EURASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES
Innovative Academy Research Support Center
IF = 9.2 www.in-academy.uz/index.php/ejmns

METHODS FOR IMPROVING THE DIAGNOSIS AND TREATMENT OF PERIODONTAL TISSUE DISEASES IN CHILDREN WITH ADENOVIRUS INFECTION

Daminova Sh.B.
Tashkent State Medical University, Professor, Doctor of Medical Sciences
Tursunboyeva I.F
Tashkent Medical University
Irodafaxriddinovna@mail.ru
https://orcid.org/0009-0003-2904-6045
Muxamatjonova Z.M
Muxammadjonovaziyoda@gmail.com
https://orcid.org/0009-0009-5453-305X
Tashkent State Medical University, Department of orthopedic dentistry propedeutics
https://doi.org/10.5281/zenodo.17224853

ARTICLE INFO

Received: 13rd September 2025
Accepted: 28th September 2025
Online: 29th September 2025

KEYWORDS

Teeth, periodontitis, periodontitis, inflammation, adenovirus, bite, gingivitis.

ABSTRACT

All of the above processes are highly likely to lead to early loss of teeth in a permanent bite and, as a result, early impairment of the basic functions of the maxillofacial region. This feature of the course of the clinical condition of periodontitis in children is due to the fact that in morphologically and functionally undifferentiated, constantly rearranging immature periodontal tissue structures, the pathological process easily develops.

Today, modern authors increasingly point to the high prevalence of inflammatory periodontal diseases in primary school children, their chronic course with frequent exacerbations. In turn, external environmental factors, such as man-made pollution, also have a strong anthropogenic impact on the spread of this pathology[1,7].

Thus, periodontal disease in children is an unresolved medical and social problem [4]. Gingivitis (the inflammatory process is limited to the marginal part of the gum) accounts for 80% of cases, while periodontitis (the inflammation spreads to the periodontium, cement, tooth root, and alveolar part of the bone) accounts for 90-95 % [8].

All of the above processes are highly likely to lead to early loss of teeth in a permanent bite and, as a result, early impairment of the basic functions of the maxillofacial region. This feature of the course of the clinical condition of periodontitis in children is due to the fact that in morphologically and functionally undifferentiated, constantly rearranging immature periodontal tissue structures, the pathological process easily develops. In this period of ontogenesis, tissues are not able to adequately respond to the effects of external and internal factors, which can lead to various damages to the tissue structures of the dental system[6,10].

The aim of the work is to identify an assessment of the clinical condition of periodontal tissues in children aged 5 to 14 years under the influence of anthropogenic pollution in places of permanent residence.

Research methodology - Screening of 640 children (320 boys and girls each) aged 5 to 14 years old, born and permanently residing in the city of Bukhara in areas with a high level of anthropogenic pollution (TK), was carried out.

80 children were examined in each locality. The respondents were divided into 5 age groups (according to the WHO classification): first childhood, second childhood, and adolescence (5-6 years old; 7-8 years old; 9-10 years old, 11-12 years old; 13-14 years old). There are an equal number of boys and girls in each age group. Prior to the start of the population-based study, written informed consent was obtained from all children and adolescents, as well as from both parents. The respondents were familiarized with the objectives and main provisions of the study[2].

According to the survey data, the frequency of acute viral diseases suffered during the year and the presence of somatic pathology were determined in the examined children. During visual dental examination, respondents noted: in the examination chart, the level of gum tissue recession was determined, the structural features and attachment points of the frenules of the upper and lower lips, the presence of an altered bite, the depth of the vestibule of the oral cavity, as well as areas of increased stress on the examined teeth, including physiological supercontacts[2,5].

The statistical analysis of the obtained digital material was carried out using standard statistical software packages Statistica 10, the arithmetic mean (M) and its error (m) were calculated. The reliability of the differences in averages was taken into account at $p < 0.05$.

