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STATE OF ORAL HYGIENE IN 7-12-YEAR-OLD SCHOOLCHILDREN WITH DIFFERENT DENTAL STATUS

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Caries remains the most common dental disease in children and adolescents, despite the fact that scientists, doctors and other specialists pay attention to its prevention. A special role is given to local factors, among which the state of oral hygiene plays a leading role. The purpose of this research was to study the state of oral hygiene in children aged 7–12 years with different dental status. 134 children aged 7–9 years, corresponding to the first period of mixed bite and 84 children aged 10–12 years (second period of mixed bite), were examined. According to WHO recommendations, the oral hygiene status was determined using the Green-Vermillion hygiene index (OHI-S), as well as the Fedorov-Volodkina index. The study of oral hygiene in children at different age periods indicates its improper condition, especially in children with carious lesions, which is confirmed by its study using various hygienic indices. With age, the state of hygiene improves in children without caries, while it worsens in children with caries. The obtained data indicate the need to carry out preventive work with children and, especially with those who have caries, regarding hygienic education, care of the oral cavity, the use of basic and auxiliary objects and means of oral hygiene, which will permit to create conditions for healthy formation and functioning of teeth hard tissues.

Key words: caries, oral hygiene, temporary teeth, permanent teeth, caries prevention.

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СТАН ГІГІЄНИ ПОРОЖНИНИ РОТА У ШКОЛЯРІВ 7-12 РОКІВ ІЗ РІЗНИМ СТОМАТОЛОГІЧНИМ СТАТУСОМ

Карієс залишається найбільш поширеною стоматологічною хворобою у дітей та підлітків не дивлячись на те, що його профілактиці приділяється увага науковців, лікарів та інших спеціалістів. Особлива роль відводиться місцевим факторам, серед яких провідну роль відіграє стан гігієни порожнини рота. Метою даного дослідження було вивчення стану гігієни порожнини рота у дітей 7–12 років з різним стоматологічним статусом. Було обстежено 134 дитини віком 7–9 років, що відповідає першому періоду змінного прикусу та 84 дитини віком 10–12 років (другий період змінного прикусу). Згідно рекомендацій ВООЗ визначення гігієнічного стану порожнини рота проводили з використанням індексу гігієни за Грін-Вермільйоном, а також використовували індекс Федорова-Володкіної. Дослідження гігієни порожнини рота у дітей в різні вікові періоди свідчить про її неналежний стан та особливо у дітей з наявністю каріозних уражень, що підтверджується її вивченням з допомогою різних гігієнічних індексів. З віком у дітей без карієсу стан гігієни покращується, а у дітей з карієсом – погіршується. Отримані дані вказують на необхідність проведення профілактичної роботи з дітьми та, особливо з тими, що мають карієс з приводу гігієнічного виховання, догляду за порожниною рота, використання основних та допоміжних предметів та засобів гігієни порожнини рота, що дасть можливість створити умови для здорового формування та функціонування твердих тканин зубів.

Ключові слова: карієс, гігієна ротової порожнини, тимчасові зуби, постійні зуби, профілактика.

The work is a fragment of the research work "Improving the methods of prevention and treatment of dental diseases in children taking into account the factors of their occurrence", state registration No. 0121U113868.

Caries remains the most common dental disease in children and adolescents, despite the fact that scientists, doctors and other specialists pay attention to its prevention [2–4, 10–14]. There are a significant number of external and internal factors, the action of which leads to damage to the hard tissues of the teeth [1, 7–9, 15]. A special role is given to local factors, among which the state of oral hygiene plays a leading role. Children pay little attention to oral hygiene, have insufficient skills in caring for the hard tissues of the teeth, which leads to the accumulation of dental plaque, which is the basis for microbial insemination of the oral cavity and the occurrence of caries [4–6].

The purpose of the study was to assess and compare indices of oral hygiene in children aged 7–12 years with different dental status living in Poltava and Chernivtsi regions.

Materials and methods. We examined 134 children aged 7–9 years, which corresponds to the first period of mixed bite and 84 children aged 10–12 years (second period of mixed bite). In each patient, the condition of the hard tissues of the teeth was determined and the index of df, DMF and DMF+dmf was calculated, where D is a permanent tooth affected by caries, M is a permanent tooth removed due to caries complications, F is a sealed permanent tooth, d – temporary tooth, affected by caries, m – temporary tooth, removed due to complications of caries, f – temporary tooth, sealed due to caries. According to WHO recommendations, the oral hygiene status was determined using the Green-Vermillion hygiene index (OHI-S), as well as the Fedorov-Volodkina index.

