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INFLUENCE OF EXTERNAL FACTORS ON THE SALIVARY GLANDS

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Abstract: As a result of the influence of external factors on the body, various changes occur in the organs. Compensatory adaptations occur under the influence of external environmental factors in the salivary glands, which are important in the digestive process. Changes occur not only in the glands, but also in the composition and quantity of their product, saliva. This article presents a review of the literature on changes in the salivary glands as a result of external factors.

The relevance of this article is that external factors are one of the main causes of diseases that occur in the body. Every substance that enters the body from the external environment has an indirect and direct effect on the digestive organs. If this negative effect is repeated continuously, it will lead to serious changes.

Salivary glands have several functions in the body. The saliva they produce helps to moisten the food particles into a bite and make it easier to swallow. Salivary amylase ptyalin converts starch into maltose and dextrin. Also, lysozyme in saliva is an enzyme belonging to the group of hydrolases and performs a protective function by destroying the shell of bacteria in the oral cavity.

The condition of the hard and soft tissues of the oral cavity and corridor is determined by the amount and quality (composition) of saliva produced by the salivary glands located in the front part of the oral cavity. [6,8] There are small (located in strictly localized places: labial, buccal, palatal) and large (large) salivary glands. 3 pairs of large salivary glands: parotid, sublingual and submandibular glands play an important role in the digestive tract of the human body. The parotid salivary gland is the largest complex alveolar salivary gland in humans. The mass of the parotid gland is about 25 g, its secretory nature is serous and it produces saliva rich in protein. The gland has a lobular (alveolar) structure. It is covered by a capsule called the parotid masticatory fascia, its density is low, in some cases the capsule does not completely cover the gland, leaving loose areas.[1,2,4,13,16]

The parotid salivary gland has two parts: the superficial or outer part and the deep or inner part. The surface part of the parotid gland is adjacent to the surface side of the masseter (chewing muscle), and sometimes, depending on the structural features of the parotid gland canal, the surface part reaches the front (buccal) edge of the above muscle. The deep part of the parotid salivary gland penetrates and reaches the fatty tissue located on the side wall of the pharynx, so the pharyngeal part is sometimes called the pharyngeal process.[1,7] Terminal secretory compartments secretory serous epithelial cells and myoepithelial cells. consists of cells. There are secretory granules in the apical parts of the secretory cells. The cell nucleus is located in the wider basal part of the cells. The sizes of secretory cells undergo significant changes [1,2,3,7]

A group of scientists studied the effect of ethanol alcohol on the salivary glands of laboratory rats. Rats were chronically poisoned with ethanol alcohol for 30 days. There were morphometric changes in the hemomicrovascular capacity component of the submandibular salivary glands of the experimental rats. It

was found that at the initial stage of the experiment, the expansion of the vessels of the submandibular gland lobules of rats chronically poisoned with ethanol was observed. This indicator is characterized by a decrease in the thickness of the vessel walls, i.e. an increase in the outer and inner vessel diameters by 23%. From the twelfth day, there is a tendency to restore the morphometric parameters, but swelling of the vessels is observed, which is confirmed by an increase in the thickness of the blood vessel wall, which gradually disappears until the end of the experiment. Normalization of the indices was not observed until the thirtieth day. [4,5]

Salivary glands play an important role in the vital activity of the body. They ensure stability of homeostasis not only of the oral cavity, but also of the upper gastrointestinal tract. No other organs perform such a variety of functions (secretory, recretor, excretor, incretor) and do not have such a large impact on the digestive system or the body as a whole as the salivary glands. There are many studies devoted to the restoration of bones, testicles, thyroid gland, tooth enamel under conditions of natural and man-made microelements, but a comprehensive study of the morphological changes caused by the combined effect of several microelements on the salivary glands no studies have been conducted on This shows the relevance of studying the morphological changes of animals by treating salivary glands with heavy metals.[2,4 6,12]

The salivary glands play a significant role in the life-sustaining activity of the organism. They provide the homeostasis stability not only of the oral cavity but also upper gastrointestinal. No other organs have carried out such a variety of functions (secretory, recretory, excretory, incretory) and have so great impact on the digestive system or organism in general, as salivary glands. There are many studies devoted to restructuring of bones, testicles, thyroid gland, tooth enamel in conditions of natural and man-made microelementosis, but no researches were done about the complex study of morphological changes of the salivary glands by the combined effects of several micronutrients. This shows the relevance of studying morphological changes of the animal salivary glands in conditions of heavy metals treatment. Control animals were taken out of the simultaneously to the experimental animals. Histological samples were examined and photographed with a digital image output system «SEO Scan ICX 285 AK-F IEE1394». Image analysis specimens were defined by mean values of morphometric parameters: diameter external, terminal sections gland lumen, diameter terminal units, height of epithelial cells terminal sections, plug and ducts diameters, using the morphometric computer program «SEO Image Lab 2,0». Comparative analysis of SMSG restoration processes the structure after the 30 – and 60 days of microelementosis simulation in rats mature group shows a distinct morphological changes in the salivary glands of rats of the second group (60 days after modeling mikroelementosis state). Given the impact of the decrease microelementosis and SMSG divisions, namely outer diameter and the diameter of the lumen. Epithelial cells height were reduced. The SMSG ductal system components were also reduced. Due to this the lumen diameter increasing. Analysis of the results shows directly dependent expression of morphological changes in submandibular salivary gland on the duration of the experiment. [8,9]

Night lighting and microwave radiation affect the structures responsible for the implementation of stress. In rodents, the endocrine, photoperiodic and adaptive functions of the submandibular salivary glands are associated with hormone-producing cells of the excretory ducts. To assess their morphofunctional state in guinea pigs and rats, striated and granular sections were analyzed using light and electron microscopy. It was found that in the first minutes and 24 hours after exposure to stressors, the increase in secretory activity of epithelial cells of the excretory ducts is similar. A conclusion was made about the daily readiness of the salivary glands for stress. [11]

Recently, the interest of researchers to study the forms of response of salivary glands to various stimuli has increased significantly, which is related to the diagnostic value of saliva as a highly informative object for clinical assessment of the state of the whole body. In this case, large salivary glands are very sensitive to the effects of physiological and pathogenic factors and undergo special changes [13,15,16].

Substances affecting hemocirculatory hemostasis, blood coagulation and fibrinolysis have been identified in the saliva of humans and animals. The lipid peroxidation reactions of the hemostasis system and the interaction with the antioxidant system are well known. This can also be observed in the assessment of salivary gland activity [10,13,14].

The condition of the hematovascular parts has a significant impact on the functioning of the organs, in particular on its capacitive component, which ensures a fully functional outflow of blood from the tissues, which is a necessary condition for ensuring their normal vital activity. [4,7,10,12]

Xulosa:

Salivary glands are one of the organs sensitive to the influence of external factors. After chronic effects on the salivary glands, changes have occurred in their cells and, of course, in the composition of saliva, which is considered its product. Effects of ethanol alcohol, heavy metal salts, and radiation on salivary glands were studied as external factors. But to date, the effect of drinking water of different quality on salivary glands has not been studied.

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