

PATHOLOGICAL CHANGES IN THE MUCOUS MEMBRANE OF THE ORAL CAVITY IN DIABETES

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Abstract. According to WHO, diabetes mellitus is one of the most common diseases. Today, 285 million people in the world suffer from diabetes. This is almost 4% of the entire Earth's population, and by 2030, according to estimates, there will already be 435 million people [1]. Its negative impact on the state of all human organs and systems cannot be overestimated, especially in uncompensated or insufficiently compensated conditions.

This pathology also greatly affects the state of the dental system. People with type 1 and type 2 diabetes are more likely to develop gingivitis, periodontitis, and fungal infections. They also have certain difficulties in eating solid food, taking care of their teeth and oral cavity, treatment and dentures [2].

Key words: diabetes, changes in the oral cavity in diabetes, changes in teeth in diabetes.

Among the diseases that are an important risk factor of diabetes there are periodontal pathologies. There is a number of scientific and practical evidence that diabetes and the processes that occur during it affect the condition of periodontal tissues and the dental system as a whole. In addition, they not only affect the development of this pathology, but also contribute to its development, widespread and rapid spread, subsequently destroying periodontal tissues, teeth and jaw [3].

Gums and teeth are almost the first to suffer in diabetes. And at the same time, because of this, the course of the main disease worsens. This correlation between these two conditions has led to the need to take them into account when predicting therapeutic and preventive measures, developing strategies for dental treatment of diabetes and sanitation of the oral cavity. Scientific studies and practice show that the incidence of periodontitis in patients with diabetes is much higher than in people without this pathology. Periodontitis and diabetes are accompanied by other pathological processes, including low strength of dental ligaments, bleeding gums, intensive formation of periodontal pockets and complete tooth loss (loss of teeth). According to some data, periodontitis in one form or another occurs in almost all people with type 1 and type 2 diabetes [4].

The main causes of periodontal problems

An increase in the level of glucose in the blood with the accumulation of glycosylated hemoglobin has a bad effect on cell metabolism and their functioning in all tissues, including periodontal tissues.

- Deterioration of local blood circulation.
- Decreased reactivity of the immune system.
- Changes in the bacterial flora of the oral fluid.
- Changes in the qualitative composition of saliva and its enzymatic activity.

- Autoimmune processes in diabetes.
- Excessive intensity of lipid peroxidation processes.
- Violation of acid-base balance with transition to acidosis [4]

There is an unfortunate association between diabetes and periodontal disease. Studies have shown that if the duration of diabetes is more than 10-15 years, all patients have pathological changes in periodontitis.

Faizullina DB, Associate Professor of the Department of Dentistry and Maxillofacial Surgery of the Postgraduate Education Institute of BSMU [5]

Some mechanisms of periodontitis development in diabetes

Dry mouth

One of the manifestations of diabetes is often a disorder of the glands, including the salivary glands. This leads to dryness or xerostomia. Against the background of the process, the development of periodontal tissue diseases is characteristic. Diabetes itself, along with dry mouth, as well as the general effect of pathological processes lead to a change in the bacterial background in the oral cavity, a decrease in the resistance of the body as a whole and mucous membranes in particular [5].

Cytokine mechanism

Cytokines are special protein substances that are active at very low concentrations. These are signs of inflammation, in which the anti-inflammatory activity of the immune system should be increased. When there is an inflammatory process (which is what periodontitis actually is), cytokines spread throughout the body, reaching the pancreas and tissue cells that are sensitive to insulin levels. This "saturation" of cytokines leads to a change in the glycemic state, which means that the patient's insulin level in the blood changes and it becomes difficult for him to maintain glycemic control. Against this background, the regeneration ability of periodontal tissue cells decreases, then blood circulation and metabolic processes in periodontitis worsen and its regenerative ability decreases [5].

Causes of stroke

The vascular component occupies one of the leading positions in the pathogenesis of diabetes mellitus itself and related periodontal diseases. Diabetes mellitus contributes to angiopathy - various disorders of the tone and condition of large and small vessels throughout the body, including the oral cavity. It is associated with a violation of the level of glucose in the blood, poisoning, protein and other types of metabolism.

In diabetes, the relationship between vascular damage and periodontal disease is particularly noticeable during the period when changes in the state of blood vessels occur and diabetic microangiopathy is activated.

At the same time, the oral cavity is rich in small and medium-sized vessels: they supply blood to the periodontal fissure, alveoli, and periodontal tissues. In diabetic microangiopathy, the altered capillaries are relaxed and more permeable, including to cytokines and immune cells. Inflammation, other disorders at the cellular and tissue level, and microcirculation disorders develop. All this worsens the trophism (nutrition) of periodontal tissues, then dystrophic and inflammatory processes increase, and typical periodontitis occurs in diabetes [5].

Immune processes

The concentration of various immunoglobulins increases in diabetes. Immunoglobulins or antibodies are glycoproteins produced by special blood cells. They recognize foreign agents

(pathogens of infectious, fungal, parasitic diseases) and recognize them in the cells of the immune system. They also weaken the activity of the "harmful" agent and reduce its ability to spread further throughout the body.

At the level of cells and blood vessels, diabetes causes an increase in the formation of special immunoglobulins that activate the immune system. It triggers autoimmune processes, which reduces the resistance of the body and its tissues to the damaging incompatible factors of diabetes [6].

Measures to reduce the risk of developing periodontal disease and other dental problems in people with diabetes

Endocrinologists and dentists should jointly develop dental treatment programs for the treatment and compensation of periodontal diseases and, of course, patients with diabetes.

It is important to convince the patient of the need to carefully follow recommendations for glycemic control, oral hygiene, timely treatment of caries in diabetes, as well as concomitant diseases, including dental diseases. The appearance of bleeding, pain in the gums, their discoloration, discomfort when biting solid food, chewing, brushing the teeth, using an irrigator and other hygiene tools - all this is a reason to immediately consult a dentist.

The following preventive measures should be observed:

- Carefully follow the doctor's instructions, take medications that reduce glucose levels or inject insulin on time.
- Constantly monitor blood glucose levels and take measures if they deviate from the norm.
- Diet.
- To quit smoking.
- Regular visits to the dentist and subsequent implementation of his recommendations.
- After consulting an endocrinologist, take dietary supplements that have a positive effect on the changes that accompany diabetes.
- Using a mouthwash to prevent the disruption of microflora and the development of candidal stomatitis.
- Proper care of the oral cavity, prostheses, if any, and the use of an appropriate toothbrush [7].

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