THE EFFECT OF THE TREATMENT AND PREVENTION COMPLEX ON THE CONDITION OF PERIODONTAL TISSUES AND LOCAL IMMUNITY IN CHILDREN WITH CHRONIC

Introduction. Chronic catarrhal gingivitis remains a prevalent dental condition in children, which may subsequently lead to the development of periodontitis and tooth loss. The issue of selecting appropriate medications for the comprehensive treatment and prevention of inflammatory periodontal diseases in children with chronic gastroduodenitis remains relevant. Objective. To study the effectiveness of the proposed treatment and prevention complex for chronic catarrhal gingivitis in children with gastroduodenitis. Materials and Methods. Three groups of children were formed for the study: the first group comprised 10 somatically healthy children without signs of periodontal tissue inflammation, the second group included 20 somatically healthy children with chronic catarrhal gingivitis, and the third, main group, consisted of 20 children diagnosed with chronic gastroduodenitis and chronic catarrhal gingivitis. Results. Before treatment, all children were instructed in oral hygiene and underwent controlled tooth cleaning. Children in the third group were prescribed the treatment and prevention complex developed by our research team. The complex included brushing teeth twice a day after meals with Splat "Medical Herbs" toothpaste, mouth rinsing with Decasan solution, application of Cholisal on the gums, and Euro-Biotic Germina – 1 capsule twice a day after meals. Treatment of children in the second group was conducted according to protocols for 14 days. The dynamic observation was conducted before treatment and after 1, 3, 6, and 12 months by assessing Silness-Loe and Fedorova-Volodkina indices, PMA (papillary-marginal-alveolar), and PBI (papilla bleeding index) bleeding. Following the course of treatment and prevention complexes, children in the second and third groups exhibited improved oral cavity hygiene and periodontal indices; PBI (papilla bleeding index) and PMA (papillary-marginal-alveolar). Conclusion. The results of the study demonstrate that the treatment and prevention complex has a consistently positive impact on oral hygiene and the degree of periodontal inflammation, and after a year, the indicators remain better than the initial ones. We recommend prescribing the treatment and prevention complex developed by our research team for children with chronic gastroduodenitis once every six months.

Key words: children, chronic gastroduodenitis, chronic catarrhal gingivitis, treatment, prevention.

The present study is conducted within the scope of the scientific project at the Department of Pediatric Dentistry at Poltava State Medical University, entitled "Enhancement of Prediction, Diagnostics, Treatment, and Prevention of Dental and Periodontal Diseases in Children in Light of Exogenous and Endogenous Risk Factors," 2022-2026 (state registration number 0122U000204).

Introduction

Periodontal tissue diseases in children remain an unresolved issue in dentistry [1,2]. Chronic catarrhal gingivitis, a prevalent condition among primary school children, may lead to the development of periodontitis in adulthood if not appropriately addressed. Risk factors for chronic catarrhal gingivitis encompass malocclusion, insufficient oral hygiene, and general somatic pathology, particularly gastrointestinal tract diseases [3].

Previous research has shown that children with gastroduodenal region diseases exhibit pathological changes in periodontal tissues in nearly 100% of cases [4,5,6]. Consequently, the justification for a comprehensive approach to treating and preventing inflammatory periodontal diseases in children with chronic gastroduodenitis is a pressing issue in pediatric dentistry [7].

Objective: To determine the effectiveness of the proposed comprehensive treatment and prevention of chronic catarrhal gingivitis in children with gastroduodenitis.

Object and research methods

A group of 20 children, aged 6-12 years, diagnosed with chronic gastroduodenitis (CGD) and chronic catarrhal gingivitis (CCG) was formed. These children received treatment in the gastroenterology departments of the Municipal Enterprise "Poltava City Children's Clinical Hospital of Poltava City Council" and the Municipal Enterprise "Poltava Regional Children's Clinical Hospital of Poltava Regional Council," constituting the primary study group.

Comparison groups included: 1) the first group – 10 somatically healthy children without signs of periodontal tissue inflammation; 2) the second group – 20 somatically healthy children with chronic catarrhal gingivitis.

