



EVALUATION OF ORTHOPEDIC TREATMENT WITH REMOVABLE DENTAL PROSTHESES FOR PATIENTS WITH PAIR PATHOLOGY

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Abstract

For a long time, orthopedic treatment of chronic generalized periodontitis with defects in the dentition in patients with diabetes mellitus has been a multifactorial and complex task [1, 2]. It is known that diabetic complications affect many organs and systems of the body, the oral cavity is a paramount indicator, characterized by vascular, neurological, metabolic, structural disorders of the hard tissues of the teeth, periodontal tissues, oral mucosa and other manifestations [5]. As a rule, these can be changes of an inflammatory and dysbiotic nature, accompanied by halitosis, impaired sensitivity of the mucous membrane, and taste perception. In addition, there are common forms of stomatitis (catarrhal, aphthous, ulcerative), candidal changes and lichen planus of the oral mucosa (OM), periodontitis with varying degrees of mobility, loss of alveolar bone and depth of the periodontal pocket.

Keywords: dentistry, removable orthopedic structures, atrophy, diabetes mellitus, oral dysbiosis, thermoplastic base polymers.

The etiology of all of the above pathological changes in the oral cavity is associated with hormonal imbalance and profound disorganization of metabolism. Scientists pay a large role in the etiopathogenesis of inflammatory reactions in the oral cavity at the tissue and organ levels to genetic predisposition and traumatic causes. Diabetes mellitus of the first and second types leads to impoverishment of blood flow, hypoxia and energy supply in periodontal tissues, provoking a violation of the plastic and regenerative process, stability and resistance of the periodontal complex to mechanical and infectious effects and other adverse factors. In turn, the latter include improperly performed dental therapeutic, orthopedic treatment, removal of a large number of teeth, bruxism, anomalies of the dentition, beriberi C, B, A, E, etc. are of great importance. At the same time, the adaptive capabilities of periodontal tissues are exceeded, violated hemodynamics with the advent of the resorption process of periodontal tissues and prosthetic bed [3, 5]. The protective properties of the oral mucosa are also weakened due to impaired blood supply and, resulting from lipid imbalance, atherosclerosis. Histological examination of the oral mucosa reveals papillomatosis with acanthosis, parakeratosis, localized and generalized processes of atrophy of the epithelial layer, increased glycogen content in the gingival epithelium, mast and plasma cells in the inflammatory infiltrate. The data of literary sources and clinical observations prove the manifestations of a non-specific nature and versatile, numerous changes in the oral cavity of type 2 diabetes mellitus [4, 5]. Increased activity of osteoclasts leads to resorption and demineralization of the bone base, against the



background of a complex of negative reactions of the immune response, inflammatory and destructive changes are aggravated. An important achievement of domestic dentistry in the field of periodontology is the complexity of treatment with the use of medical, physiotherapeutic, surgical and orthopedic methods strictly according to indications. The situation is more complicated in the treatment of a generalized form of periodontitis with defects in the dentition against the background of concomitant pathology of the endocrine system, which directly affects the dental status. After determining the etiological factors and the main links of the pathogenetic mechanism, the specialist is faced with the task of developing a personalized patient management plan with the choice of means of etiotropic and pathogenetic justified therapy, taking into account the developing inflammatory-dystrophic process, for example, in diabetes [6, 9]. The authors of studies on the etiopathogenesis of pathological changes in periodontal tissues give diabetes a key role. Clinical observations and experimental studies indicate that dentists often focus on the diagnosis of "diabetes mellitus" in patients with periodontal tissue diseases, and many of these patients are diagnosed with its initial stage. With defects in the dentition, restoration of the histofunctional relationship, an increase in the level of adaptation and compensation in patients with chronic generalized periodontitis can be achieved using orthopedic treatment methods. It is known that during operation, a "prosthetic plaque" is formed on the surface of the orthopedic structure of the denture - a huge number of microorganisms, affecting the microecological composition of the oral cavity itself, and the concomitant pathology of a local or general nature only exacerbates these processes (inflammation, destruction, etc.). The resulting long-term imbalance has a negative effect on the immunological reactivity, sensitivity of the body, provokes an inflammatory reaction from the ORM (toxic-chemical / prosthetic stomatitis). The structural materials themselves in modern dental materials science have certain properties, and the requirements for them are increased, since it is known that the physicochemical characteristics of the polymers of which the denture is made affect the adhesion and colonization of microorganisms to the surface of a removable structure [7, 8]. Domestic and foreign scientists point out that due to a number of positive characteristics of dental thermoplastics, orthopedic dentists have expanded the indications for the manufacture of many orthopedic structures and devices for prosthetics of dentition defects, complicated by dentoalveolar deformities and periodontal tissue diseases. In the treatment of patients with generalized periodontal disease on the background of diabetes mellitus, the use of osteotropic drugs can achieve effective results and stop the progressive loss of bone tissue of the alveolar process of the upper jaw and the alveolar part of the lower jaw, as well as stimulate the processes of reparative regeneration. In the works of Kalivradzhiyan E.S. et al., the decision showed the use of medicinal biofilms of adhesive action, which have a positive effect on the adaptation period of patients to removable dentures, as well as for the prevention and treatment of possible complications from the oral mucosa [3]. Therefore, it seems relevant and expedient to improve the efficiency of prosthetics in patients with dentition defects in the pathology of periodontal tissues against the background of diabetes mellitus to carry out a set of therapeutic measures aimed at regulating and restoring the masticatory function with the elimination of the inflammatory-dystrophic reaction [4, 5]. This principle is quite important, since more and more often, after prosthetics,



patients who have a aggravated dental and endocrinological history complain of pain, chewing difficulties, a feeling of constant discomfort, the inability to get used to the fabricated structure for a very long time. Thus, the foregoing proves the relevance of the goal of the study to optimize orthopedic treatment in patients with periodontal pathology with diabetes mellitus with removable dentures.

