

ORIGINAL ARTICLE

THE INTENSITY OF CHRONIC CATARRHAL GINGIVITIS IN CHILDREN DEPENDING ON THE AGE

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ABSTRACT

The aim: To determine the degree of severity of the inflammatory process in periodontal tissues of children living in different ecological conditions.

Materials and methods: With the purpose of estimation of the condition of periodontal tissues the epidemiology examination of 642 children that live on territory with the high level of pollution and natural deficit of iodine and fluorine was conducted.

Results: The study found that the increase of age of examined children causes the decrease of percentage of easy degree of severity of chronic catarrhal gingivitis, giving way to the advanced forms of the disease, and this process was more pronounced in children living in ecologically polluted region. In children-inhabitants of ecologically clean region easy degree of severity of chronic catarrhal gingivitis met more often than their peers living in environmentally polluted region. At the same time, average and heavy degree of severity of chronic catarrhal gingivitis in children living in ecologically contaminated region met more often than their peers, inhabitants of ecologically clean region.

Conclusions. It was found that with increasing age of the examined children decreases the percentage of chronic catarrhal gingivitis of moderate severity.

KEY WORDS: children, ecology, periodontal diseases, gingivitis, periodontal tissues

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INTRODUCTION

The recent year's studies indicate a high prevalence of the main dental diseases in children living in ecologically unfavorable regions. Periodontal diseases take the second place on the frequency and prevalence after caries, what is significant problem of pediatric dentistry [1, 2, 3, 4].

There is formed powerful industrially-agrarian complex in Lviv region, which is also one of the factors of destabilization of ecological situation and related to the functioning of large enterprises in the mining, chemical and energy industries [2, 5].

The territory of Lviv region is characterized by peculiar geochemical conditions with significant deficit of essential trace elements in the soils such as zinc, copper, iodine, fluoride in drinking water and significant environmental pollution [6, 7]. The indicators of general and dental health of children are significantly worse in such conditions [8, 9].

The children are especially sensitive to the effects of negative environmental factors, that caused by age immaturity of protective and adaptive mechanisms, and the state of health of the younger generation can be considered as the main indicator of the state of environment [10, 11, 12].

The pediatric dentistry till has the problem of timely diagnostics and treatment of periodontal disease in children, living in ecologically unfavorable regions despite the achieved successes in pediatric periodontics [13, 14].

Given the preventive direction of children's dental care,

it is important to identify the factors influencing the formation of pathology, establishing the clinical features of diseases and their mechanisms of appearance, development of directed as pathogenic treatment and preventive events that will help to prevent the development of severe forms of lesions of the periodontal tissues.

THE AIM

The aim of the research was to determine the degree of severity of the inflammatory process in periodontal tissues of children living in different ecological conditions.

MATERIALS AND METHODS

This study was approved by the ethics committee of the Danylo Halytsky Lviv National Medical University, Lviv, Ukraine. All procedures were carried out in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 2000.

With the purpose of estimation of the condition of periodontal tissues the epidemiology examination of 642 children that live on territory with the high level of pollution and natural deficit of iodine and fluorine (cities Yavoriv and Zhydachiv) was conducted. For the control data 214 children-inhabitants of Lviv that characterized as condi-

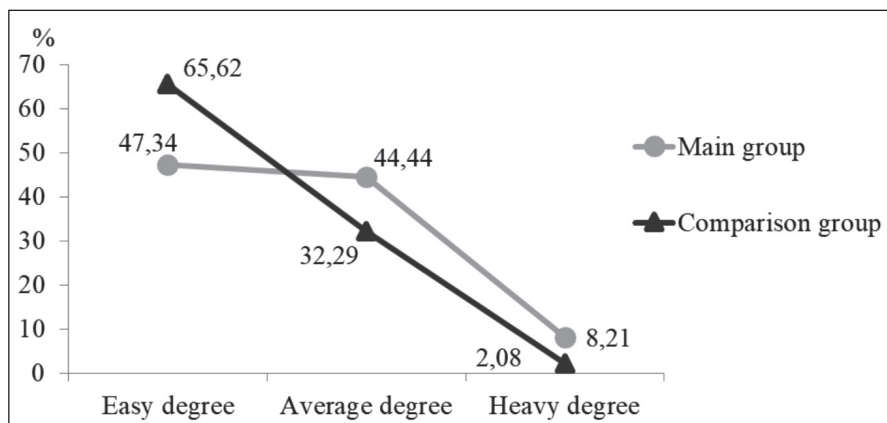


Fig. 1. - Degrees of severity of chronic catarrhal gingivitis in children of study groups.

