MEDICAL SCIENCES

FIXED PROSTHESIS OF COMPLETE SECONDARY EDENTULOUS MANDIBLE SUPPORTED BY IMPLANTS

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Abstract
The use of shock-absorbing abutments in patients with highly compliant mucosa led to a significantly greater restoration of chewing efficiency and a decrease in atrophy of the tissues of the prosthetic bed. With the disintegration of one distally placed implant, the use of shock-absorbing abutments was accompanied by the restoration of chewing efficiency to similar indicators in patients who were prosthetics on four implants and rigid abutments.
Keywords: implants, shock-absorbing abutments, masticatory efficiency.

As a result of an increase in life expectancy and the number of elderly people and significant changes in the dentoalveolar apparatus, an acute problem of dental rehabilitation of this contingent of the population arises [1]. There is no doubt that high-quality nutrition is impossible without the preserved preservation of the dentition. The biggest problem area of the dentition is the lower jaw with complete loss of teeth and severe atrophy, especially the lateral areas where the main chewing teeth were located - premolars and molars. In this regard, from the point of view of optimal rehabilitation of patients, there is implant treatment with the introduction of implants in the intermental part of the lower jaw [2].

This position is based on the fact that the majority of older people, especially those with significant atrophy of the alveolar process of the lower jaw and complete secondary adentia, cannot adapt to complete removable dentures due to a number of reasons: poor fixation, stabilization of dentures, imperfect technology for their manufacture, age changes in the physiology of the oral cavity.

One of the leading areas of scientific research in modern dentistry is the prosthetics of the dentition using dental implants. Numerous observations of researchers have proven that the effectiveness of treating patients with missing teeth with implant-supported orthopedic structures exceeds 90% [3-7]. The main conditions for the long-term functioning of dentures based on intraosseous implants, especially in elderly patients, are the study of the quality, volume and structure of the bone tissue of the alveolar ridge in the implantation zone, the state of homeostasis in the oral cavity.

The aim of the work was to determine the effectiveness of the treatment of elderly people with complete secondary adentia with fixed dentures based on three implants and shock-absorbing abutments at different follow-up periods.

Materials and methods

We conducted a clinical and laboratory examination of patients for three years. At the beginning of our the study examined 40 people who were divided into 2 groups: 1 - patients with integrated 4 implants and a fixed prosthesis and 2 - a group of patients with three implants (one distally disintegrated implant in the early period up to three months. At the end of our study, review of 13 patients of the first group, which at the beginning of the study was divided into 2 subgroups: 1a - patients with normal mucosal compliance (9 persons) and 1b - with highly compliant mucosa (4 people). We also examined 12 patients of the 2nd group (prosthetics on 3 implants and the use of shock-absorbing abutments).

In groups, chewing efficiency according to Rubinov and atrophy of tissues of the prosthetic bed were determined [9].

More than 70% of the population suffers from partial or complete loss of teeth and needs their full restoration [8]. The solution of issues related to the increase in the duration of the functioning of implants and dentures remains an urgent problem. It is noteworthy that during this period not a single patient subject to a retrospective study lost implants. This is especially true for the second group of the study, since prosthetics were performed on three implants. The obtained facts confirmed the mathematical model developed by us (which substantiated the possibility of such treatment) and prove the effectiveness of the developed technique in patients of this age group [10].

When determining the chewing efficiency in the examined groups of patients, we revealed the following features: on the day the prosthesis was put on, the high chewing efficiency was in group 1b, and the lowest in group 2

One year after prosthetics, chewing efficiency increased and was 48.4±2.6% for group 1a, 57.3±3.1% for group 1b, and 48.1±3.1% for group 2. The highest level of chewing efficiency in the 1b group of patients

is explained by the use of shock-absorbing abutments and a more rational transfer of the functional load to the tissues of the prosthetic bed. In the second group of patients, we did not observe significant differences in chewing efficiency compared to group 1a, but this indicator was significantly lower compared to group 1b. Our results may indicate that the prosthetics of patients on three implants is effective and is confirmed as in terms of chewing efficiency, and subjective sensations of patients in this group. The determination of masticatory efficiency, carried out by us 2 and 3 years after prosthetics, did not reveal significant differences in this indicator in the examined groups and did not differ from the indicators at different observation periods.

The functioning of the masticatory apparatus, especially in patients with edentulous jaws, largely depends on the state of the tissues of the prosthetic bed, the rate of atrophic processes occurring in them. Our study of atrophy of the prosthetic bed tissues showed that with an increase in the observation period, the level of atrophy in all groups increases. At the same time, we recorded the following features of atrophic processes in the tissues of the prosthetic bed: the lowest level of atrophy was recorded in group 1b, similar results were obtained after 3 years of observation. We did not observe differences between group 1a and group 2.

Conclusions.

So, our studies of the state of chewing efficiency and atrophy of the tissues of the prosthetic bed confirm the effectiveness of the method for treating complete secondary adentia of the lower jaw during prosthetics with a fixed prosthesis on implants. The use of shock-absorbing abutments in patients with highly compliant mucosa led to a significantly higher recovery of masticatory efficiency and a decrease in atrophy of the tissues of the prosthetic bed. With the disintegration of one distally placed implant, the use of shock-absorbing abutments was accompanied by the restoration of chewing efficiency to the same indicators in patients of group 1a, who were prosthetics on four implants and rigid abutments.

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