

# PROGNOSTIC EFFICIENCY OF INFLAMMATORY COMPLICATIONS DEVELOPMENT OF DENTAL IMPLANTATION BASED ON INDICATORS OF LIPID PEROXIDATION (LPO) OF ORAL FLUID

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## Abstract

The frequency of complications of dental implantation at the present stage varies from 6% to 23%, what determined the relevance of this examination.

The aim of this work is to determine the predictive effectiveness of the development of inflammatory complications of dental implantation on the basis of indicators of lipid peroxidation (POL) of the oral fluid (level of malondialdehyde (MDA) and the activity level of superoxide dismutase (SOD)).

We examined 49 patients 25-59 years old which had no traumas, operations and diseases requiring medical rehabilitation, inflammatory disease in the maxillofacial area and the gastrointestinal tract, as well as other factors that can affect qualitative and quantitative content of the oral fluid. These patients underwent delayed dental implantation (one implant in one segment of the jaw). The POL indices were determined twice: before operation of dental implantation and 3 days after operation. The effectiveness of the proposed method was determined in accordance to the clinical and economic studies requirements.

Prognostic efficiency in accordance with the procedure of conducting clinical and economic examinations on the basis of MDA level was 78%, and based on the level of SOD activity – 76%, which classifies it as high and allow to reduce the number of complications and diagnostic mistakes including in the planning and execution of invasive procedures associated with the installation of dental implants.

## Introduction

The frequency of complications of dental implantation at the present stage varies from 6% to 23% [1]. At the same time laboratory methods of examination because of the subjectivity and the lack of informativeness does not allow to use them to predict these complications in the preclinical stage of development. In the literature there are reports emphasizing the need to develop screening criteria activity and severity of inflammatory-destructive processes in dental implantation on the basis of use for the study of non-invasive biological environment, the oral fluid farst of all [3]. There are some reports on the methods of prognostication of development of peri-implantitis on the basis of biochemical indicators of oral fluid [4], what determined the relevance of this study.

## Materials and Methods

The study included 49 patients 25-59 years old which had no traumas, operations and diseases requiring medical rehabilitation, inflammatory disease in the maxillofacial area and the gastrointestinal tract, as well as other factors that can affect qualitative and quantitative content of oral fluid. These patients underwent delayed dental

implantation (one implant in one segment of the jaw). A method of predicting of inflammatory complications development of dental implantation based on the level of malondialdehyde (MDA) level and superoxide dismutase activity (SOD) in oral fluid was used in each patient twice: 1) before the operation of dental implantation, 2) 3-days after the operation. Efficiency of the offered method was determined in accordance with the procedure of conducting clinical and economic studies [2].

## Results and Discussion

On the 3-rd day after surgery in 38 (77.6%) patients were defined normal indices of MDA level and 40 (81.6%), indicating no risk of inflammatory complications. In 11 (22.4%) of patients were diagnosed the risk of developing these complications on the level of MDA and 12 (24.5%) – the level of SOD activity. Treatment plan of these patients was subjected to correction with the use of surgical and therapeutic methods in order to prevent the development of complications or further development of the pathological process and to avoid rejection/removal of the implant. In long-term follow up 45 patients (91.8%) had prosthetic operation and were satisfied by immediate and long-term results of treatment and rehabilitation. Number rejection/removal implants due to the development of peri-implantitis was 4 (8.2%). Prognostic efficiency in accordance with the procedure of conducting clinical and economic studies on the basis of MDA level was 78%, and based on the level of SOD activity – 76%, which classifies it as high.

## Conclusions

The application of prognostication the development of inflammatory complications of dental implantation on the basis of MDA level and the activity level of SOD oral liquid will reduce the number of complications and diagnostic mistakes including in the planning and execution of invasive procedures involved in installing dental implants and also in assessing both immediate and long terms results of treatment.

## References

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