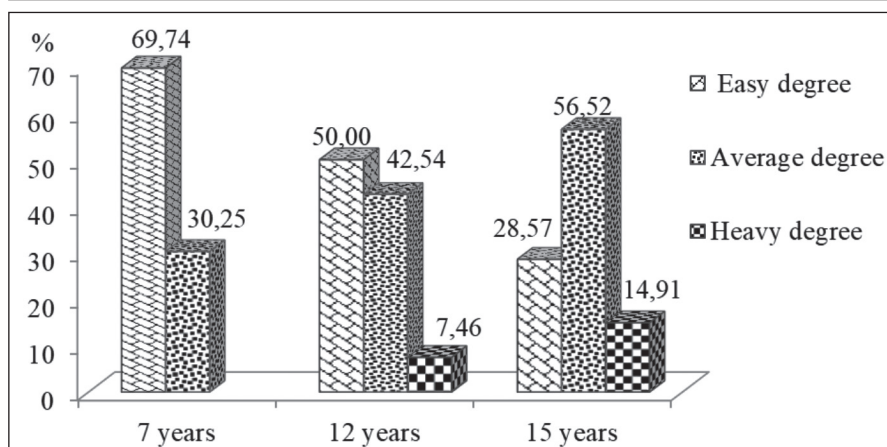


Fig. 2. - Degrees of severity of chronic catarrhal gingivitis in children of main group depending on age.

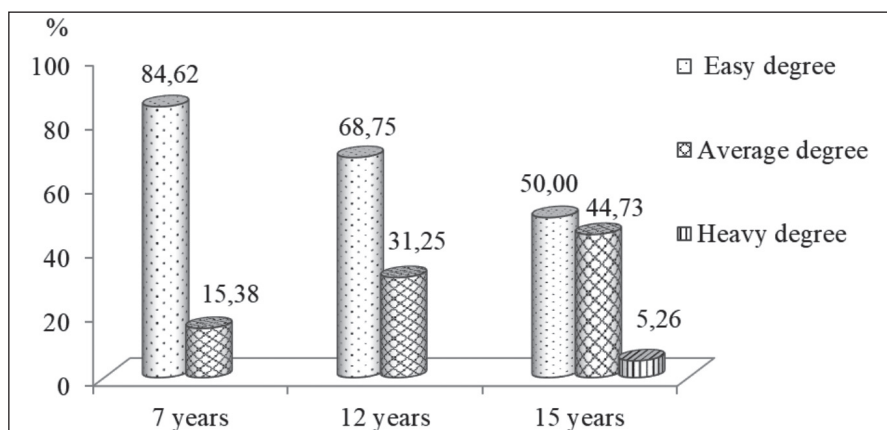


Fig. 3. - Degrees of severity of chronic catarrhal gingivitis in children of comparison group depending on age.

tionally „clean region” were examined. Children of the 7, 12 and 15 years-old according to the recommendations of the World Health Organization were examined. The state of periodontal tissues was estimated on the results of questioning, review of oral cavity and use of periodontal indexes and tests (index of PMA, index of bleeding, test of Shiller-Pysaryev). The obtained data were worked out statistically using licensed programs „Microsoft Excel” and „Statistica 5.5”.

RESULTS

On the Figure 1 is shown that in children living in ecologically polluted region easy degree of severity of chronic catarrhal gingivitis was on average (47.34±3.57) % of exam-

ined, whereas in children from ecologically clean region its mean was higher and equaled to (65.62±5.98) % (p<0.05).

