

## OPTIMIZATION OF COMPLEX THERAPY AND PREVENTION OF CHRONIC GENERALIZED CATARRHAL GINGIVITIS IN PATIENTS WITH BRONCHIAL ASTHMA USING A HERBAL FLUORIDE MOUTH RINSE

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### Abstract

**Aim of the study.** To optimize the complex therapy and prevention of chronic generalized catarrhal gingivitis in patients with bronchial asthma by including a herbal fluoride-containing mouth rinse in the treatment protocol.

**Materials and methods.** The study evaluated the effectiveness of complex therapy for chronic generalized catarrhal gingivitis in patients with bronchial asthma using a plant-based mouth rinse containing fluoride. A total of 40 patients aged 18–28 years with a confirmed diagnosis of chronic generalized catarrhal gingivitis were examined. Patients were divided into two groups: the main group (n=20) received standard therapy combined with the mouth rinse, and the comparison group (n=20) received standard treatment only.

**Results.** The use of the herbal mouth rinse contributed to a faster reduction of inflammatory symptoms —  $6.7 \pm 0.67$  days versus  $9.2 \pm 1.38$  days in the comparison group ( $p < 0.05$ ). After 6 months of follow-up, a significant improvement in oral hygiene indices was recorded in the main group (OHI-S =  $0.49 \pm 0.15$ ) compared to the comparison group (OHI-S =  $1.70 \pm 0.30$ ). Gingivitis relapse was not observed in the main group, while 25% of patients in the comparison group experienced recurrence. No allergic reactions or side effects were reported during the use of the mouth rinse.

**Conclusion.** The obtained data confirm the clinical efficacy and safety of including a herbal fluoride-containing mouth rinse in the complex therapy of chronic gingivitis in patients with bronchial asthma.

**Keywords:** chronic catarrhal gingivitis, bronchial asthma, herbal mouth rinses, periodontology, complex therapy, oral hygiene index.

### Introduction

Chronic generalized catarrhal gingivitis (CGCG) in patients with bronchial asthma is characterized by a persistent inflammatory process in the periodontal tissues, which is aggravated by the peculiarities of the underlying disease. Disturbances in local immunity and continuous exposure to inhaled glucocorticosteroids contribute to changes in the oral microbiota, increased dental plaque formation, and reduced resistance of the oral mucosa. These factors complicate the course of gingivitis and increase the risk of recurrence.

Standard treatment regimens for CGCG include professional oral hygiene and local anti-inflammatory therapy; however, in patients with bronchial asthma, the effectiveness of such methods is significantly reduced. Given the need to minimize the pharmacological load and prevent exacerbations of asthma status, the use of agents with a mild effect on the oral mucosa becomes particularly important.

The inclusion of herbal-based mouth rinses in the complex therapy of gingivitis is considered a potentially effective strategy. These products possess antiseptic and anti-inflammatory properties,

and the addition of fluoride allows simultaneous control of cariogenic microflora. Nevertheless, the clinical efficacy and safety of such mouth rinses in patients with bronchial asthma remain insufficiently studied.

The aim of the study was to optimize the complex therapy and prevention of chronic generalized catarrhal gingivitis in patients with bronchial asthma by including a herbal fluoride-containing mouth rinse in the treatment protocol.

### Materials and Methods

The study included 40 patients aged 18 to 28 years with chronic generalized catarrhal gingivitis and bronchial asthma of mild to moderate severity in remission. The diagnosis of gingivitis was established based on clinical examination, patient history, and index assessments. Exclusion criteria included exacerbation of bronchial asthma, severe systemic diseases, and the presence of other dental pathologies requiring urgent treatment.

Patients were divided into two groups of 20 subjects each using simple randomization. The main group received standard therapy for gingivitis combined with a herbal-based mouth rinse containing sage oil, peppermint oil, thymol, eugenol, and fluoride at a concentration of 0.01%. The comparison group received only standard therapy. The mouth rinse was used twice daily after tooth brushing for six months (15–30 drops of concentrate per 50 mL of water).

Clinical and instrumental evaluation of periodontal status was performed using the following indices: Oral Hygiene Index-Simplified (OHI-S; Green and Vermillion, 1964), Papillary-Marginal-Alveolar Index (PMA; Parma, 1960), and Muhlemann's Sulcus Bleeding Index (Cowell, 1975). Measurements were taken before treatment, on days 5, 10, and 30 of therapy, as well as after 2 and 6 months of follow-up.

The condition of hard and bone tissues was evaluated using orthopantomography. Statistical analysis was performed using STATISTICA 6.0. The Shapiro–Wilk test was applied to assess the normality of data distribution. The statistical significance of intergroup differences was determined using Student's t-test for independent samples. Differences were considered statistically significant at  $p < 0.05$ . The results are presented as mean values  $\pm$  standard deviations.

### Results and Discussion

A total of 40 patients with chronic generalized catarrhal gingivitis and bronchial asthma of mild to moderate severity in remission were included in the study. Patients were divided into two groups: the main group ( $n=20$ ) received standard therapy supplemented with a herbal mouth rinse, while the comparison group ( $n=20$ ) received standard therapy alone. The follow-up period lasted six months.

At baseline, all patients demonstrated signs of pronounced inflammatory changes in the periodontal tissues, confirmed by the Oral Hygiene Index (OHI-S), Papillary-Marginal-Alveolar Index (PMA), and Gingival Bleeding Index (Muhlemann). The mean OHI-S score in the main group was  $2.48 \pm 0.22$ , compared to  $2.33 \pm 0.21$  in the comparison group ( $p > 0.05$ ). The PMA index was  $46.5 \pm 2.1\%$  in the main group and  $49.2 \pm 1.9\%$  in the comparison group ( $p > 0.05$ ).

After 30 days of therapy, a more significant reduction in inflammatory indices was observed in the main group compared to the comparison group. The OHI-S index decreased to  $1.12 \pm 0.18$  in the main group and to  $1.79 \pm 0.24$  in the comparison group ( $p < 0.05$ ). The PMA index was  $18.4 \pm 1.6\%$  in the main group versus  $28.1 \pm 1.9\%$  in the comparison group ( $p < 0.05$ ).

After 6 months, the periodontal indices in the main group remained consistently low (OHI-S =  $0.52 \pm 0.15$ , PMA =  $5.8 \pm 1.2\%$ ), whereas in the comparison group, deterioration of indicators

was recorded ( $\text{OHI-S} = 1.68 \pm 0.27$ ,  $\text{PMA} = 22.7 \pm 2.1\%$ ,  $p < 0.05$ ). Gingivitis relapse occurred in 25% of patients in the comparison group, while **no relapses** were reported in the main group. These findings confirm the high clinical efficacy and prolonged anti-inflammatory effect of the herbal fluoride-containing mouth rinse as an adjunct to standard therapy in patients with bronchial asthma. The absence of allergic reactions or adverse events highlights the safety and good tolerability of the formulation.

### Conclusion

The inclusion of a herbal mouth rinse in the complex therapy of chronic generalized catarrhal gingivitis in patients with bronchial asthma contributes to a significant reduction of inflammatory processes, improvement of oral hygiene indices, and a decrease in the frequency of relapses. The results confirm the feasibility and clinical value of using herbal mouth rinses as an effective adjunct to standard therapy.

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