DOI 10.26724/2079-8334-2021-2-76-33-37
UDC 616.31–002–07–053.2/.6

V.V. Horokhovskyi, O.V. Dienha[1], T.A. Pyndus[2], S.A. Schnayder[1]
Odesa National Medical University, Odesa
[1]SE "Institute of stomatology and maxillo–facial surgery National academy of medical sciences of Ukraine", Odesa
[2]Lviv medical institute, Lviv

STUDY OF THE LEVEL OF ORAL HYGIENE IN CHILDREN WITH DELAYED TEETH ERUPTION

e–mail: Horokhovskyivv@ukr.net

The results indicate an unsatisfactory level of oral hygiene in children with delayed teeth eruption. The Silness–Loe index in 7–year–old children of the main group was 1.70±0.08, the main group of 8–year–old – 1.57±0.07. The Stallard index in children of the main group of 7–year–old 1.98±0.08, the main group of 8–year–old – 1.87±0.09. It was found that 35.48 % of 7–year–old children and 32.26 % of 8–year–old children with delayed teeth eruption irregularly carried out individual oral hygiene. The results of a dental examination indicate the need for preventive measures aimed at improving the level of oral hygiene in children with delayed teeth eruption.

Keywords: delayed teeth eruption, oral hygiene, questionnaires, survey, children.

В.В. Гороховський, О.В. Дєньга, Т.О. Пиндус, С.А. Шнайдер

ВИВЧЕННЯ РІВНЯ ГІГІЄНИ ПОРОЖНИНИ РОТА У ДІТЕЙ ІЗ ЗАТРИМКОЮ ПРОРІЗУВАННЯ ЗУБІВ

Отримані результати свідчать про незадовільний рівень гігієни порожнини рота у дітей з затримкою прорізування. Індекс Silness–Loe у дітей основної групи 7 років склав 1,70±0,08, основної групи 8 років – 1,57±0,07. Індекс Stallard у дітей основної групи 7 років склав 1,98±0,08, основної групи 8 років – 1,87±0,09. Встановлено, що 35,48 % дітей 7 років і 32,26 % дітей 8 років із затримкою прорізування зубів нерегулярно проводили індивідуальну гігієну порожнини рота. Отримані результати стоматологічного обстеження свідчать про необхідність проведення профілактичних заходів, спрямованих на підвищення рівня гігієни порожнини рота у дітей з затримкою прорізування зубів.

Ключові слова: затримка прорізування зубів, гігієна порожнини рота, анкети, опитування, діти.

The work is a fragment of the research project "Correction of pathogenetic mechanisms of disorders of carbohydrate and lipid metabolism in the body and tissues of the oral cavity in patients depending on environmental and nutritional factors affecting carbohydrate and lipid metabolism", state registration No. 0118U006966.

The data of modern studies on the periods of teeth eruption of temporary and permanent teeth indicate their dependence on the region of residence, the presence of systemic diseases in the child and the influence of heredity on teeth eruption processes [4, 14, 15]. Violating the terms of the eruption may serve as a marker of physical development and health status of the child [9, 11]. Thus, delayed teeth eruption may be genetically determined or indicate the presence of pathological processes in the body of the child [2, 3]. Known is the fact that tooth decay and inflammatory diseases of parodontal tissues are more common in children with somatic pathology [7, 12, 13]. Since the development of major dental diseases is directly dependent on the level of oral hygiene, an objective assessment of oral hygiene in children with delayed eruption of permanent teeth is an important task of dentistry [5, 10]. In addition, the study of the level of oral hygiene is necessary to obtain complete information about the features of the dental status of children with delayed teeth eruption, dental treatment planning, as well as to create a preventive program for this group of children.

