

Research Article

# Recommendations for the Use of Removable Dentures in Patients with Acantholytic Pemphigus and their Evaluation

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## Abstract

The recommendations, offered by us, as for the use of removable dentures in patients with acantholytic pemphigus using a multicomponent remedy based on chitosan are described in the article to provide an analgesic and wound-healing effect in patients with acantholytic damage of the prosthetic bed tissues.

**Objective of the study.** To improve the conditions for the use of removable dentures for acantholytic pemphigus patients.

**Materials and methods.** The study involved 56 patients with acantholytic pemphigus, aged 45 to 63 years old, who were divided into 2 clinical groups. The main group used removable dentures according to our recommendations; the comparison group used removable dentures in accordance with generally accepted recommendations. Methods for determining the intensity of the pain syndrome and the subjective responses of patients about the state of health were used to evaluate the ultimate results.

**Results of the research.** Improvement of general state according to the data of a subjective survey in the main group was observed in 20 patients, which was 71.42% during the 7<sup>th</sup> day; and in 27 patients during the 14<sup>th</sup> day, which was 96.42%. In the comparison group, patients who subjectively felt better were 35.71% during the 7<sup>th</sup> day and 57.14% during the 14<sup>th</sup> day, respectively.

**Conclusions.** The results of the study confirm the necessity to develop, implement and improve the recommendations for the inclusion into the protocol of the use of removable orthopedic structures of dentures in patients with acantholytic lesions of the prosthetic bed tissues.

## Keywords

acantholytic pemphigus; chitosan; acantholysis; prosthetic bed

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## Problem statement and analysis of the recent research

Complete lack of teeth directly affects the quality of human life, causes a violation of the vital function of the body - chewing food, which affects the process of digestion in general and the introduction into the body of the necessary nutrients [4]. Serious consequence of the complete absence of teeth is the violation of articulation and diction, which, together with the external signs of this pathology (decrease of height of the lower third of the face, retracted lips, pronounced nasolabial fold, maceration of the corners of the mouth) may cause changes in the psycho-emotional state [9]. A complete absence of teeth may be one of the causes of the development of tympanic-mandibular joint dysfunction, which in turn can lead to pain syndrome.

According to A.P. Voronov et al. [1, 5] 20-26% of patients with complete removable dentures do not use them, and 37% of patients are forced to adapt to poor-quality prosthetics that damages the tissues of the prosthetic bed, in 50% of cases

prostheses are unstable when chewing, in 64.7% of patients under the bases of prosthetics some mucosal diseases develop, and 55% of 60-year-old patients requires re-manufacture of dentures. Many researchers pay attention to the difficulty of getting used to, adapting patients to complete removable dentures on the lower jaw [2, 3].

It is believed that the main factor determining the habituation of the patient to the prosthesis is the biological one - the sum of all reactions of the organism to the presence of a foreign body. In turn, the reactivity of the body, organs and tissues of the oral cavity depends on the state of health, age, type of higher nervous activity, psychological status of the patient. The most important psychological adaptation to the prosthetics is the sum of complex conditioned-reflex reactions of the patient belonging to the sphere of human emotions and they determine the degree of satisfaction with dentures. In the problem of adaptation there is also an important and yet insufficiently studied aspect of linguistic adaptation, depending on the constructive peculiarities of the prosthesis, the optimal interaction of the active organs of speech articulation with the

orthopedic structure, age of the patient [6].

The study of the use of a chitosan-based multicomponent remedy in the orthopedic dentistry clinic will improve the adaptation to removable prosthetics of patients with pemphigus with acantholytic lesions of the prosthetic tissues, by reducing the pain sensation that occurs due to the contact of the prosthetic base and the affected areas, preventing the onset of a distant symptom of Nikolsky due to mechanical irritation of the intact sections of the mucous membrane of the prosthesis and acceleration of the epithelization and reduction of the area of erosions in the mucous membrane. The above-mentioned effect is possible due to such properties of the offered by us remedy as mucoadhesion, local anesthetic and wound-healing effect. The use of this remedy creates a buffer between the prosthesis and the prosthetic bed, which will significantly reduce the effect of the prosthesis base onto the mucous membrane [7, 8].

