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НОВЫЙ ДЕНЬ В МЕДИЦИНЕ
NEW DAY IN MEDICINE**

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STUDY OF THE INFLUENCE OF DOMESTIC DENTAL IMPLANT “IMPLANT.UZ” ON THE STATE OF LOCAL IMMUNE OF THE ORAL CAVITY

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✓ Resume

Purpose of the study: To study the reaction of IgA and IgG immunoglobulins in the oral cavity to dental implants at various times after dental implantation.

Materials and methods: 90 patients with secondary partial adentia who underwent dental implantation and installed domestic dental implants “Implant . Uz ”. The research methods were clinical, laboratory.

Results: the changes and influence of the domestic dental implant “Implant . Uz ” on the state of local immunity of the oral cavity

Key words: dental implantology , dental implant “Implant . Uz ”, local immunity, immunoglobulins IgA and IgG

ИССЛЕДОВАНИЕ ВЛИЯНИЯ ОТЕЧЕСТВЕННОГО ДЕНТАЛЬНОГО ИМПЛАНТАТА “IMPLANT.UZ” НА СОСТОЯНИЕ МЕСТНОГО ИММУНИТЕТА ПОЛОСТИ РТА

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✓ Резюме

Цель исследования: Изучение реакции иммуноглобулинов IgA и IgG в полости рта на дентальные имплантаты в различные сроки после дентальной имплантации.

Материалы и методы: 90 пациентов со вторичной частичной адентией, которым была проведена дентальная имплантация и установлены отечественные дентальные имплантаты “Implant.Uz”. Методами исследования явились клинические, лабораторные.

Результаты: определены изменения и влияние отечественного дентального имплантата “Implant.Uz” на состояние местного иммунитета полости рта

Ключевые слова: дентальная имплантология, дентальный имплантат “Implant.Uz”, местный иммунитет, иммуноглобулинов IgA и IgG

“IMPLANT.UZ” МИЛЛИЙ ТИШ ИМПЛАНТАТИНИНГ ОҒИЗ БЎШЛИҒИ МАҲАЛЛИЙ ИММУНИТЕТИ ҲОЛАТИГА ТАЪСИРИНИ ЎРГАНИШ.

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✓ Резюме

Тадқиқот мақсади: оғиз бўшлиғидаги IgA ва IgG иммуноглобулинларининг тиш имплантациясидан кейин турли вақтларда тиш имплантларига реакциясини ўрганиш.

Материаллар ва усуллар: Иккиламчи қисман адентия билан оғриган 90 нафар бемор тиш имплантациясидан ўтказилди ва маҳаллий “Implant.Uz” тиш имплантатлари ўрнатилди. Тадқиқотни клиник ва лаборатория усуллари ташкил қилди.

Натижалар: “Implant.Uz” маҳаллий тиш имплантатининг оғиз бўшлиғининг маҳаллий иммунитет ҳолатига ўзгариши ва таъсири аниқланди.

Калим сўзлар: дентал имплантология, тиш имплантати “Implant.Uz”, маҳаллий иммунитет, IgA ва IgG иммуноглобулинлари

Relevance

The increase in the proportion of elderly and old people in the structure of the population of Uzbekistan forms one of the most important health problems - the gerontological focus of modern medicine. Aging creates certain conditions for the development of various somatic diseases, which can form a comorbidity, reducing the physical and adaptive capabilities of the body [1,11]. In particular, this also applies to dental diseases in older age groups [4,5]. In such individuals, there is an increase in the proportion of periodontal tissue diseases of a dystrophic nature, progressively increasing in proportion to the age of patients. The need for surgical and orthopedic dental care in such patients often reaches 100% [7, 10]. The complexity of predicting the results of the treatment is associated, on the one hand, with the presence of age-related changes in immunity, including local immunity in the oral cavity, the system of non-specific antimicrobial protection of mucous membranes, which is accompanied by the depletion of the reserve of the body's adaptive capabilities. On the other hand, despite the significant achievements of modern dentistry in the diagnosis of inflammatory-dystrophic changes in periodontal tissues, a high incidence of complications in the therapeutic and surgical treatment of such patients remains, which is largely due to the insufficient effectiveness of the diagnostic methods used [1,2,6]. To reduce the frequency of complications in the post-implantation period, it is necessary to take into account the age-related characteristics of local immunity in the oral cavity before implantation. In our opinion, the most informative methods for assessing local immunity in the oral cavity, especially in elderly people, is the determination of those components of the body's immune system that are involved in the formation of the nonspecific immunity system and are present in the oral fluid. These indicators, in particular, include: immunoglobulins - A, including secretory (participating in the formation of secondary immunodeficiencies) and G, the presence of which in the oral fluid is an indicator of the likelihood of violations of reparative regeneration processes in the postoperative period in senile patients [3,10,14]

It is known that even with ideally performed implantation, complications are possible, and, first of all, of an inflammatory nature, which are usually divided into early ones, which occur at the stage of implant osseointegration, and later ones, which appear after the osseointegration process has successfully completed. Such complications may arise due to biomechanical, infectious causes or their combinations [3,4]. The development of inflammation along the perimeter of the implant may be associated with the level of hygiene and, above all, with the formation of dental plaque, as well as with nonspecific and specific reactions that occur under the influence of antigenic substances of microbial associations of dental plaque [4–6]. It is believed that the level of specific and nonspecific protective reactions plays an important role in ensuring the sterility of the contact zone of the implant and the surrounding mucous membrane and bone [4,5–7].