For children with chronic gastroduodenitis and chronic catarrhal gingivitis, a 14-day therapeutic and prevention complex was prescribed. The complex involved brushing teeth with Splat "Medicinal Herbs" toothpaste after breakfast and before bedtime, rinsing the oral cavity with 100 ml of Decasan solution, and applying Cholisal to the gums.

The complex also included Euro-Biotic Germina, administered as one capsule twice daily after meals. Treatment of chronic catarrhal gingivitis in somatically healthy children, constituting the second group, was conducted according to established protocols [8]. Prior to the prescription of the complex, children received instructions on oral cavity hygiene.
Dynamic observation of periodontal tissue conditions was carried out by assessing oral hygiene using the Silness-Loe and Fedorov-Volodkina indices, evaluating gingivitis severity utilizing the RMA modification of Parma, and the papillary bleeding index (PBI) before treatment, at 1, 3, 6 months, and one-year intervals.

Results were processed using universally accepted methods of medical statistics.

**Results and discussion**

The treatment and prevention complex has had a positive effect on oral hygiene status, as indicated by the Fedorov-Volodkina index, which improved from unsatisfactory to satisfactory in children of both groups after one month of observation (p<0.05). Good oral hygiene levels were observed at 3 and 6 months following the implementation of the treatment and prevention complex. In the group of children with CGD, the HI according to F-V was expectedly higher (p<0.05) after 6 months of observation than in the group of somatically healthy children with CCG, but remained within the range of good hygiene in both groups. One year after the therapeutic and preventive interventions, oral hygiene indicators according to the F-V index slightly decreased in both groups but remained superior to the initial data.

![Figure 1. The state of oral hygiene according to Fedorov-Volodkina in children depending on the applied treatment methods during different periods of observation, М±m](image1)

![Figure 2. The state of oral hygiene according to the Silness-Loe index in children depending on the applied treatment methods in different observation periods, М±m](image2)
The Silness-Loe index also demonstrates an improvement in the oral hygiene status of children following the implementation of therapeutic and prophylactic measures. One month after the administration of the complexes, oral hygiene improved almost threefold in both somatically healthy children and those with CGD, reaching the level of healthy children. After 3 months, the oral hygiene status in both groups of children remained consistently good. After six months, the Silness-Loe index in somatically healthy children with CCG remained at the level of healthy children, while it slightly decreased in the group with CGD and CCG.

According to the examination results after one year, the oral hygiene status in children of both groups deteriorated, becoming significantly worse than in healthy children but still better than before the administration of the complexes (Fig. 2).

The periodontal tissue status in younger school-aged children who received the proposed and standard treatment methods during different observation periods is presented in Figures 3 and 4.

Prior to the prescription of the treatment and prevention complex, the papillary bleeding index in the group of children with CGD was expectedly higher than in somatically healthy children (p<0.05). At all stages of observation, the capillary resistance status significantly improved in both groups of
children, although in the group of somatically healthy children, the periodontal inflammation remained less pronounced (p<0.05). Six months after the prescription of the complexes, the papillary bleeding index was lower than before treatment, but a determined trend towards its deterioration was observed in both groups of children. After one year, the index indicators worsened but remained better than the initial ones.

The initial level of the PMA index indicated mild inflammation in somatically healthy children and moderate inflammation in children with CGD. One month after the prescription of treatment and prevention complexes, the gingival inflammation status decreased; the PMA index in the group of children without somatic diseases decreased by 1.7 times, and in the group of children with CGD by 2.1 times, indicating mild inflammation (p<0.05). Starting from the third month of observation, a slight increase in the PMA index in both groups of children was recorded, but by 6 months of observation, it was significantly lower than before the treatment. One year after the complex prescription, the periodontal inflammation status in children of both groups became worse than six months earlier but remained better than the initial condition.

