

APPLICATION OF NANOTECHNOLOGICAL ANTI-INFLAMMATORY GEL IN THE TREATMENT OF RECURRENT APHTHOSIC STOMATITIS.

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Abstract: This article is devoted to the study of the use of nanotechnological anti-inflammatory gel in the treatment of recurrent aphthous stomatitis. The paper discusses the basic principles of nanotechnology and their application in medicine. The development and characterization of a nanoparticle-based anti-inflammatory gel using modern analytical techniques is described. The results of clinical studies demonstrating the effectiveness and safety of using this gel in patients with recurrent aphthous stomatitis are also presented. The data obtained confirm the promise of using nanotechnology in the development of drugs for the treatment of dental diseases, ensuring high efficiency and minimal side effects.

Key words: nanotechnology, anti-inflammatory gel, recurrent aphthous stomatitis, treatment, effectiveness, safety, nanoparticles, clinical studies.

Relevance of the study: Diseases of the oral mucosa are one of the most difficult, urgent problems of dentistry, and so far they have been least studied in terms of etiology, pathogenesis, diagnosis and especially treatment among other dental diseases. The treatment of diseases of the oral mucosa, accompanied by the development of erosive and ulcerative elements of the lesion and characterized by a chronic or recurrent course, is particularly difficult. Recurrent aphthous stomatitis is associated with such diseases. The development of this disease is accompanied by an inflammatory reaction of the mucous membrane, significant morbidity and torpidity of the course, polymorphism of clinical manifestations and low effectiveness of treatment. This aspect justifies the scientific interest in the inclusion of a nanotechnology anti-inflammatory gel "PARODIUM" in the

complex therapy of recurrent aphthous stomatitis. Over the past three decades, the important role of immune reactions in the development of this dental disease has been revealed.

The active role of autoimmunization in the pathogenesis of recurrent aphthous stomatitis has been noted. Also in recent years, works have appeared that reveal the pathogenetic relationship of diseases of the digestive, respiratory, and cardiovascular systems with diseases of the oral mucosa. And this dependence manifests itself in the form of mutual aggravation, since pathological processes in the oral cavity become foci of chronic infection and lead to a deterioration in the functioning of the above-mentioned organs and systems, as well as to an exacerbation of their chronic diseases.

The ambiguity of data on the causes and pattern of development of this disease of the oral mucosa determines the variability, breadth of scientific research, the possibility of combining drugs of various groups in order to provide an integrated approach to the treatment of recurrent aphthous stomatitis and achieve the best therapeutic effect (acceleration of the timing of epithelialization of aft, reduction in the number and severity of relapses of the disease, prolongation of the remission period).

The purpose of the study

To study the effectiveness of complex treatment of recurrent aphthous stomatitis using a new nanotechnology anti-inflammatory gel.

Research objectives

1. To study the prevalence, intensity, and dental status in patients with recurrent aphthous stomatitis with concomitant general somatic pathology.
2. To propose methods for the treatment of recurrent aphthous stomatitis using a nanotechnology anti-inflammatory gel.
3. To evaluate the clinical results of using nanotechnological anti-inflammatory gel
4. To evaluate the dynamics of indicators of local oral immunity and cytokine profile in oral fluid, blood serum when using nanotechnological anti-inflammatory

gel in patients with erosive and ulcerative manifestations recurrent aphthous stomatitis in the oral cavity.

RESEARCH MATERIAL AND METHODS

The study involved 56 patients suffering from recurrent aphthous stomatitis, with lesions of the oral mucosa of various localization, with a recurrence rate of 2 or more times a year, 21 men (37.5%) and 35 women (62.5%) aged 16 to 54 years. The exclusion criteria were the use of immunotropic therapy 1.5-2 months before entering the study, the age of children (up to 16 years old), and the patient's refusal to participate in the study. The selection of patients was carried out by random sampling during treatment.

5 groups of patients were formed: 1st group of patients - 15 people, 2nd group - 10 people, 3rd group - 10 people, 4th group - 10 people, 5th group - 11 people. Patients of all groups underwent complex therapy, which included consultation and dispensary supervision by a general practitioner, gastroenterologist, endocrinologist, neurologist, followed by individual prescribing of general-action drugs (immunocorrecting, antihistamines, sedatives, detoxification drugs, vitamins).