Evaluation of index results (OHI-S) according to Green-Vermillion (Green-Vermillion): 0.0–0.6 points – good level of hygiene; 0.7–1.6 points – satisfactory; 1.7–2.5 points – unsatisfactory; 2.6–3.0 points

– bad. Evaluation of the index results according to Fedorov-Volodkina: 1.1–1.5 points – a good level of hygiene; 1.6–2.0 points – satisfactory; 2.1–2.5 points – unsatisfactory; 2.6–3.4 points – bad; 3.5–5.0 points – very bad. The obtained results were processed by the method of variational statistics according to the Student-Fisher test. Indices at $p \leq 0.05$ were considered reliable.

Results of the study and their discussion. The study of children in the 2nd period of mixed bite demonstrated an improvement in the oral hygiene index in children without caries, compared to children aged 7–9 years, which indicates an improvement in manual skills in secondary school children (Table 1). In children aged 7–9 years, the state of oral hygiene was satisfactory (1.95 ± 0.07 points), and in children aged 10–12 years, it was good (1.45 ± 0.09 points). Primary and secondary school children with caries did not reveal any significant differences in the hygiene index according to Fedorov-Volodkina. Both children aged 7–9 and children aged 10–12 had an unsatisfactory state of hygiene. We observe a significant deterioration of hygiene in 10-year-old children (2.65 ± 0.20 points - poor hygiene) compared to 9-year-olds (2.12 ± 0.09 points – unsatisfactory hygiene), which obviously leads to an increase in the number of permanent teeth affected by caries in this period.

Table 1

Index of oral hygiene according to the Fedorov-Volodkina index in children of different ages with caries and with intact teeth ($M \pm m$)

Age of children (years)	Hygiene index (points)		p	Mean hygiene index (points)
	without caries	with caries DMF+df		
7–9(I) n=134	1.95 ± 0.07 n=39	2.45 ± 0.02 n=95	≤ 0.05	2.31 ± 0.04
10 n=24	1.33 ± 0.12 n=5	2.65 ± 0.20 n=19	≤ 0.05	2.38 ± 0.20
11 n=25	1.40 ± 0.11 n=5	2.05 ± 0.10 n=20	≤ 0.05	1.92 ± 0.10
p_{10-11}	≥ 0.05	≤ 0.05		≥ 0.05
12 n=40	1.57 ± 0.19 n=7	2.52 ± 0.15 n=33	≤ 0.05	2.36 ± 0.14
p_{10-12}	≥ 0.05	≥ 0.05		≥ 0.05
p_{11-12}	≥ 0.05	≤ 0.05		≤ 0.05
10–12(II) n=89	1.45 ± 0.09 n=17	2.42 ± 0.09 n=72	≤ 0.05	2.24 ± 0.09
p_{I-II}	≤ 0.05	≥ 0.05		≥ 0.05
Total n=223	1.79 ± 0.06 n=56	2.44 ± 0.05 n=167	≤ 0.05	2.28 ± 0.04

Notes: 1. p_{10-11} – the probability of the difference in indices of different age groups; 2. p_{I-II} – the probability of the difference in indices of children 7–9 and 10–12 years old; 3. p is the probability of indices of children with caries and without caries at each age.

The study of oral hygiene in children with caries of permanent teeth shows that its condition is poor in children 7–9 years old (2.53 ± 0.07 points) and unsatisfactory in children 10–12 years old (2.45 ± 0.1 points), but this difference is not probable ($p > 0.05$) (Fig. 1). The highest indices of the Fedorov-Volodkina index were noted in children with caries of permanent teeth aged 10 years (2.78 ± 0.22 points).

This coincides with periods of significant increase in the prevalence and intensity of dental caries in children. In children without caries of permanent teeth, oral hygiene is much better than in children with caries and improves with age. That is, children without affected permanent teeth pay considerable attention to oral hygiene. For comparison, we carried out studies of a key group according to WHO of 12-year-old children in the cities of Poltava and Chernivtsi (Fig. 1).