**Objective of the study** was to improve the conditions for the use of removable dentures for acantholytic pemphigus patients.

## 1. Materials and methods

The patients were divided into 2 clinical groups: the main group and the comparison group. The main group included 28 patients with acantholytic pemphigus, aged 45-63 years, using removable dentures. These patients used removable dentures in accordance with our recommendations.

The group of comparison included 28 patients with acantholytic pemphigus, aged 45-63 years, using removable dentures. They were performed a common local therapy of acantholytic lesions on the mucous membrane.

The examination complex was performed three times during the period of exacerbation of the acantholytic pemphigus, and its manifestations on the mucous membrane: during the 1<sup>st</sup>, 7<sup>th</sup>, 14<sup>th</sup> days.

Multicomponent remedy offered by us consists in mixing of the "ex tempore" water-insoluble, colloidal chitosan solution (4%) and anesthetic ("Lidoksor" gel) with a thin layer was applied to the surface of the base of the removable plate prosthesis, after which the patients were offered to use this structure.

The evaluation of the pain syndrome was performed using the visual analogue scale (VAS) (subjective sensations of pain intensity were assessed) (*Visual Analogue Scale (VAS)* (Huskisson E. C., 1974). This method of subjective evaluation of pain consists in the fact that the patient is asked to mark a point that corresponds to the severity of pain on a non-graded line of 10 cm long. The left end of the line corresponds to the definition of "0" (no pain), "10" (pain is unbearable) to the right. Usually a paper, cardboard or plastic ruler 10 cm long is used. On the reverse side of the ruler there are centimeter divisions, in which the doctor notes the acquired value and enters it into the observation letter. The unconditional advantage of this scale is its simplicity and convenience. When dynamically evaluated, the change in pain intensity is considered objective

and significant if the true value of VAS is different from the previous one more than on 13 mm. The visual analogue scale reflects the intensity of pain experienced by the patient at the moment of the examination. The patient's pain intensity is marked independently.

Subjective responses of patients about state of health were determined by the method of dialogue, with the requests to tell the patient about the changes that he/she felt, and a description of the emotions associated with these changes.

## 2. Results

In order to ensure the full use of removable dentures for patients with acantholytic pemphigus during acute exacerbation, in particular to ensure the function of chewing the food, the following recommendations were given:

1. Application of multicomponent chitosan-based remedy offered by us onto the mucous membrane in the area of acantholytic lesion 10 min before the start of meal.
2. Use a denture during meals with a minimum chewing load for 20 minutes in breakfast and dinner and for 30-40 minutes - during lunch.
3. Remove the prosthesis from the oral cavity, clean it, rinse the oral cavity with warm water and re-apply multicomponent chitosan-based remedy onto the mucous membrane or directly to the prosthesis base, and then continue to use it.

The average value of VAS in the main group was  $4.76 \pm 0.56$  cm during the first day. During the 7<sup>th</sup> and 14<sup>th</sup> days, the value decreased to  $2.4 \pm 0.28$  cm and  $1.87 \pm 0.12$  cm, respectively.

As one can see from the above-given chart, the compliance with our suggested guidelines when using dentures, combined with the use of multicomponent chitosan-based remedy, provides a reduction of pain, especially during the first week of exacerbation of acantholytic pemphigus, which is important not only for the local treatment of the disease, but also to the general state of health and the results of complex therapy.

Improvement of well-being according to the data of a subjective survey in the main group was observed in 20 patients, which was 71.42% during the 7<sup>th</sup> day and in 27 patients during the 14<sup>th</sup> day, which was 96.42%. In the comparison group, patients who subjectively felt better were 35.71% during the 7<sup>th</sup> day and 57.14% during the 14<sup>th</sup> day, respectively.