Despite the ongoing sanitary and educational work by dentists, one of the reasons for the increase in the prevalence of major dental diseases is the lack of knowledge about oral care and the low motivation of children and their parents to oral hygiene [6, 8]. So, before starting treatment and preventive measures among children with delayed teeth eruption, it is necessary to study the initial level of knowledge on oral care and its effect on the level of hygiene. Actual studies of the oral hygiene in children of early school age in Odessa with a delay in teeth eruption have not been carried out in recent years. Thus, the study of the state of the oral hygiene in children with delayed teeth eruption is an urgent task of dentistry.

The purpose of the study was to research the state of oral hygiene in children 7 and 8 year old with delayed teeth eruption.

Materials and methods. The study involved 124 children of 7 and 8 years old of both genders. The main group included 31 children of 7 years old with delayed teeth eruption and absence of permanent teeth and 31 children of 8 years old with delayed teeth eruption with the eruption of no more than 4 permanent teeth. The comparison group included 31 children of 7 years old and 31 children of 8 years old without somatic diseases in which teeth eruption occurred in time.

The survey was conducted at the department of pediatric dentistry of Odessa national medical University and department of epidemiology and prevention of major dental diseases, pediatric dentistry and orthodontics of SE "The Institute of stomatology and maxillo–facial surgery National academy of medical sciences of Ukraine" (SE "ISMFS NAMS") in a dental office. The survey data were recorded in the cards of the dental examination of the child's oral cavity, which were developed in the department of pediatric dentistry SE "ISMFS NAMS".

The hygienic condition of the oral cavity in children was determined using the Silness–Loe (1967) and Stallard (1969) indices. Using the Stallard index, plaque area was taken into account, and the thickness of soft plaque on the surface of the teeth was evaluated using the Silness–Loe index. The results were interpreted according to the average scores of two indices, from which the maximum value was selected as follows: good hygiene – 0–0.6; satisfactory – 0.7–1.6; unsatisfactory – 1.7–2.5; bad – more than 2.5 [1].

Children of all groups and their parents conducted a survey that included questions about the use of personal hygiene products and regular brushing. The questionnaire also included questions regarding the regularity of visits to the dentist, the frequency and nature of oral care, the level of knowledge about the use of basic and additional oral hygiene products.

The results were processed by variational statistical methods of analysis using the Microsoft Office Excel 2016 software. Statistical processing of the experimental study results was carried out by the methods of variation analysis using the Student's t-test. The difference was considered statistically significant at $p<0.01$.

Results of the study and their discussion. As a result of the studies, a lower level of oral hygiene was established in children with delayed teeth eruption compared with children in the comparison group. So, for 7–year–old children of the main group, the Silness–Loe index was 44.07 % higher, and the Stallard index was 39.44 % higher than the indicators of children in the comparison group (table 1).

Table 1

Oral hygiene indices of the examined 7 years old children (M±m)

Group	Silness–Loe, points	Stallard, points
Comparison (n=31)	1.18±0.09	1.42±0.08
Main (n=31)	1.70±0.08 p<0.001	1.98±0.08 p<0.001

Note: p – is an index of the reliability of differences between the main group and the comparison group.

A similar situation was observed in 8–year–old children. The Silness–Loe index in 8–year–old children of the main group was 48.11 % higher, and the Stallard index was 39.55 % higher than indicators of children in the comparison group of this age (table 2).

Table 2

Oral hygiene indices of the examined 8–year–old children (M±m)

Group	Silness–Loe, points	Stallard, points
Comparison (n=31)	1.06±0.8	1.34±0.09
Main (n=31)	1.57±0.07 p<0.001	1.87±0.09 p<0.001

Note. p – is an index of the reliability of differences between the main group and the comparison group.

The level of oral hygiene in the examined 7–year–old children of the comparison group was determined mainly as "satisfactory". The indicators of the hygienic state of the oral cavity in children with delayed teeth eruption were mainly "unsatisfactory" (table 3).

Table 3

The oral hygiene level of the examined children (% of persons)

Group		good	satisfactory	unsatisfactory	bad
7 years	Comparison (n=31)	12.90	74.20	12.90	0
	Main (n=31)	3.23	19.35	74.19	3.23
8 years	Comparison (n=31)	19.35	70.97	9.68	0
	Main (n=31)	3.23	25.80	70.97	0

This indicates a lack of attention to oral hygiene by parents and children with this pathology and emphasizes the need for oral hygiene training among this contingent.