The mean oral hygiene index children of Poltava region is numerically worse than the children of Chernivtsi region, although in both cases it corresponds to an unsatisfactory state of oral hygiene. It should be noted that children from Poltava region, who have an intact dentition, have significantly better oral care than children from Chernivtsi region ($p \leq 0.05$) and in both cases correspond to a satisfactory hygienic index. In children with caries in both regions, the examination of the state of oral hygiene is unsatisfactory. But the children of Poltava have much worse indices than in Chernivtsi. Such a ratio of caries indices and the state of hygiene, in our opinion, is due to the different fluoride content in drinking water. Poltava belongs to the region with optimal fluoride concentration, and in Chernivtsi it is low.

The obtained comparative data prompt the need for a more detailed study of caries risk factors in children from different regions of Ukraine in order to understand the mechanisms of the carious process and the possibilities of influencing it.

In children with caries of temporary teeth, we observe the same trend as with caries of permanent teeth (Fig. 2). Their oral hygiene was unsatisfactory (2.45 ± 0.04 points and 2.47 ± 0.07 points, respectively). We do not observe a significant difference in the studied index in children of 7–9 and 10–11

years old ($p > 0.05$, 2.47 ± 0.04 and 2.29 ± 0.18 , respectively), although the index of older children is somewhat better. In 7–9 year olds, a difference in the index was found in the presence and absence of caries of temporary teeth ($p < 0.001$), and in 10–11 year olds, the difference was not significant ($p > 0.05$).

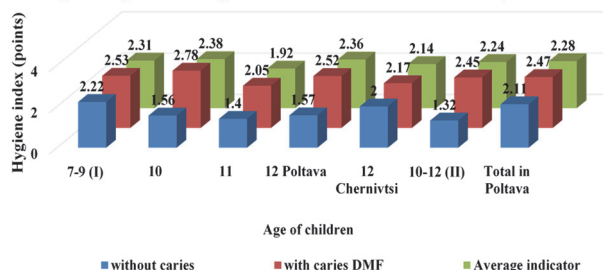


Fig. 1. Index of oral hygiene according to the Fedorov-Volodkina index in children of different school ages with caries of permanent teeth ($M \pm m$).

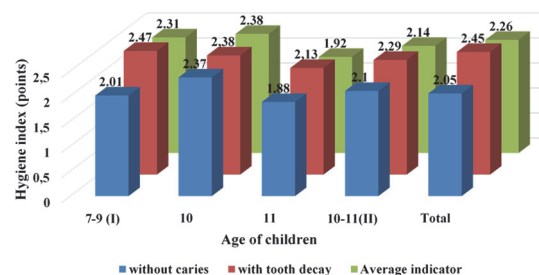


Fig. 2. Index of oral hygiene according to the Fedorov-Volodkina index in children of various ages with caries of temporary teeth.

For an objective assessment of the state of oral hygiene, in addition to the Fedorov-Volodkina index, which permits to evaluate only the frontal area of the lower jaw, the Green-Vermillion index was used, which examines the frontal and lateral areas of both jaws from the lingual and buccal sides. According to the Green-Vermillion index, the state of oral hygiene in children with caries at 7–9 years old is satisfactory (1.22 ± 0.03), and at 10–12 years old it is unsatisfactory (1.67 ± 0.07) (Table 2).

Table 2

Index of oral hygiene according to the Green-Vermillion index in children of different ages with caries of temporary and permanent teeth

Age of children (years)	Hygiene index (points)		P	Mean hygiene index (points)
	without caries	with caries DMF+df		
7–9(I)	0.80 ± 0.06 n=39	1.22 ± 0.03 n=95	≤ 0.05	1.09 ± 0.04 n=134
10 n=24	0.50 ± 0.12 n=5	1.27 ± 0.14 n=19	≤ 0.05	1.11 ± 0.13 n=24
11 n=25	0.97 ± 0.17 n=5	2.00 ± 0.09 n=20	≤ 0.05	1.79 ± 0.12 n=25
p ₁₀₋₁₁	≤ 0.05	≤ 0.05		≤ 0.05
12 n=40	0.67 ± 0.22 n=7	1.71 ± 0.10 n=33	≤ 0.05	1.53 ± 0.11 n=40
p ₁₀₋₁₂	≥ 0.05	≤ 0.05		≤ 0.05
p ₁₁₋₁₂	≥ 0.05	≥ 0.05		≥ 0.05
10–12(II) n=89	0.71 ± 0.11 n=17	1.67 ± 0.07 n=72	≤ 0.05	1.49 ± 0.07 n=89
p _{I-II}	≥ 0.05	≤ 0.05		≤ 0.05
Total n=223	0.77 ± 0.05 n=56	1.41 ± 0.04 n=167	≤ 0.05	1.25 ± 0.04 n=223

Notes: 1. p₇₋₈ – the probability of the difference in indices of different age groups; 2. p_{I-II} – the probability of the difference in indices of children of 7–9 and 10–12 years old; 3. p is the probability of indices of children with caries and without caries at each age.