Treatment and prevention complexes were applied to treat chronic catarrhal gingivitis in children with gastroduodenitis, which had both local and systemic effects [8,9,10,11]. The proposed complex combines measures that reduce the harmful impact of microorganisms in dental plaque that cause chronic gingival inflammation, influence the gastrointestinal tract microbiocenosis, and increase the resistance of oral cavity tissues.

Based on our research findings, it has been found that the impact of the treatment and prevention complex on oral hygiene and the degree of periodontal inflammation is consistently positive up to 6 months after its application. However, after one year of observation, the indicators remain better than the initial ones. According to some researchers, treatment and prevention complexes that affect periodontal tissues should be applied every 6 months [12,13].

In our view, primary school-aged children with chronic catarrhal gingivitis and chronic gastroduodenitis should be under the supervision of a dentist and apply the developed treatment and prevention complex at least once every six months.

Conclusion

Our study's results, based on the analysis of clinical manifestations of gingival inflammation – hygienic and periodontal indices – demonstrate the positive dynamics of the proposed treatment and prevention complex's influence on children suffering from chronic gastroduodenitis.

Prospects for further research

Further research and clarification of the mechanisms of action of the proposed treatment and prevention complex in children with chronic catarrhal gingivitis and chronic gastroduodenitis.

References

ВПЛИВ ЛІКУВАЛЬНО-ПРОФІЛАКТИЧНОГО КОМПЛЕКСУ НА СТАН ТКАНИН ПАРОДОНТУ ТА МІСЦЕВОГО ІМУНІТЕТУ У ДІТЕЙ, ХВОРИХ НА ХРОНІЧНИЙ ГАСТРОДУОДЕНІТ

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Ключові слова: діти, хронічний гастродуоденіт, хронічний катаральний гінгівіт, лікування, профілактика.

Вступ. Хронічний катаральний гінгівіт і до тепер є досить поширеним стоматологічним захворюванням у дітей, яке в подальшому може призвести до розвитку пародонтиту та втрати зубів.

Актуальною залишається проблема вибору препаратів для комплексного лікування і профілактики запальних захворювань пародонтії у дітей з хронічним гастродуоденітом.

Мета. Вивчити ефективність запропонованого комплексу лікування та профілактики хронічного катарального гінгівіту у дітей з гастродуоденітом.

Матеріали і методи. Для дослідження було сформовано 3 групи дітей: першу склали 10 соматично здорових дітей без ознак запалення тканин парodontу, до другої групи увійшли 20 соматично здорових дітей з хронічним катаральним гінгівітом, третю, основну групу, склали діти з діагнозом хронічний гастродуоденіт і хронічний катаральний гінгівіт 20 дітей.

Результати. Перед початком лікування всіх дітей було навчено гігієні порожнини рота, проведено контролюване чищення зубів. Дітям 3 групи призначений розроблений нами лікувально-профілактичний комплекс. Комплекс передбачав 2-х разову чистку зубів після прийому їжі пастою Splat «Лікувальні трави», полоскання порожнини рота розчином Декасан, аплікації на ясна Холісалу, євро-Біотик Жерміна - 1 капсула 2 рази на день після їжі. Лікування дітей другої групи проводили відповідно до протоколів протягом 14 днів.

До лікування, через 1, 3, 6 та 12 місяців проводили динамічне спостереження шляхом оцінки індексів Silness-Loe і Fedorova-Vолодкіною, РМА (папілярно-маргінально-альвеолярний), кровоточивості РВІ (papilla bleeding index).

Після курсу лікувально-профілактичних комплексів у дітей 2 і 3 групи визначено поліпшення гігієнічного стану порожнини рота та парodontальних індексів; зменшилися індекси кровоточивості РВІ (papilla bleeding index) та РМА (напілярно-маргінально-альвеолярний).

Висновки. За результатами досліджень показано, що лікувально-профілактичний комплекс має стійкий позитивний вплив на стан гігієни порожнини рота та ступінь запалення парodontії і через рік показники залишаються кращими за початкові.

Рекомендуємо розроблений нами лікувально-профілактичний комплекс призначати дітям із хронічним гастродуоденітом 1 раз на 6 місяців.