In children of main group the proportion of average degree of severity of chronic catarrhal gingivitis was (44.44±3.55) %, which exceeded the values in comparison group, where the same degree of gingivitis was diagnosed in (32.29±8.39) % of examined (p>0.05). The heavy degree of severity of chronic catarrhal gingivitis in children from EPR met more often than their peers from ECR – (8.21±1.96) % against (2.08±0.69) % respectively (p<0.05).

The analysis of prevalence of chronic catarrhal gingivitis (CCG), depending on children’s age showed that in inhabitants of polluted region at the age of 7 years easy degree of CCG met in (69.75±4.21) % of examined (p>0.05), average degree of CCG was in (30.25±4.21) % of children

($p > 0.05$). The heavy degree of CCG was not diagnosed in 7-years-old children (Fig. 2).

In 12-years-old children of main group the proportion of easy degree of CCG decreased to $(50.00 \pm 4.32) \%$ ($p < 0.05$). At the same time in children of the same age group from EPR average degree of severity was in $(42.54 \pm 4.27) \%$ of examined ($p > 0.05$). At the age of 12-years in 10 examined children $(7.46 \pm 2.26) \%$, what has felt the influence of anthropogenic load met CCH of heavy degree of severity.

In 15-years-old children from EPR observed further reduction of amount of examined with easy degree of CCG a percentage of which was $(28.57 \pm 3.56) \%$ ($p < 0.05$). At the same time, in 15-years-old children of this group had increased the amount of examined with average degree of CCG – $(56.52 \pm 3.91) \%$ ($p > .05$), which was higher relatively to the data obtained from 7–12-years-old children of main group with CCG of average degree of severity. Heavy degree of CCG diagnosed in 24 examined $(14.91 \pm 2.81) \%$ at the age of 15 years of main group ($p < 0.05$).

At the same time, most 7-years-old children living in ecologically clean region was found easy degree of CCG $(84.62 \pm 7.07) \%$, while average degree of CCG diagnosed in 2 times less $(15.38 \pm 7.07) \%$ compared to the corresponding values in children from EPR. The heavy degree of CCG was not diagnosed in 7-years-old children of comparison group (Fig. 3).

At the age of 12 years in children-inhabitants of EPR observed similar tendency decreasing of prevalence of easy degree of CCG to $(68.75 \pm 8.19) \%$ while increasing the proportion of average degree of CCG to $(31.25 \pm 8.19) \%$. In children from EPR in this age interval was not diagnosed heavy degree of CCG.

In 15-years-old inhabitants of ecologically clean region noted the decrease of amount of examined with CCG to $(50.00 \pm 8.11) \%$ at the increase of amount of children with average degree of CCG to $(44.74 \pm 8.06) \%$. Heavy degree of CCG in this age group found in $(5.26 \pm 3.62) \%$ of examined children from EPR.

DISCUSSION

Many researchers have established the high prevalence of major dental diseases in children living in ecologically disadvantaged regions. Children are especially sensitive to the effects of negative environmental factors, which is explained by the age immaturity of the protective and adaptive mechanisms of their organism [13, 14].

Analyzing the results of a study of the prevalence of chronic catarrhal gingivitis, it was found that in children living in ecologically polluted territories a mild degree of gingivitis occurs in 69.75 %. Gingivitis of moderate severity was found in 30.25 %. A severe degree of chronic catarrhal gingivitis was diagnosed in 14.91% of the examined children 15 years old. Children living in ecologically clean regions have significantly lower rates of this disease.

The results of our clinical studies showed a significant influence of the environmental pollution and geochemical features of the territory on the condition of periodontium.

In children from ecologically polluted regions these processes were more pronounced, which was associated with the intensification of inflammatory processes in the children's periodontium as well as the prolonged action of the combined negative environmental factors.

CONCLUSIONS

Thus, with increasing age of examined children decreased percentage of chronic catarrhal gingivitis of easy degree of severity, giving way to the advanced forms of the disease, and this process was more pronounced in children living in ecologically polluted region.

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Conflict of interest:

The Authors declare no conflict of interest.

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