A survey of children in the main group and the comparison group in order to determine the regularity of brushing and identify individual oral hygiene skills in children indicates a low awareness of children of all groups about the rules for caring for the oral cavity. Assessment data for the regularity and frequency of individual oral hygiene in the examined children are shown in table 4.

Table 4

The regularity of individual oral hygiene of the examined children (% of persons)

Group		irregularly	regularly	
			1 per day	2 times a day
7 years	Comparison (n=31)	29.03	35.48	35.48
	Main (n=31)	35.48	25.81	38.71
8 years	Comparison (n=31)	29.03	38.71	32.26
	Main (n=31)	32.26	29.03	38.71

The survey results indicate an insufficient level of hygienic education of children of all groups. It was found that 35.48 % of 7–year–old children and 32.26 % of 8–year–old children with delayed teeth eruption irregularly carried out individual oral hygiene, 38.71 % of 7–year–old children of the main group conducted individual oral hygiene daily, twice a day. According to the survey data, 16.13 % of 7–year–old children of the main group and 12.9 % of 8–year–old children of the main group lacked basic skills and knowledge about oral hygiene.

Based on the data obtained, the main class of toothbrushes used in children of all examined children is mechanical toothbrushes. (fig. 1)

Based on the data obtained, the main class of toothbrushes used in children of all examined children is mechanical toothbrushes.

7–year–old children of the main group considered necessary the duration of brushing 1 minute – 48.39 %, 2 minutes – 22.58 % of children, 3 minutes – 19.35 %, 4 minutes or more minutes – 9.68 %. Among 8–year–old children of the main group, was considered the necessary duration of brushing 1 minute – 22.58 %, 2 minutes – 29.03 % of children, 3 minutes – 45.16 %, 4 minutes or more minutes – 3.23 %.

It was found that 54.84 % of the surveyed 7–year–old children of the main group and 45.16 % of the 8–year–old children of the main group of brushed their teeth with horizontal movements. Tooth brushing was carried out by vertical and circular movements of 22.58 % of 7–year–old children of the main group and 25.81 % of 8–year–old children of the main group.

The survey results regarding the use of additional oral hygiene products are presented in fig. 2. The obtained results indicate a small number of children using additional hygiene products.

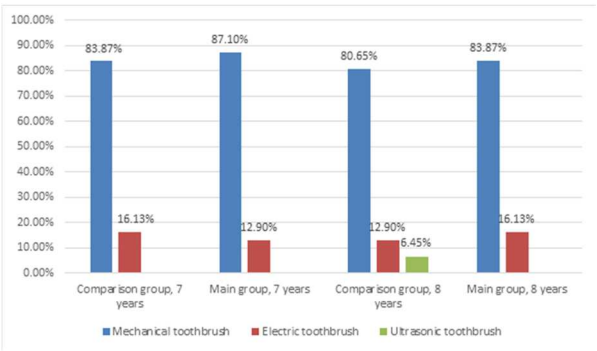

Fig. 1 Class of used toothbrushes

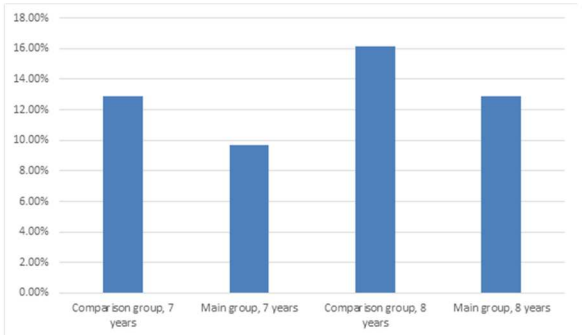

Fig. 2 The number of children using extra hygiene products, %

Among the interviewed 7–year–old children of the main group, 77.42 % consumed sweets daily, of the 8–year–old children of the main group – 70.97 %. Solid food in the form of apples and carrots was consumed daily by 19.35 % of 7–year–old children of the main group – 19.35 %, of the main group of 8–year–old children – 22.58 %. In children of comparison groups, similar food preferences were observed. So, 74.19 % of the 7–year–old children in the comparison group and 67.74 % of the 8–year–old children in the comparison group used sweets daily. Solid food in the form of apples and carrots were consumed daily by 12.90 % of 7–year–old children in the main group, and 8–year–old children in the main group – 16.12 %.