During the study, patients in groups 1-4 underwent rehabilitation of chronic foci of oral infection, as well as professional and rational oral hygiene. Analgesics, antiseptic drugs, and proteolytic enzymes were applied topically. All medications used in the study have registration certificates and are approved for use.

Further, the 1st group received a locally traditional treatment regimen: "Holisal" gel as anti-inflammatory therapy, "Solcoseryl detailed adhesive paste", the 2nd group, against the background of traditional local therapy, was exposed to local electromagnetic effects of the device "Amphit 0,2/10-01", the 3rd group received nanotechnology anti-inflammatory gel "PARODIUM", Group 4 is the nanotechnological anti-inflammatory gel "PARODIUM" UHF, group 5 included those patients who received only general therapy, they refused a complex of local therapeutic and preventive dental measures for personal reasons, agreeing

to take cultural fluids (blood serum, oral fluid) on the 1st, 7th day of the examination.

Laboratory research methods

The acidity of sour cream saliva was determined at the initial and final stages of treatment. Mixed saliva was obtained in an amount of 5 ml. The study was performed

within 5 minutes after receiving saliva. The pH was determined using a pocket pH meter Checker-1 potentiometric method.

Assessment of the state of local immunity of the oral cavity) was carried out on the basis of data obtained in determining the amount of IgA, IgG, IgM, lysozyme activity in the oral cavity with calculation of the coefficient of balance of local immunity factors) in patients before and after treatment.

The assessment of the state of cellular immunity markers in blood serum and oral fluid was carried out at the initial examination and 7 days after the treatment. The intake of oral fluid to determine the concentration of cytokines was carried out simultaneously with its intake to determine the indicators of local immunity of the oral cavity, using the same technique, with identical requirements and recommendations for the patient. This substrate was thawed strictly before setting up the reaction.

CONCLUSIONS:

1. The dental status of patients with recurrent aphthous stomatitis against the background of a diagnostically confirmed general somatic pathology, mainly of the gastrointestinal tract, is characterized by a high intensity of caries (CPUz index on average - 15.2 ± 0.12), a low level of oral hygiene (OHI-S index on average - 3.6 ± 0.02), the presence of initial signs periodontal tissue inflammation (PMA on average - 15%). The analysis of data on the intensity, duration, and frequency of exacerbations of recurrent aphthous stomatitis indicates the predominance of patients with moderate severity and clinical manifestations of fibrinous and typical forms of recurrent aphthous stomatitis.

2. Methods of treatment of recurrent aphthous stomatitis using a nanotechnological anti-inflammatory gel in a complex were proposed taking into account the severity of the course of the studied disease of the oral mucosa.

3. Etiopathogenetic treatment of recurrent aphthous stomatitis using a nanotechnology anti-inflammatory gel is clinically more effective than using a traditional topical treatment regimen. The combined effect of the anti-inflammatory gel in the treatment of patients with the pathology we are studying is as effective as possible, having a pronounced analgesic and anti-inflammatory effect, significantly reducing the time of epithelialization of pathological elements, increasing the period of remission by reducing the number of relapses, exerting a local immunomodulatory effect.

4. The effect of recurrent aphthous stomatitis on the state of local oral immunity has been confirmed, an immune imbalance has been revealed in patients with aphthous stomatitis lasting more than 3 years. The activation of humoral immunity, an increase in the pH value (on average - 5.6 ± 0.18) in the oral fluid were proved, the predominance of proinflammatory cytokines was revealed: TNF α and IL-8 and suppression of the representative of anti-inflammatory cytokines IL-4 in blood serum and oral fluid at the time of initial examination of patients with relapse of the disease under study.

5. In the case of combined use of a nanotechnology drug, the dynamics of indicators of local immunity of the oral cavity and cytokines significantly improves (the concentration of TNF α and IL-8 decreases and normalizes in blood serum and oral fluid, the content of IL-4 increases and normalizes), whereas with their separate use, the indicators obtained in the study of cultural fluids (blood, oral fluid), indicate a less intense decrease in the inflammatory process.