransformation mechanisms of the liver, over time, can create favorable conditions for the violation of compensatory processes in the liver and the development of pathological changes in it [12,16].

Constant strain on the liver under the influence of chemical factors, changes in the course of diseases of the liver and other organs and systems, can lead to the transition to a chronic form and spread. Against the background of damage to the liver parenchyma and its functional deficiency, the activity of microsomal enzymes of liver cells responsible for detoxification processes decreases, which can lead to a decrease in the clearance of iodine substances entering the body and complete detoxification of metabolimnendogenic products.This can result in the

accumulation of compounds in the organs and tissues of the body that cause a tendency to toxic damage. Incomplete metabolization of chemical compounds and a number of protein compounds in the liver can lead to general and local allergic reactions in the body, and in turn to the development of immunopathological reactions [13,18].

The liver consists not only of hepatocytes, but also of cells that form stroma and belong to the immune system – these are considered excitable macrophages (Kupfer cells). It should be noted that Kupfer cells belong to the macrophage group, which is important in the recognition of the antigen. The endothelial cells of the liver are able to produce mediators of inflammation and immunity (il-1, il-6). Hepatocytes, under the influence of external stimuli, synthesize and produce certain components of the Complement System (C3, B-factor), shuningdekinterleikins (il-6, il-8). Under the influence of cytokines, hepatocytes produce proteins in the acute stage of inflammation, which are factors of the homeostasis mechanism, aimed at protecting the body from pathogenic substances and various foreign components. The liver plays an important role in regulating the level of antigen that flows from the intestines or other organs into the systemic bloodstream and from it to the lymphoid organs. Thus, liver cells are associated with the Association of biologically active molecules that play an important role in inflammatory and immune processes [2,14,17].

In liver diseases (cirrhosis, hepatitis, tumor), phagocytic activity disorders develop not only as a result of circulatory disorders (hypoxia) and structural deformity in the organ, but also as a result of blockade of kupfer cells under the influence of specific cell decay products and metabolites in the liver itself. As a result of this, the activity of liver macrophages in the blood by phagocytosis of fatty acids, erythrocytes, microorganisms and their toxins is disrupted, as a result of which toxemia develops, manifested by various signs (leukocytosis, increased body temperature, erythrocyte hemolysis, renal failure, intestinal erosion) [8,15,19].

In addition, a decrease in the activity of phagocytosis leads to a decrease in the body's nonspecific protective reaction, which leads to a decrease in the body's resistance to infectious factors. Also, the frequency of development of an allergic reaction increases as a result of a violation of the retention of existing antigens and immune complexes in the blood, which are broken down not only in the liver, but also in other organs and cisitems, as well as by hepatic macrophages (in the norm, substances with 95% antigen property are broken down in star-shaped reticuloendotheliocytes)[7,20,22].

In addition to allergens, the general condition of the body also has an important significance in the development of an allergic reaction. From this, two types of allergies differ: allergies in healthy people and allergies in patients[13,21,24].

Biological active substance (BAS) and antibodies are caused by allergies in healthy people with normal production, due to the large amount of antigens. On its basis lies the strain on the BAM producer and the immune system.The development of allergies in healthy people was caused by the fact that a large amount of an antigen-antitela complex fell on the body, which led to a more active functioning of the BAS-producing system in relation to the disactivation system. This is because the body has the property of disactivating a small amount of BAS produced compared to an antigen that has entered in a natural way. The high potential strength of the BAS Developer System in relation to its disactivating system is also explained by this. In patients or people who have latent changes in their body, an amount of antigen that does not lead to the development of allergies in a healthy person also leads to the development of allergies. It is considered the result of congenital or acquired disorders of the mechanisms in 3 stages of an allergic reaction. At the biochemical stage of an allergic reaction, the formation and breakdown of BAS is disrupted, which facilitates the development of allergies. Disruption of BAS production and activation is manifested by increased BAS formation; increased BAS separation, for example as a result of

increased tissue basophils degranulation; manifested by increased BAS activation. Disruptions in BAS deactivation and inhibiting systems develop as a result of insufficient production of BAS inhibitors (e.g. Quincke's edema), lack of BAS-breaking enzymes, impaired function of BAS-deactivating organs. The stage of functional and structural changes in an allergic reaction develops as a result of insufficient production of contrregulatory hormones and high sensitivity of the target organ to the BAS [15,19,23].

Given the multifunctionality of the liver, it can be said that the functional state of the liver also has its effect on the development and clinical course of most diseases.

An inextricable link between allergic rhinitis and liver diseases is of interest to any seeker. It is known that from diffuse liver diseases, cirrhosis of the liver is a multidisciplinary disease that affects the activity of several organs, provoking existing chronic diseases in the body, or, in a special case, creating conditions for the occurrence of certain diseases [1,11,17].

Clinical observations among a limited number of patients, data presented in theses published in low-circulation journals, showed that functional changes in the liver have a significant impact on the clinical course of many diseases, treatment tactics and the outcome of the disease, as well as on the course of ENT-organs, atopic dermatitis, allergic diathesis and other diseases.

In conclusion, there is currently not enough information in the literature we have been looking for on diagnostic tactics, specificity of clinical course, treatment tactics in cases where liver diseases are accompanied by ar. With the help of clinical course of the disease, laboratory analysis and additional instrumental examination methods, it is necessary to develop an accurate diagnostic tactic that will work in identifying and treating both known diseases in cases where allergic rhinitis is accompanied by liver diseases.

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