The data obtained as a result of a survey of parents of children of the main groups and comparison groups indicate insufficient medical literacy of parents to the dental health and oral hygiene of their children. Therefore, 6.45 % of parents of children of the 7–year–old children of main group considered the treatment of baby teeth optional. 33.87 % of 7 and 8 year old children of the main group always used the same paste as parents. The majority of surveyed parents (51.61 %) were not aware of the need for preventive examinations and appealed to the dentist with the appearance of the complaints and pathological symptoms in their children. To the question “How often do you change your child’s toothbrush?” most of the surveyed parents said that they change their toothbrush every 6 months. 32.56 % of parents of children of main group replaced toothbrush more often for their child.

45.16 % of the surveyed parents of 7–year–old children of the main group and 48.39 % of the surveyed parents of 8–year–old children of the main group did not pay attention to the composition when choosing children's toothpaste. In addition, 51.61 % of the surveyed parents of 7–year–old children of the main group and 54.84 % of the surveyed parents of 8–year–old children of the main group did not know the degree of hardness of their child's toothbrush.

Most parents received information about the rules of oral hygiene and existing products for the prevention of major dental diseases from advertising on television and the internet. So, only 45.16 % of parents of 7 and 8 year old children with delayed teeth eruption received information from the dentist.

Despite the development and implementation of modern programs for the prevention of major dental diseases in children [4, 7, 13], the presence of a wide variety of hygiene products [1], the level of oral hygiene in children with delayed teeth eruption was assessed mainly as "unsatisfactory". This occurs because of insufficient hygiene skills in these children, violation of the rules of brushing, and improper selection of oral hygiene products. An unsatisfactory level of oral hygiene, even in children who regularly brush their teeth with delayed teeth eruption, may indicate a violation of the process of self–cleaning of the oral cavity due to a possible violation of the composition of saliva. This emphasizes the need for further in–depth studies of dental status in children of this group. Adequate knowledge about oral care, revealed by the survey, in some children with delayed teeth eruption did not indicate a good level of hygiene. Their level of oral hygiene, in most cases, was rated as "unsatisfactory". Consequently, the examined children need not only sanitary education, but also individual training in oral hygiene for each patient as a dental hygiene specialist or dentist in order to develop high–quality practical brushing skills. As a result of the research, a low level of sanitary – hygienic knowledge in children of both the main and comparison groups was established. The low level of knowledge and skills in caring for the oral cavity in children testifies the ineffective work of dental hygienists and dentists on sanitary–hygienic education. it is necessary to conduct health classes on the prevention of major dental diseases. Inadequate medical literacy and a low level of motivation for the parents of the examined children in relation to oral hygiene and dental health of their children were revealed. The overwhelming majority of parents did not regularly turn to dentists and incorrectly selected hygiene products and items for their children. The majority of parents were not sufficiently aware of the criteria for choosing items and products of oral hygiene for children and often chose products that did not match the age and dental status of their children. Due to the fact that the main source of knowledge on the prevention of major dental diseases and oral hygiene is television and online advertising – the consultations with a dentist take second place, it is necessary to increase the time allocated by doctors at the time of admission for a qualified selection of hygiene items and products [6, 8]. The established presence of improper oral care skills in most children of the main groups and comparison groups of 7 and 8 years old children is associated with a low level of motivation for children. Thus, the formation of a motivated attitude to oral hygiene and the prevention of major dental diseases in children with delayed teeth eruption and their parents should be an important part of the treatment and preventive measures in such children. Analyzing the foregoing, as a result of a survey of children, the main issues were identified that need more coverage during the oral hygiene instruction.