With age, the state of oral hygiene in children with caries worsens during the examination of the entire oral cavity, in contrast to the examination of only the frontal area according to the Fedorov-Volodkina index. The obtained data once again confirm the need to study the state of hygiene in all areas of the oral cavity, and especially in older children who do not pay attention to the hygiene of the entire oral cavity, but are mainly concerned about the frontal area. In 7–12 years old children without caries (0.77 ± 0.05 points), the mean value of the index is 1.8 times lower than in children with caries (1.41 ± 0.04) (< 0.05).

During the examination of hygiene according to the Green-Vermillion index in children with caries of temporary or permanent teeth, the trend persists (Fig. 3, Fig. 4). But children who have affected permanent teeth take care of their oral cavity worse than children without caries in permanent teeth. Inadequate attention to brushing teeth leads to the accumulation of dental layers, which are a local factor that causes demineralization of immature enamel of teeth that are not sufficiently formed and the appearance of carious cavities in them. In this age period, the eruption of permanent first molars and premolars, which have weak mineralization of enamel, a rather complex relief of the chewing surface – pits, furrows, which are good retention points for the accumulation of food residues and the formation of dental layers, the reproduction of cariogenic microflora, occurs.

The study of dental caries and its relationship with oral hygiene in children is important for the formation of approaches to the prevention and treatment of dental diseases, especially caries. Geochemical

living conditions are an important factor in the occurrence of dental pathology, which must be taken into account during preventive measures [1, 2]. Particular attention should be paid to the state of oral hygiene, which is an important component that forms caries resistance of hard dental tissues [4, 7]. Each age period is characterized by corresponding indices of caries, which increase with the age of the child [3] and has its own characteristics of the approach to the implementation of sanitary and educational work. Children aged 10–12 with caries-affected teeth need special attention. This is the period of the child's life when he becomes more independent, less controlled by his parents, which leads to a decrease in attention to dental health and an increase in the number of teeth affected by caries.

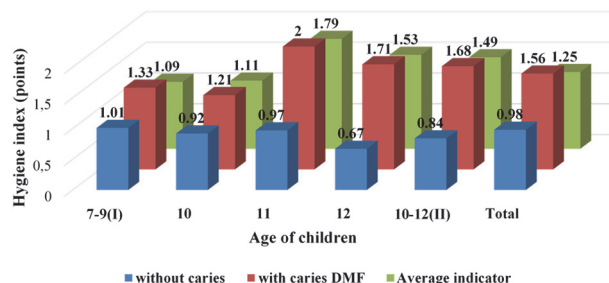


Fig. 3. Index of oral hygiene according to the Green-Vermillion index in children of different ages with caries of permanent teeth.

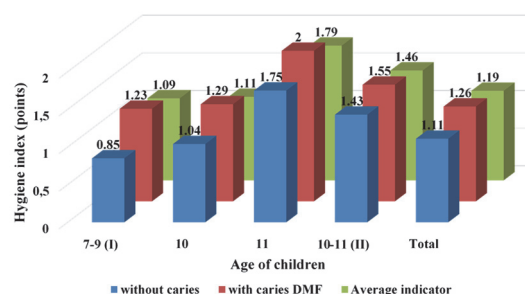


Fig. 4. Index of oral hygiene according to the Green-Vermillion index in children of various ages with caries of temporary teeth.

Oral hygiene is a controlled factor in the occurrence of caries, which can only be influenced by the joint efforts of children, their parents and dentists. It is important during the dental examination to choose the index of oral hygiene. The most rational and illustrative is the Green-Vermillion index, which permits to assess the state of hygiene of the entire oral cavity (frontal and lateral areas of the upper and lower jaw) and all surfaces of the examined teeth (vestibular, lingual), since children and their parents very often pay attention only to on the frontal area of the jaws. The development and implementation of regional programs for the prevention of dental diseases, based on sanitary and educational work, would be an effective factor in improving the hygiene education of the population, which, in turn, would lead to a decrease in the rates of dental morbidity in children.