Materials and research Methods

In dentistry, X-ray methods have always played an important role. Today, in dental practice and for scientific research, preference is given to more modern and informative methods of radiation diagnostics, such as computed tomography, which allows a high degree of reliability to assess bone pathology in a particular area, evaluate the clinical picture, study the changes occurring in the process, the accuracy of the diagnosis, drawing up a plan of treatment and diagnostic measures. To achieve this goal, they were used in the dental clinic of the Voronezh State Medical University named after N.N. Burdenko three-dimensional computed dental tomograph (Veraviewepocs 3D, made in South Korea). This multi-projection Rh+ research method allows to obtain a consistent planar and volumetric reconstruction of the object under study with an assessment of the anatomical formations and the density of the bone structures of the dentoalveolar system. The analysis of the received digital data was carried out within the framework of scientific work by the staff of the Department of Propaedeutic Dentistry of the Voronezh State Medical University. N.N. Burdenko. In the course of the ongoing study in the clinic on a personal computer under the guidance of a supervisor and a specialist in the field of X-ray diagnostics, the end cortical plate of the bottom of the maxillary sinuses was visualized, the necessary measurement was carried out in 3 planes. 3D images can be rotated and viewed from any angle. In the clinic, the obtained data are recorded and then a special computer program for the three-dimensional reconstruction of tomographic sections is not needed [5]. Obtaining a three-dimensional image of the teeth and individual areas of the jaw bones is the main feature of dental computed tomography (SCT). Initially, the entire dentoalveolar arch is scanned, the volume of the resulting image is 12×7 cm, a three-dimensional computer image is displayed on the monitor screen according to the type of "orthopedomography - panoramic zonografia" of the AP. The patients included in the study of orthopedic treatment were divided into 4 groups of 20 people depending on the chosen method. The patients of the first group used the acrylic plastic "Ftorax" as the base polymer of the manufactured removable lamellar denture. Patients of the second group were prosthetized using clasp structures (clasp fixation, splinting arc prostheses). Structural material - cobalt-chromium alloy (CCS) and acrylic polymer "Ftorax". The third group of study patients were made removable dentures with a thermoplastic polymer. In the fourth group, after prosthetics with removable orthopedic structures of their dental thermoplastic, the complex treatment included a Ca-containing mineral-vitamin complex and an adhesive anti-inflammatory biosoluble film on the prosthetic bed. BAP is "a two-layer hydrophilic-hydrophobic self-absorbable film based on natural polysaccharides", characterized by antibacterial, anti-inflammatory, regenerative and wound healing properties. In connection with the financial component of this research method, three-dimensional imaging was performed on selectively



five patients from each group. In the course of the study, the intensity of atrophy of alveolar bone tissue in /h and n/h, which occurred in patients during the year when using various orthopedic structures, was assessed. Results and its discussion. A study was made of the intensity of bone tissue atrophy based on a decrease in the height of the alveolar process and the alveolar part of the upper and lower jaw bones under the influence of various types of the basis of a removable denture, and an assessment was made of the effect of an integrated approach in orthopedic treatment on its success and minimization of complications from the tissues of the prosthetic bed. The measurements were carried out before the application of the selected orthopedic structures of dentures and after one year of using removable dentures. These studies show a decrease in the number of visits to the doctor for corrective measures of prostheses, the adaptation period is shortened, and the quality of both dental health and life is improved for the entire period of using orthopedic structures in patients with generalized periodontal pathology complicated by secondary adentia on the background of non-insulin dependent diabetes. The study proved that the optimal complex treatment with the right choice of structural base material will reduce complications of such a nature as bone tissue atrophy, which affects not only the dentition, but the entire maxillofacial region, improving the quality of dental health. As a result of the study, it should be noted that dental thermoplastics, firstly, once again proved their positive characteristics: high aesthetics, lightness, elasticity, flexibility, stability and sufficient strength, lack of monomeric residual and bioinertness. Secondly, during the adaptation period after the application of thermoplastic removable structures, the adhesive anti-inflammatory biosoluble film and the Ca-containing mineral-vitamin complex (MVC) had a positive effect on the resistance of the oral mucosa and the dynamics of the inflammatory process in the tissues of the prosthetic bed and the volume of the bone tissue. Conclusion. Treatment of patients with partial adentia with removable prostheses undoubtedly has a therapeutic and prophylactic effect and certain advantages over fixed prosthetics: the possibility of not preparing hard tissues of supporting teeth, the use of dentition defects with different sizes and topography, and the principle of this design facilitates hygienic care measures. However, the key disadvantage is, of course, the peculiarities of pressure transfer to the underlying OM, which is poorly adapted to the perception of masticatory pressure and bone tissue. The basis of a removable prosthesis will always be difficult to perceive and an extensive foreign inclusion in the oral cavity, causing side effects and discomfort. Therefore, the task before prosthetics is. first of all, in planning the design features of removable dentures, the minimum possible base area and the correct selection of structural material. As the study showed, it is certainly more rational to use a thermoplastic polymer as the base material of a dental prosthesis for prosthetics of patients diagnosed with diabetes mellitus - the second type. The inclusion of an adhesive anti-inflammatory biofilm for application and ingestion of Ca-containing MVA into the complex algorithm of orthopedic treatment in this category of patients has shown its expediency and effectiveness in the dynamics of the area of the inflammatory process zones in the tissues under the basis of the prosthesis, the intensity of the atrophy process, and reducing the loss of bone tissue in the tissues of the prosthetic bed. It should be noted that the adaptation period in patients after the imposition of orthopedic



structures was reduced in the fourth group of prostheses, and the minimum number of their visits for correction was also noted.

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