Interesting, in our opinion, is the study of the state of local humoral immunity in persons with dental implants, who are practically healthy. Immunoglobulins A and G may have several protective functions. They inhibit the adhesion of bacteria, neutralize viruses and prevent the absorption of antigens (allergens) through the mucous membrane.

The purpose of the present research. Study of the reaction of IgA and IgG at different stages of dental implantation.

Materials and methods

The study involved 90 patients aged 22 to 41 years, not suffering from somatic and serious dental pathology, who underwent dental implantation. In each case, a 2-stage implantation was used. In young people, the content of immunoglobulins IgA and SIgA in the oral fluid was studied before dental implantation, after the removal of sutures from the gum mucosa, after 4-6 months - at the stage of the end of osseointegration before installing the gum shaper. Immunoglobulins were determined by the Manchini method C. et al. [8].

In the course of our study, according to the tasks set, we studied the impact of the domestic dental implant "Implant.Uz" on the state of local immunity in patients in whom it was implanted.

The control parameters in this study were the indicators of phagocytic activity of early and late neutrophils, as well as the content of IgA and IgG obtained from saliva in patients without pathology of

the dentoalveolar system, and the absence of general somatic pathology. Our studies on the influence of domestic implant

“ Implant.Uz ” on the state of local immunity in 3 groups of patients.

Table 1

The results of the study of the effect of implants on the state of local immunity

day	IgA $\mu\text{mol/l}$			IgG $\mu\text{mol/l}$		
	1 group	2 group	3 group	1 group	2 group	3 group
	The indicator accepted as the norm					
	4.38 $\pm$ 0.12			17.55 $\pm$ 0.41		
3	5.37 $\pm$ 0.16	5.35 $\pm$ 0.18	5.33 $\pm$ 1.25	23.74 $\pm$ 0.6	23.67 $\pm$ 0.12	22.26 $\pm$ 0.45
7	5.16 $\pm$ 0.11	5.12 $\pm$ 0.19	5.14 $\pm$ 0.11	18.6 $\pm$ 0.29	18.3 $\pm$ 0.22	18.2 $\pm$ 0.12
180	4.66 $\pm$ 0.12	4.54 $\pm$ 0.11	4.48 $\pm$ 0.64	18.43 $\pm$ 0.11	18.13 $\pm$ 0.17	18.02 $\pm$ 0.51

IgA concentrations increased 3 days after surgery in patients of the 1st group using Implant . Uz by 0.99 $\pm$ 0.04 $\mu\text{mol/l}$ ($p < 0.05$) and in patients of group 2 using Osstem by 0.97 $\pm$ 0.06 $\mu\text{mol/l}$ ($p < 0.05$) and, respectively, group 3 using Dentium by 0.75 $\pm$ 1.13 $\mu\text{mol/l}$ ($p < 0.05$). The concentration of IgG significantly increases in all groups.

A week later, these indicators in all groups are normalized: In the first group, the values of IgA are 5.16 $\pm$ 0.11 $\mu\text{mol/l}$ and IgG - 18.6 $\pm$ 0.29 $\mu\text{mol/l}$. In the second group, IgA is 5.12 $\pm$ 0.19 $\mu\text{mol/l}$; . and IgG 18.3 $\pm$ 0.22 $\mu\text{mol/L}$. In the third group, IgA readings are 5.14 $\pm$ 0.11 $\mu\text{mol/l}$ and IgG readings are 18.2 $\pm$ 0.29 $\mu\text{mol/l}$.

Variable changes in Ig A and Ig G do not indicate the occurrence of pathological reactions, but rather indicates that the domestic implant “ Implant.Uz ” does not have a negative effect on the local immunity of the oral cavity.

The results of an immunological study to study the influence of the domestic dental implant “ Implant.Uz” on the indicators of local immunity indicate the absence of its negative impact on local resistance and fully correspond to the clinical picture of the course of the postoperative period in the study and control groups.

Conclusion

4–6 months after implantation, the content of IgA and Ig G in the oral fluid - almost returned to the original level. Also, it should be noted that there were no cases of early complications associated with dental implantation in patients. Thus, based on the results obtained, it was concluded that in young, practically healthy, including those not burdened with serious dental pathology, in the early stages of dental implantation, a pronounced reaction of local humoral immunity is observed, manifested in the form of increased compensatory secretion of immunoglobulins A in the first month after implantation.

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