CLINICAL COURSE OF GINGIVITIS IN SCHOOLCHILDREN ACROSS DIFFERENT AGE PERIODS

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Introduction

Inflammatory diseases of periodontal tissues remain one of the most widespread problems in modern dentistry, especially among children and adolescents. Gingivitis, as the earliest and most reversible form of periodontal pathology, is of particular importance due to its high prevalence, tendency to progression, and risk of transition into more severe forms of periodontal disease if left untreated.

The clinical significance of gingivitis in school-aged children is обусловлена не только его распространённостью, но и сложностями, связанными с лечением и профилактикой. The disease often exhibits a chronic recurrent course, requiring continuous monitoring and repeated therapeutic interventions. In addition, the labor-intensive nature of treatment and the недостаточная эффективность профилактических мероприятий in certain populations highlight the urgency of this problem.

Age-related physiological changes, especially during the prepubertal and pubertal periods, significantly influence the condition of periodontal tissues. Hormonal fluctuations, changes in immune reactivity, and variations in oral hygiene habits can all affect the development and progression of gingival inflammation. Therefore, studying the clinical course of gingivitis in different age groups of schoolchildren is essential for developing targeted preventive and therapeutic strategies.

Purpose of the Study

The aim of this study was to identify the main clinical forms and etiological factors of periodontal pathology in children of primary and secondary school age.

Special attention was given to the analysis of gingivitis severity and its relationship with age-related characteristics.

Materials and Methods

The study included a total of 125 schoolchildren aged between 7 and 14 years who were diagnosed with various forms of gingivitis. The participants were divided into two age groups according to developmental periods:

Group 1 (prepubertal period): 60 children aged 7–11 years;

Group 2 (pubertal period): children aged 11–14 years.

All participants underwent a comprehensive dental examination, including clinical evaluation of periodontal tissues and assessment of oral hygiene status.

The severity of hypertrophic gingivitis was determined using the classification proposed by E.V. Udovitskaya, which allows differentiation of mild, moderate, and severe forms of the disease based on clinical manifestations such as gingival enlargement, bleeding, and structural changes.

For a more detailed assessment of gingival condition, extended gingivoscopy was performed. This method involved the use of a magnifying lens with 5–6× magnification, allowing for enhanced visualization of gingival structures, vascular patterns, and inflammatory changes. Prior to examination, the gingival tissues were stained with a 2% Lugol's solution, which highlights areas of патологических изменений and improves diagnostic accuracy.

Additional parameters evaluated during the study included gingival color, consistency, presence of bleeding on probing, and degree of plaque accumulation. These indicators provided a comprehensive understanding of the inflammatory process and its severity.

Results

The results of the study demonstrated a clear relationship between age and the severity of gingivitis in schoolchildren. It was observed that with increasing age, the clinical manifestations of gingival inflammation became more pronounced and severe.

In the prepubertal group (7–11 years), the majority of children exhibited mild forms of gingivitis. A moderately severe course of chronic catarrhal gingivitis (CCG) was identified in only **13.5 ± 0.5%** of schoolchildren. This relatively low prevalence indicates that in younger children, inflammatory changes are generally less выражены and more easily reversible.

In contrast, in the pubertal group (11–14 years), the proportion of children with a moderately severe course of CCG increased to **16.8 ± 1.4%**, which is significantly higher compared to the younger group. This suggests that puberty-related changes contribute to the progression and aggravation of gingival inflammation.

Even more pronounced differences were observed in the prevalence and severity of chronic hypertrophic gingivitis (CHG). In the prepubertal group, CHG was detected in only **1.7 ± 0.3%** of children, and only in its mild form. No cases of moderate or severe hypertrophic gingivitis were observed in this age group.

In contrast, in the pubertal group, all degrees of severity of CHG were identified. Mild forms were found in **10.8 ± 1.2%** of children, moderate forms in **7.8 ± 0.8%**, and severe forms in **1.3 ± 0.05%** of cases. These findings clearly indicate that hypertrophic changes in gingival tissues become more frequent and severe with age, particularly during puberty.

The increase in severity of gingivitis in older children can be explained by several factors. Hormonal changes during puberty lead to increased vascular permeability and enhanced inflammatory response of gingival tissues. Additionally, adolescents often demonstrate poorer oral hygiene habits, increased plaque accumulation, and greater exposure to local irritants.

Discussion

The findings of this study confirm that the clinical course of gingivitis in children is closely associated with age-related physiological and behavioral factors. The transition from prepubertal to pubertal period is accompanied by significant changes in the oral environment, which contribute to the development and progression of periodontal pathology.

One of the key pathogenetic factors identified in this study is poor oral hygiene. Accumulation of dental plaque leads to an increase in pathogenic microorganisms, which initiate and поддерживают воспалительный процесс in gingival tissues. Inadequate oral hygiene practices are particularly common among schoolchildren, emphasizing the need for effective preventive education.

Another important factor is the increase in microbial load and changes in the composition of oral microflora. During puberty, the oral environment becomes more favorable for the growth of anaerobic bacteria associated with periodontal diseases. This shift in microbiota plays a significant role in the development of more severe forms of gingivitis.

The role of local immunity is also crucial. The study revealed that changes in immune response contribute to the progression of gingival inflammation. In some cases, an exaggerated immune reaction may lead to increased tissue damage and hypertrophic changes.

Based on the identified factors, an algorithm for the development of chronic gingivitis in school-aged children was proposed. According to this model, the disease results from the interaction of three main components: poor oral hygiene, increased pathogenic microflora, and altered local immune response. The combined effect of these factors leads to the initiation and progression of inflammatory processes in periodontal tissues.

The results of this study highlight the importance of early diagnosis and preventive measures, especially during the transitional period of puberty. Regular dental check-ups, professional oral hygiene, and patient education are essential components of effective management.

Conclusion

The study demonstrated that the severity and clinical course of gingivitis in schoolchildren are significantly influenced by age-related factors. With increasing age, particularly during puberty, there is a clear trend toward more severe and complex forms of gingival inflammation.

It has been established that the leading role in the development of chronic gingivitis in children is played by the combination of poor oral hygiene, increased pathogenic microorganisms, and changes in local immunity. These factors act synergistically, contributing to the progression of the disease.

The prevalence of inflammatory processes in periodontal tissues was confirmed in both prepubertal and pubertal schoolchildren, with a predominance of chronic hypertrophic gingivitis in older age groups.

In conclusion, understanding the особенностей клинического течения gingivitis in different age periods allows for the development of more effective preventive and therapeutic strategies. Implementation of targeted профилактических программ, improved oral hygiene education, and timely intervention can significantly reduce the prevalence and severity of periodontal diseases in children.