Conclusion

The study of oral hygiene in children at different age periods indicates its improper condition, especially in children with carious lesions, which is confirmed by its study using various hygienic indices. With age, the state of hygiene in children without caries improves from 0.86 ± 0.12 points at 7–9 years to 0.71 ± 0.11 points at 10–12 years, and in children with caries it deteriorates from satisfactory at 7–9 years (from 1.22 ± 0.03 points) to unsatisfactory (1.67 ± 0.07 points) in 10–12 years. The obtained data indicate the need to carry out preventive work with children and, especially with those who have caries, regarding hygienic education, care of the oral cavity, the use of basic and auxiliary objects and means of oral hygiene, which will permit to create conditions for healthy formation and functioning of the hard tissues of the teeth.

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STATE OF THE HORMONAL PROFILE IN ENDOMETRIAL HYPERPLASIA

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The research data of 93 patients were analyzed. Patients were divided into three clinical groups depending on the form of endometrial hyperplasia: group 1: with uncomplicated non-atypical endometrial hyperplasia – 53 patients; group 2: with complex non-atypical endometrial hyperplasia – 22 patients; group 3: with simple atypical endometrial hyperplasia – 18 patients. The control group consisted of 20 healthy women. Comparative analysis showed that the level of hormones in the 1st phase of the menstrual cycle was not significantly different between the groups for most indices of luteinizing hormone in group 2 compared to groups 1 and 3 ($p < 0.01$). The study of hormonal status in women of 3 clinical groups showed that, compared to the control group, there was a significantly greater increase in the level of testosterone in blood plasma ($p < 0.05$). Progesterone content in the control group was lower (almost by 5 times) than the control level ($p < 0.001$). The estradiol level in groups 1 and 2 decreased and was three times lower compared to the control group ($p < 0.001$). With simple atypical EH, the concentration of estradiol was sharply increased compared to the control groups, 1 and 2, which confirms the stimulation of the proliferative processes' development in the endometrium.

Key words: endometrial hyperplasia, morphological features, hormonal status.

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СТАН ГОРМОНАЛЬНОГО ПРОФІЛЮ ПРИ ГІПЕРПЛАСТИЧНИХ ПРОЦЕСАХ ЕНДОМЕТРІЮ

Проаналізовано дані дослідження 93 пацієнток, які були поділені у залежності від форми гіперплазії ендометрію на 3 клінічні групи: 1 група: із простою неатиповою гіперплазією ендометрію – 53 пацієнтки; 2 група: зі складною неатиповою гіперплазією ендометрію – 22 пацієнтки; 3 група: з простою атиповою гіперплазією ендометрію – 18 пацієнток. Контрольну групу становили 20 здорових жінок. Порівняльний аналіз показав, що рівень гормонів у 1 фазу менструального циклу достовірно не відрізнявся між групами за більшістю показників лютеїнізуючого гормону у 2 групі порівняно з 1 та 3 ($p < 0,01$). Дослідження гормонального статусу у жінок 3 клінічної групи показало, що порівняно з контрольною групою в плазмі крові спостерігається достовірно значуще підвищення рівня тестостерону ($p < 0,05$). Вміст прогестерону в контрольній групі був значно нижчим (майже в 5 разів) за рівень контролю ($p < 0,001$). Рівень естрадіолу в 1 та 2 групах знижувався і був у 3 рази нижчим порівняно з контрольною групою ($p < 0,001$). При простій атиповій гіперплазії ендометрію концентрація естрадіолу була різко підвищеною у порівнянні з контрольною, 1 та 2 групами, що підтверджує стимуляцію розвитку проліферативних процесів в ендометрії.

Ключові слова: гіперпластичні процеси ендометрію, морфологічні особливості, гормональний статус.

The study is a fragment of the research project "Optimization of clinical, diagnostic and therapeutic approaches to the management of gynecological patients taking into account age and the presence of extragenital pathology", state registration No. 0122U000257.

Endometrial hyperplasia (EH) is a gynecological disease determined by the morphological features of the development of the pathological process and is associated with hormonal disorders [1].

EH develops against absolute or relative hyperestrogenism or lack of progesterone. The causes of hyperestrogenism can be the excessive peripheral conversion of androgens into estrogens during obesity, the presence of hormone-producing structures in the ovary, hyperplasia of the adrenal cortex, liver pathology, pathological or age-related changes in the central regulation of reproductive function that lead