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Characteristics of Orthopedic Treatment of Diabetic Patients

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Abstract: Diabetes mellitus is the most important medical and social problem of modern society. Currently, according to the International Diabetes Federation (IDF), there are 415 million diabetics worldwide. [1] According to WHO, the term "diabetes mellitus" refers to a metabolic disorder of multiple etiologies characterized by chronic hyperglycemia with abnormal carbohydrate, fat, and protein metabolism as a result of impaired insulin secretion and/or impaired insulin action. In this regard, primary diabetes mellitus has two forms: type I - insulin-dependent diabetes mellitus, characterized by inadequate insulin synthesis by Langerhans cells; type II - non-insulin-dependent diabetes mellitus, which is associated with chronic hyperglycemia and results from a violation of the interaction between insulin and tissue cells It develops as a result of a violation of the interaction between insulin and tissue cells (WHO, 1999). [Secondary or symptomatic diabetes mellitus is also distinguished, which is caused by diseases or substances affecting the endocrine organs of the pancreas or the insulin receptors. [3, p. 36-38]

Keywords: diabetes, orthopedic treatment, oral cavity, midline washing, integrative approach, bone tissue

In diabetes mellitus, metabolic disturbances and multiple lesions of organs and organs cause changes in the oral microflora and increased tissue resistance to insulin. As a result, metabolic control of blood glucose is impaired. Thus, a vicious cycle occurs. High glucose concentrations in the gingival fluid lead to an overgrowth of periodontopathogenic bacteria. Abnormalities in glucose metabolism also lead to hyperkeratosis, atherosclerosis, poor tissue trophic status, and increased skin injury. At the same time, the epithelial layer of the mucosa thins in children, which accelerates the eruption of permanent teeth and is accompanied by gingivitis. Structural changes in the salivary glands alter the composition of saliva, leading to the development of dental caries. [4].

Materials and methods: In the diabetic state, the production of collagen and alkaline phosphatase by osteoblasts, which are necessary for the formation of bone matrix and its mineralization, is reduced, stimulation of osteoblasts is also reduced, and bone resorption by osteoclasts is increased. These factors contribute to the inhibition of bone tissue formation. [5] The above complications that occur in the oral cavity of diabetic patients must be considered when planning orthopedic treatment, i.e., if the prosthesis is removable. An integrative approach to the treatment of diabetic patients is recommended. First, consultation with an endocrinologist is necessary to determine and control the

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type of diabetes, the degree of compensation, and the patient's immunologic status; at each clinical stage, glucose levels should be clearly controlled. Physicians should remember that if blood glucose levels are elevated, orthopedic treatment should be postponed until the compensatory phase. [6, 7] Denture materials and design must meet the requirements for correct redistribution of loads while not toxic to oral tissues and not progressing pathogenic microflora. [7] According to the findings of E. I. Turushev, implantation of the acrylic plastics "Ftorax" and "StomAcryl" in diabetic animals causes the most intense and chronic inflammation in the tissues, while the use of prostheses made of the titanium alloy VT-14 results in a slight increase in total microbial contamination. 8] Therefore, titanium alloys are the most commonly used. [8] Therefore, it can be concluded that titanium alloys are superior in prostheses. However, metal alloys are inferior to polymers in redistributing loads, so a combination of materials is recommended; T. I. Ibragimov and others recommend fixing the teeth in a static position and redistributing loads evenly, depending on the type of splint device. Metal bases allow for the inclusion of splint elements in prosthetic designs. [9] Consideration should also be given to the need for relining removable prostheses at least once a year, as bone tissue gradually atrophies over time and masticatory loads are redistributed in the patient's mouth. [10] A major role in limiting the progression of oral tissue complications in orthognathic treatment is to improve the level of oral hygiene and adherence to standards of hygienic care of prosthetic appliances. Because diabetic patients are prone to gingivitis, periodontitis, fungal lesions of the mucosa, and xerostomia, and consequently to caries, the hygiene algorithm used in inflammatory periodontal disease should be used S. B. Ulitovsky proposed the following hygiene procedure algorithm: cleaning the oral cavity, interdental and approximate surfaces of the crown and roots of the teeth with floss, intermediate cleaning of the oral cavity, actual cleaning with brush and paste, intermediate cleaning, use of interdental brush or super floss, intermediate cleaning, massage of the gingival papillae and adjacent gums with stimulator, intermediate cleaning, finger massage of the gums or with sensitive brush massage, use of gum balm for this purpose, final cleaning of the mouth with therapeutic and prophylactic anti-inflammatory rinses. [11, p. 19-63] For cleaning removable dentures, S. E. Zholudev, I. Yu. Grinkova et al. recommend the use of Corega Tabs (GlaxoSmithKline) water soluble tablets for disinfection. Conclusion: Thus, planning orthopedic treatment with removable dentures requires a comprehensive approach, careful selection of denture design and materials, and complete hygienic care of the mouth and dentures.

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