From the above-given results we can clearly observe the tendency to improve the subjective sensations of patients in the main group who used removable dentures in accordance with our recommendations. The improvement of general condition is undoubtedly a consequence of a steady decrease in the values of the indicators of the pain syndrome, and related to the decrease in nutrition improvement and the degree of individual satisfaction with the use of removable dentures. Improvement of subjective sensation in the comparison group is explained by the generally accepted local and systemic

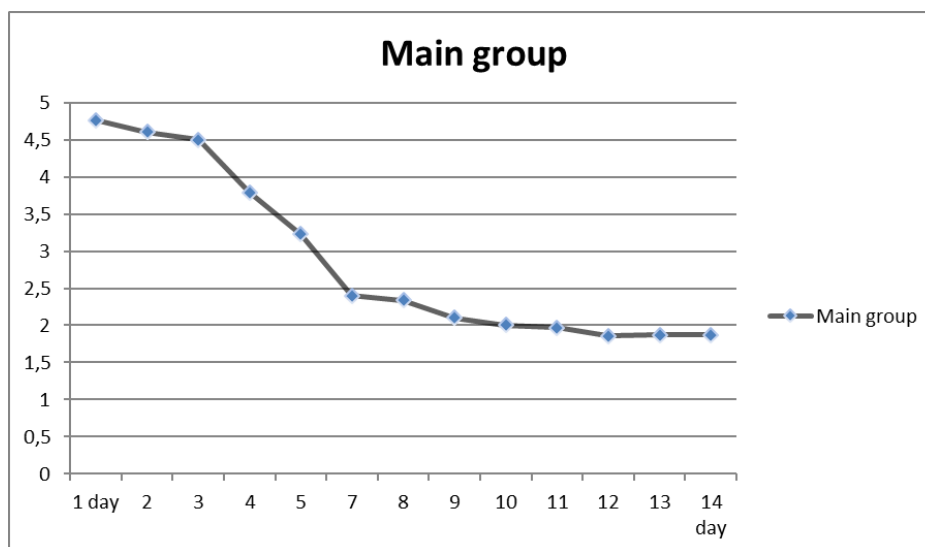


Figure 1. Dynamics of VAS indicators

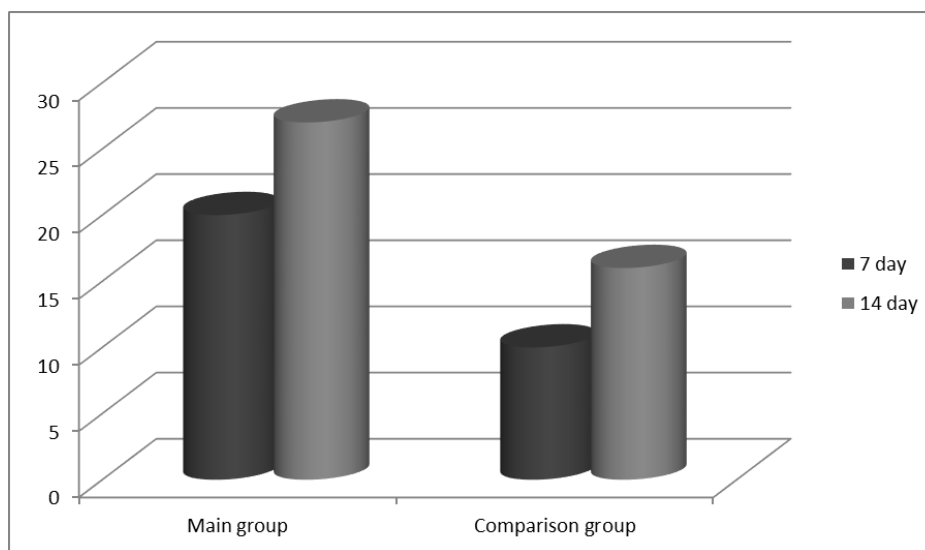


Figure 2. Differences according to the subjective data

therapy of acantholytic pemphigus. Positive dynamics in the overall state of health of patients using removable dentures is important in psychological adaptation to these orthopedic structures.

### 3. Conclusions

The development and implementation of recommendations as for the inclusion into the protocol of the use of removable orthopedic structures of dentures in patients with acantholytic lesion of the prosthetic bed tissues will improve the quality of life of patients with pemphigus, by increasing the volume of the full use of dentures and by reducing the pain sensations during meals, during the period of exacerbation of the disease, and will enable the attending physician to provide de-

tailed and accurate information on the peculiarities of the use of orthopedic structures in such cases, and give appropriate recommendations.

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