The results of the study and their discussion. According to the results of the epidemiological and population study, it was revealed that inflammatory periodontal diseases in all the studied age groups of the children's population of the Udmurt Republic range from 29.5 to 100%. Thus, firstly, in all age groups of children born and living in areas with man-made pollution, there is a high prevalence of inflammatory periodontal changes, and with age the number of children affected by periodontitis increases, reaching 95-100% by the age of 14[3].

The lowest percentage of lesions is noted, which may be due to more affordable and high-quality medical care in the capital of the republic. Secondly, there is a clear correlation between pathologically altered periodontitis and the age of the surveyed respondents. According to the results of an anonymous survey, both parents and immediate relatives in 68.7% of cases revealed a burdened medical history (gingivitis, periodontitis, periodontitis) associated with occupational hazards[3,4].

It was revealed that during the year, all groups of children living in the territories of man-made pollution suffered colds 3-4 times (acute respiratory viral infections, influenza, adenovirus infections), unlike children living in areas of conditional ecological well-being (1-2 times a year). (71.7 ± 2.8% of the examined children with a history of inflammatory periodontal diseases were diagnosed with concomitant chronic diseases of various systems (overweight, type I diabetes mellitus – 17.3%), in contrast to the studied groups

of Udmurt children without this pathology – (28.2 ± 2.8%) (less than 2.5 times, $p < 0.05$)[5,6].

In children living in TK zones, the rates of inflammatory periodontal diseases were (42.9 ± 2.0)% of cases, while in boys and girls without concomitant diseases they were (25.0 ± 2.0)%, which was 1.7 times lower ($p < 0.05$). There is evidence [12] that in the juvenile period, periodontal changes can develop against the background of uneven morphological growth and differentiation of all tissue structures of the maxillofacial region (lips, periodontium, alveolar bone, etc.). Morphofunctional changes in systems (nervous, humoral, endocrine, etc. d.), responsible for adaptation to new environmental conditions, contribute to the occurrence of diseases [3,8], as may be indicated by biomarkers of saliva [8,12].

Examination of the oral cavity in groups of child correspondents showed that a change in physiological (orthognathic) bite occurs in (37.3 ± 2.9)% of cases, which is 1.5 times more common ($p < 0.05$) in comparison with the studied children living in conditionally favorable environmental conditions. In the group of examined children, whose place of residence was in technogenically disadvantaged territories, it was found that such phenotypic signs as: "shallow vestibule of the oral cavity" and "anomalies of attachment of the frenules of the upper and lower lip" are (21.8 ± 2.2)% and (44.0 ± 2.8)%, respectively, which is 4.5 times higher than in areas with favorable ecological and man-made indicators: (4.9 ± 2.2)% and (9.8 ± 2.8)%, respectively ($p < 0.05$). Inflammatory periodontal diseases in the examined children and adolescents from the TK regions in (31.8 ± 4.3)% of cases are accompanied by gum tissue recession, in (69.1 ± 3.2)% correlate with the detected physiological supercontacts. At the same time, in children from areas of relative ecological well–being, this indicator is (2.7 ± 2.3)% for the indicator "gum tissue recession", and (44.6 ± 3.2)% for the indicator "physiological supercontacts" ($p < 0.05$).

Conclusion. A high degree of inflammatory changes in periodontal tissues was revealed in children living in settlements with anthropogenic pollution. A high prevalence of inflammatory periodontal diseases has been established in all age and sex groups of children. In a number of inflammatory diseases of the dental system contributing to the development, a significant influence of unfavorable living conditions in a technogenically altered environment on the development and frequency of periodontal diseases has been revealed. The relationship between the effects of local factors and changes in periodontal tissues (crowding of teeth, malocclusion and/or occlusion-dysocclusion, pathology of the frenules of the upper and lower lip, tongue) was noted [14, 15]. It has been established that with increasing age of the surveyed, the percentage of sick children with inflammatory periodontal diseases increases naturally, reaching 95-100% by the adolescent period of development in all cities and regions of the republic with man-made pollution.

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