ASSESSMENT OF POSSIBLE RISK OF DENTAL IMPLANTATION ACCORDING TO MORPHOLOGICAL CRITERIA IN PATIENTS WITH A SOMATIC BACKGROUND PATHOLOGY

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Abstract: Among dentistry patients, patients over 55-60 years old need prosthetics more often than others, and they have a burdened anamnesis in terms of somatic diseases. Correction of immune homeostasis has an important place in the complex treatment of teeth implantation in patients of this age. Morphological methods of researchers analyzed the results of dental implantation in patients with diabetes mellitus at the age of 50 to 65 years on the material of 24 patients. It was found out that immunocompetent immunocytes of mucous membranes serve as a reflection of the success of dental implantation measures and can be used to predict the effectiveness of treatment measures.

Keywords: implantation, homeostasis, somatic diseases, oral mucous membrane, periodontal inflammatory diseases, effector immunocytes.

Introduction. Dental implantation has become widely used in different groups of patients [1, 2, 4, 7]. Still, the available literature does not completely solve the issue about the probability of rejection of dental implants in patients with an inflammatory periodontal disease on the background of diabetes mellitus [10, 12, 14]. The present study shows that dental implantation in this category of patients is possible, but it requires careful pre-implantation preparation. It can be assumed that morphological criteria can play an essential role in these circumstances, according to which it is possible to assess the possible risk of intervention before the beginning of the intervention and, of course, to further correct metabolic disorders of patients at all stages of treatment and rehabilitation [3, 5, 6].

In recent years, indications for dental implantation for prosthetics have increased significantly; this fact is especially relevant for elderly and senile patients with the severe periodontal inflammatory disease [8, 13]. Control and correction of local immune homeostasis of the gum mucosa are important in complex treatment of this category of patients [9, 15]. Patients of the older age group, as a rule, suffer from accompanying somatic pathology in the form of cardiovascular and endocrine system diseases, namely, diabetes mellitus [5]. The factors, as mentioned above, require singling out these patients into the risk group with a relatively high percentage of complications at prosthetics based on dental implants.

The analysis of the performed therapeutic measures and obtaining of clinical picture correlations with changes of the local immune homeostasis of the gum mucosa at the dental implantation in patients with periodontitis of medium and heavy degree of severity are priority and perspective for improvement of the implantation results quality and complications prognosis for their timely removal [13].

The aim of the research was to reveal morphological criteria of risk assessment of postoperative complications of dental implantation in patients of risk group.

Research materials and methods: All patients (n=30) were divided into 3 groups by the degree of inflammatory periodontal disease severity, which was assessed clinically and radiologically according to the American Academy of Paradontology (AAP) classification [1]. The control group (n=8) was composed of patients of the same age group without periodontal disease, whose mucous membrane was taken from them during interventions not connected with dental implantation.

The remaining 22 patients (13 women, 9 men), aged 40 to 65 years, whose dental implantation was performed with or without bone surgery, having an inflammatory periodontal disease of different severity, were divided into 2 groups according to AAP classification.

For patients of the 1st group (15 patients), there were changes of type III, for patients of the 2nd group (7 patients), there were changes of type IV according to AAP classification.

Surgical treatment was assessed on clinical signs: the presence of pain symptoms, terms and conditions of early epithelization, early postoperative complications and degree of osseointegration of dental implants. The degree of osseointegration was controlled by X-ray examination methods (dental X-ray, panoramic tomography) at each stage of treatment.

The material for histological examination was the mucous membrane of gingival pockets and interdental papillae taken during teeth extraction. Histological and immunohistochemical methods were methods of investigation.

Research results: We found out that for the patients of the 1st group (15 patients), the changes in type III of AAP classification are typical for the patients of the 2nd group (7 patients) - type IV, respectively. It is necessary to add that in 5 patients of the 2nd group at the moment of treatment, we noted the presence of type II diabetes mellitus in the anamnesis.

Early postoperative complications (edema and hyperemia of soft tissues) were observed in 25% of patients (7 patients), and 75% of complications (6 patients) were patients with accompanying diabetes mellitus. Treatment of complications was carried out according to standard schemes of local treatment with postoperative antibiotic therapy. The timing of gum shapers installation ranged from 7 to 14 weeks ($p < 0.05$). Peritoneal resorption ranged from 0 to 1.5 mm.

Due to the increased permeability of the wall structures of the microcirculatory channel of the oral mucous membrane and the emergence of oedema, as well as increased migration of macrophages into the gum tissue, the number of fat cells in gum mucous membranes in patients with diabetes has increased. The number of antigen-presenting cells was also increased, which, in our opinion, is a consequence of increased microbial contamination in the gum tissue. The detected CD68 effector immunocytes are located in the epithelial plate, reaching the spurs of the outer surface of the epithelial

layer. Direct correlation dependence between the severity of bone tissue affection and morphological changes in gum mucosa is revealed, it is quite natural, as there is a morphological and functional interrelation between tissues. Infiltration of the ligament by leukocytes, increased permeability and destruction of collagen fibers is explained by a large number of fat cells in the periodontal because the fat cells, being regulators of local homeostasis, release cytokines to increase the migration of macrophages to the resorption zone.

Analysis of the results showed that periodontal mast cells, due to the presence of biogenic amines in them, represent a powerful link that determines the development and regulation of homeostatic and compensatory mechanisms in case of periodontal infection. We have established that the degranulation coefficient and the functional tension coefficient of tissue basophils in the vascular and intervascular regions of the periodontal periodontal periodontal are the criteria of the stability of the fat cell system to the action of inflammatory factors.

In the course of the research, it was established that quantitative and qualitative results differ in patients of the investigated and control groups. They correlate with the duration and severity of the pathological process in the oral cavity and depend on the presence of somatic pathology. According to the morphological study of the mucous membrane, it is possible to assume the highest probability of postoperative complications in the 2nd group. Thus, on the basis of morphological picture of groups 1 and 2, the conclusion about obligatory preparatory immunomodulatory treatment in the 2nd group follows.

In the post-implantation period, all groups of patients need intensive immunomodulatory treatment, reducing inflammatory reactions and inhibiting destructive processes.

Conclusions:

1. In groups of patients against the background of diabetes mellitus, the high content of fat cells is the cause of swelling and macrophageal infiltration in the own plate of mucous membrane.
2. Regardless of the presence or absence of diabetes in a dental patient, increased microbial contamination in epitheliocytes after dental implantation requires the normalization of immune homeostasis in the oral mucous membrane.
3. Effective immunocompetent immunocytes in mucous membrane structures are a reflection of the effectiveness of dental implantation measures and can be used to predict the success of treatment measures.

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