

MEDICAL SCIENCES

PROFESSIONAL ORAL HYGIENE IN THE PRESENCE OF IMPLANT-SUPPORTED STRUCTURES

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<https://doi.org/10.5281/zenodo.14766560>

Abstract

Currently, an important goal in dentistry is to restore the aesthetic and functional contour of the dentition, the comfort of diction and the health of the patient. To solve such problems, dentists are increasingly using orthopedic structures supported by implants. Every year the number of installed dental implants increases. The global market shows a doubling of sales from \$3.4 billion in 2011 to \$6.6 billion in 2018. Compared to other edentulous treatment methods, the popularity of implant treatment is 70%, bridges and crowns 12%, and removable dentures 10%.

Keywords: dentures on implants, bridges, removable dentures, oral hygiene.

The success of implant survival depends not only on the correct implantation procedure and orthopedic treatment, but also on the motivation of the patient himself in caring for the implants[1]. Oral hygiene remains the most important aspect of implant survival. The area of dental implants is most sensitive to dental plaque microorganisms, which most often form on the crowns and cervical surface of both implant superstructures and the implants themselves. Excessive accumulation of pathogenic microflora leads to significant inflammation in the peri-implant tissues[2]. Therefore, each patient needs both individual and professional oral hygiene. Removing dental plaque from the surface of the abutment itself has its own characteristics, dictated by the properties of titanium. It is known that titanium and its alloys are surface-sensitive metals in which individual defects sharply reduce the performance of the material [3]. The group of instruments that damage the surface layer of titanium includes nylon brushes, Air-Flow using sodium bicarbonate powder, steel ultrasonic cures, scalers (which cause macro damage). Defects in the form of microcracks, scratches and pores contain iron oxide, which sharply worsens the bioinert properties of the material. Also, due to the resulting defects, the adhesion of microorganisms to the rough surface of the implant increases, which increases the likelihood of peri-implantitis and perimucositis[4]. Accordingly, the surface remains most homogeneous when processed with plastic tools: implacers, Teflon nozzles.

The purpose of the study is to determine the effectiveness of acceptable professional hygiene methods for implants and to increase the level of preventive measures in patients with implants.

Material and methods.

9 patients with dental implants took part in the study. 3 different methods of professional hygiene were chosen: 1) rubber caps; 2) ultrasonic tips PI (EMS) with plastic coating; 3) Perio-Flow technology - air-abrasive supra- and subgingival treatment using Air-Flow Perio (EMS) glycine-based powder with a particle size of 25

microns. As a result, patients were divided into groups according to the chosen cleaning methods. Before carrying out professional hygiene, additional studies were carried out to determine hygiene indices, to assess the condition of soft tissues in the implant area and the presence of hard deposits on implants and superstructures after 5, 15, 30 days. A modified implant hygiene index was used. This index is based on the simplified Green-Vermillion index; Gingival Index (gingival index) - Loe & Silness. After cleaning, irrigation was carried out with an antiseptic (0.05% chlorhexidine solution, 3% hydrogen peroxide solution). Each patient was given recommendations for individual hygiene on implants. For the reliability of the study, microbiological analysis of dental plaque was also used before professional hygiene, after 5, 15 and 30 days. Dental plaque was stained using Gram staining and microscopied. Results and discussion. The examination before carrying out professional hygiene showed high values of the IGIM index - the average value in all groups was 0.8 (a sufficient indicator of hygiene), when determining the GI index, the average value for the groups was 0.9 (mild gingivitis), upon probing there was slight bleeding and hyperemia. During the study, in group 1, in which manual methods of professional hygiene were used, the indices changed with different dynamics, so in 5 days the IGIM indicator was 0.5, and GI was 0.7. Then, after 15 days, the dynamics of changes began to reverse, the IGIM index increased - 0.7, and GI - 0.8. By 30 days, IGIM and GI returned to their original values. In group 2, using an ultrasonic attachment, on the 5th day the value of IGIM = 0.3 and GI = 0.5. On the 15th day, the indices remained virtually unchanged; when checked on the 30th day, the indices increased by 0.1. In group 3, using Air-Flow and glycine powder, the modified OHI-S index changed to 0.4 after 5 days, and the gingival index was equal to 0.5. After 15 days, the indices increased by 0.1. On the 30th day, the indices were 0.65 and 0.71, respectively. The conducted stud-

ies show the most effective method of professional hygiene of implants from the point of view of index assessment. According to the results of microbiological analysis in the field of view, the largest number of microorganisms is observed in group 1, in which only mechanical cleaning was carried out; The best result was achieved by the 2nd group, in which ultrasonic cleaning was used. Compared to plaque on natural teeth, fusobacteria, individual diplococci and vilonella are more common in plaque from the area of implants.

Conclusion.

The area of dental implants is most sensitive to plaque microorganisms, which increases the need for more frequent professional hygiene. The most effective professional hygiene method for patients with implants is ultrasonic treatment with Teflon tips. Only mechanical cleaning of the surfaces of implants and superstructures does not provide a long-term positive effect. Perio Flow technology showed intermediate results, which

indicates an insufficient sanitizing effect. Microbiological studies and hygiene tests allow you to objectively assess the patient's hygienic condition throughout the entire observation period

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