MEDICINE

COMPARISON THE EFFICIENCY OF DECONTAMINATIVE IMPRESSION MATERIAL AND DIMENSIONAL ACCURACY OF DENTURE'S STRUCTURES

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ABSTRACT
The aim of the study was a comparative evaluation of contamination efficiency and dimensional accuracy of dentures made using impression materials (IM) "Stomalgin-05" on the stages of production structures dentures

In order to conduct a comparative study of the effectiveness of different methods of decontamination plaster models we made: the first phase study of oral microbiota of patients and bacterial contamination prints (Ig KOE/ml) made of IM "Stomalgin-05" and "Stomalgin-04"; the second stage - to study the effect of disinfection regime of plaster models made of material "Stomalgin-04"; the third stage of comparative evaluation of the effectiveness of disinfection plaster models and dimensional accuracy of dentures manufactured using the material.

Results and discussion. In the study of oral microbiocenosis we found that the total number of microorganisms was (51,1±6,2) KUE/ml, which were represented mainly by anaerobic organisms (total (28,2±3,4) KUE/ml which is 55.2%), whereas aerobic bacteria were 44.8%. Among the most representative anaerobic flora (5,52±0,16 CFU/ml) were Lactobacterium sp., Among aerobic - Streptoc. Pyogenes (6,21±0,10 CFU/ml). In these patients were received prints of prosthetic bed investigated using IM (from upper jaw - "Stomalgin-04", from the bottom - "Stomalgin-05"), allowing for comparability of the data.

In the case of IM "Stomalgin-04" prints bacterial contamination was (30,1±1,7) CFU/ml. and significantly lower than the level of microbial colonization of the oral cavity and significantly higher than bacterial contamination prints obtained using IM "Stomalgin-05" (respectively 51,1±16,2 and 24,1±1,8 CFU/ml). Regardless the type of applied impression materials, the structure of bacterial contamination prints dominated by anaerobic microorganism form (respectively 16,9±0,9 and 14,2±0,8 CFU/ml). However, the application IM "Stomalgin-04" did not provide quantitative changes in two species of microorganisms, namely Candida AIbicans, Staphylococcus Aureus, while disinfecting efficacy of material "Stomalgin-05" manifested with a significant decrease in levels of bacterial contamination prints on all types of microorganisms.

The study of the disinfection effectiveness of carried prints, which made using material "Stomalgin-04", for which they were soaked in reagent (aqueous solution of Glutamic aldehyde) and every 5 minutes were performed wipes for further microbiological studies. After 15 min. from the beginning of decontamination

overall level of bacterial contamination plaster model was 4,6±0,08 CFU/ml and was significantly ($p<0.001$) different levels of colonization on 5 and 10 minute of disinfection (respectively 22,8±0,21 and 11,2±0,09 CFU/ml), should also be noted that the level of microbial colonization models made of plaster IM "Stomalgin-04" on 15 min. of disinfection remained significantly ($p<0.05$) higher than the colonization levels of plaster models obtained in the print from the IM "Stomalgin-05." In addition, depending on the method of disinfection, we use different bacterial and microbial contamination landscape gypsum models: a version of the application IM "Stomalgin-04" for plaster models colonization represented 5 categories: Peptostreptococcus sp. - 1.15±0,12 CFU/ml, Candida Albicans - 1,05±0,05 CFU/ml, Staphylococcus Saprophyticus - 1,50±0,10 CFU/ml, Streptococcus Pyogenes - 1,45±0,05 CFU/ml and Corynebacterium sp.- 1,00±0,10 CFU/ml. In the case of IM "Stomalgin-05" anaerobic flora was represented by Lactobacterium sp. and aerobic - by Staphylococcus Epidermidis, Streptococcus Mitis (all 1,10±0,05 CFU/ml).

As the plaster model on prints of IM "Stomalgin-04" require additional disinfection, it became clear in the experiment, that this additional disinfection reduces level of bacterial contamination of the plaster models and alter the microbial landscape of bacterial contamination. However, compared with the method of application IM with disinfecting effect the use of disinfection methods plaster models with fingerprint "Stomalgin-04" does not provide the required level of disinfection; while retaining the dangerous pathogenic flora. Using IM "Stomalgin-05" provides decontamination of the main types of flora and its lowest possible presence (both quantitatively and qualitatively) on plaster models. And the exclusion the procedures of soaking in water disinfectants can affect the dimensional accuracy of gypsum models.

The accuracy of the fingerprint was compared by the basic parameters whose values are obtained by measuring the diameter of each plaster model cylinder; receipt prints used disposable plastic spoons impression; to ensure contact between the impression spoon and used IM impression spoon with perforations. It was found that the lowest values of finite dimensional accuracy characterized by technological options for IM application "Stomalgin-05" in combination with GC Fujirock EP plaster; finite dimensional accuracy values fluctuated in the range of 0.29% to 1.63% linear size of the supporting elements. In this case, note that depending on the type of support elements, the optimal choice of processing variant of gypsum - IM may vary; so for the most accurate models of molars, premolars and optimal use of the tool IM "Stomalgin-05" combined with gypsum Fujirock EP, while the canines - using plaster GW-B-11.

Comparing the dimensional accuracy of designs produced using IM "Stomalgin-04" and "Stomalgin-05" in selected technological options, it should be noted that the best for "Stomalgin-04" is a technological option, which uses GV-G-10 A-III (error is 0.04%), whereas in the case of "Stomalgin-05" - gypsum GC Fujirock EP. This can be explained by the fact that in the first case disinfection takes place by soaking the print in aqueous solution, leading to changes in size, and in the second process of soaking is off.

Conclusions:

1. The degree of contamination is determined by the used prints materials. In particular, using IM "Stomalgin-05" reduced (compared to the oral microbiota) the degree of contamination prints more than twice: from 51,1±6,2 to 24,1±1,8 CFU/ml.

2. Using IM "Stomalgin-05" provides decontamination main types of flora and its lowest possible presence (both quantitatively and qualitatively) on plaster models. And expulsion soaking procedures in aqueous disinfecting solutions has a positive effect on the dimensional accuracy of gypsum models.

3. Compliant with IM "Stomalgin-05" for maximum dimensional accuracy is the use of GC Fujirock EP plaster, which provides high accuracy at 99.3% linear dimensions of the supporting elements, some less accurate models can be obtained when using gypsum GV-G-10 A-III (error is 1.09%).