USE OF ORAL PROBIOTICS IN THE TREATMENT OF RECURRENT APHTHOUS STOMATITIS IN ORTHODONTIC PATIENTS

EMU University,

Mirzamuxamedova M.Sh.

Background

Recurrent aphthous stomatitis (RAS) is one of the most common inflammatory diseases of the oral mucosa, characterized by the periodic appearance of painful ulcerative lesions (aphthae). These lesions are typically round or oval, covered with a fibrinous plaque, and surrounded by a hyperemic halo. Despite its high prevalence, the etiology of RAS remains multifactorial and not fully understood. Possible contributing factors include immune dysregulation, genetic predisposition, nutritional deficiencies, stress, trauma, and alterations in the oral microbiota.

Patients suffering from RAS often experience significant discomfort, including pain during eating, speaking, and oral hygiene procedures. This negatively affects their quality of life and may interfere with daily activities. The problem becomes even more pronounced in orthodontic patients using removable appliances, as these devices can cause mechanical irritation of the mucosa and contribute to the development and recurrence of aphthous lesions.

Currently, there is no universally accepted optimal treatment for RAS. The most commonly used therapies include topical and systemic corticosteroids, antiseptic agents, and anti-inflammatory drugs. However, these treatments are associated with potential local and systemic side effects, especially when used for prolonged periods. Therefore, there is a need to explore safer and more effective alternative therapeutic approaches.

In recent years, increasing attention has been paid to the role of the oral microbiome in maintaining oral health and its involvement in the pathogenesis of various diseases. Probiotics, defined as live microorganisms that confer health

benefits to the host when administered in adequate amounts, have emerged as a promising tool for modulating the oral microflora and enhancing immune responses.

Purpose of the Study

The aim of this study was to evaluate the effectiveness of oral probiotics in the treatment of recurrent aphthous stomatitis in patients undergoing orthodontic treatment with removable appliances. The study focused on assessing the ability of probiotics to reduce the frequency and severity of ulcerative lesions, as well as to improve the overall clinical condition of patients.

The effectiveness of probiotic therapy was analyzed by comparing clinical outcomes between an experimental group receiving oral probiotics and a control group receiving a placebo. The primary objective was to determine whether probiotics could decrease the rate of relapse and alleviate the symptoms associated with RAS.

Materials and Methods

The study included 50 patients diagnosed with recurrent aphthous stomatitis who were undergoing orthodontic treatment with removable appliances. The sample consisted of 30 women and 20 men aged between 15 and 25 years, representing a population commonly affected by both orthodontic treatment and RAS.

All participants were randomly divided into two groups:

Control group: received a placebo;

Experimental group: received oral probiotic preparations.

The duration of the study was 6 weeks. During this period, patients were monitored regularly, and clinical parameters were recorded.

The following indicators were assessed throughout the study:

duration of ulcerative lesions (time required for healing);

severity of pain (based on subjective patient assessment);

frequency of relapses (number of new aphthous episodes);

overall severity of symptoms associated with RAS.

To ensure objectivity and reliability of the results, statistical analysis was performed using analysis of variance (ANOVA) and Student's t-test. These methods

allowed for comparison between groups and evaluation of the significance of observed differences.

Criteria for treatment success included a reduction in the number of relapses, decreased pain intensity, shorter healing time, and overall improvement in the patient's condition.

Results and Discussion

The results of the study demonstrated a positive effect of oral probiotics on the clinical course of recurrent aphthous stomatitis in orthodontic patients.

Among patients in the experimental group who received probiotics, a significant reduction in the frequency of relapses was observed. Specifically, 38 patients showed noticeable improvement, with fewer episodes of ulcer formation during the study period compared to the control group.

In addition to reducing relapse frequency, probiotic therapy was associated with decreased severity of pain and faster healing of ulcerative lesions. Patients reported less discomfort during eating and speaking, which contributed to improved quality of life and better compliance with orthodontic treatment.

The beneficial effects of probiotics can be explained by several mechanisms. First, probiotics help restore the balance of the oral microbiota by inhibiting the growth of pathogenic microorganisms and promoting the proliferation of beneficial bacteria. This creates a more stable and healthy environment in the oral cavity.

Second, probiotics обладают иммуномодулирующими свойствами, стимулируя местный иммунитет и усиливая защитные реакции организма. They can enhance the production of immunoglobulins, regulate inflammatory responses, and reduce excessive immune reactions that may contribute to tissue damage in RAS.

Third, probiotics may reduce inflammation by influencing cytokine production and decreasing the activity of pro-inflammatory mediators. This contributes to faster resolution of lesions and prevention of their recurrence.

In contrast, the control group receiving placebo showed less pronounced improvement. Patients in this group continued to experience frequent relapses, higher

pain intensity, and longer healing times, confirming the limited effectiveness of standard approaches without additional supportive therapy.

The findings of this study are consistent with current research trends emphasizing the importance of microbiome modulation in the management of oral diseases. The use of probiotics represents a promising, безопасный и физиологичный подход to treatment, especially in young patients.

Conclusion

The results of this study indicate that the use of oral probiotics in patients with recurrent aphthous stomatitis undergoing orthodontic treatment with removable appliances may be an effective therapeutic approach.

Probiotic therapy contributes to:

stabilization of oral microflora;

reduction of pathogenic microbial activity;

decrease in frequency of disease relapses;

reduction of pain and ускорение заживления язв;

improvement of overall patient condition and quality of life.

In addition, probiotics exhibit immunomodulatory properties, enhancing the body's natural defense mechanisms and supporting long-term maintenance of oral health.

Despite the promising results, further research is necessary to determine the optimal strains, dosage, and duration of probiotic therapy. It is also important to evaluate potential side effects and long-term outcomes to ensure the safety and effectiveness of this treatment approach.

In conclusion, the integration of oral probiotics into комплексную терапию recurrent aphthous stomatitis represents a modern and перспективное направление in dentistry. Their use can significantly improve treatment outcomes, particularly in orthodontic patients, and contribute to the development of more individualized and biologically oriented therapeutic strategies.