Conclusions

1. Children with delayed teeth eruption have a lower level of oral hygiene compared to children with teeth eruption in time.

2. The results of a dental examination indicate the need for preventive measures aimed at improving the level of oral hygiene in children with delayed teeth eruption.

3. Children with delayed teeth eruption had insufficient knowledge of individual oral hygiene.

4. As a result of the survey, a low level of knowledge on the choice of oral hygiene products of parents of children with delayed teeth eruption was revealed.

References

1. Khomenko LO, Chaykovskyy YB, Smolyar NI, Savychuk OV, Ostapko OI, Bidenko NV et al. Terapevtychna stomatolohiya dytyachoho viku – Kyiv: Knyha plyus, 2014. 432p. [in Ukrainian]

2. Arid J, Xavier TA, da Silva RAB, De Rossi A, da Silva LAB, de Queiroz AM et al. RANKL is associated with persistent primary teeth and delayed permanent tooth emergence. Int J Paediatr Dent. 2019; 29(3): 294–300.

3. Devraj IM, Bhojraj N, Narayanappa. Polymorphism in the eruption sequence of primary d entition: a cross–sectional study. J Clin Diagn Res. 2017; 11(5): ZC72–ZC74.

4. Dimaisip–Nabuab J, Duijster D, Benzian H, Heinrich–Weltzien R, Homsavath A, Monse B et al. Nutritional status, dental caries and teeth eruption in children: a longitudinal study in Cambodia, Indonesia and Lao PDR. BMC Pediatr. 2018; 18(1): 300.

5. El Ashiry EA, Alaki SM, Nouri SM. oral health quality of life in children with cerebral palsy: parental perceptions. J Clin Pediatr Dent. 2016; 40(5): 375–87.

6. Euba A, Paschos E, Mattner B, Storr U. Motivation for prevention in childhood as a basis for long–term dental health: the augsburg model. Gesundheitswesen. 2016; 78(2): 103–6.

7. Kamińska A, Szalewski L, Batkowska J, Wallner J, Wallner E, Szabelska A et al. The dependence of dental caries on oral hygiene habits in preschool children from urban and rural areas in Poland. Ann Agric Environ Med. 2016; 23(4): 660–665.
8. Kumar PS, Doshi D, Kulkarni S, Reddy P, Reddy S, Srilatha A. Effect of motivation on oral hygiene and caries status among young adults in Hyderabad City. Indian J Dent Res. 2019; 30(1): 15–20.
9. Kumar V, Chahar P, Kajjari S, Rahman F, Bansal DK, Kapadia JM. Fluoride, Thyroid hormone derangements and its correlation with teeth eruption pattern among the pediatric population from endemic and non–endemic fluorosis areas. J Contemp Dent Pract. 2018; 19(12): 1512–1516.
10. Marković D, Perić T, Sovtić A, Minić P, Petrović V. Oral health in children with asthma. Srp Arh Celok Lek. 2015; 143(9–10): 539–44.
11. Nagata M, Ono N, Ono W. Mesenchymal progenitor regulation of teeth eruption: a view from PTHrP. J Dent Res. 2020; 99(2): 133–142.
12. Pawlaczyk–Kamieńska T, Torlińska–Walkowiak N, Borysewicz–Lewicka M. The relationship between oral hygiene level and gingivitis in children. Adv Clin Exp Med. 2018; 27(10): 1397–1401.
13. Reic T, Galic T, Milatic K, Negovetic Vranic D. Influence of nutritional and oral hygiene habits on oral health in Croatian island children of school age. Eur J Paediatr Dent. 2019; 20(3): 183–188.
14. Richman JM. Shedding new light on the mysteries of teeth eruption Proc Nat Acad Sci USA. 2019; 116(2): 353–355.
15. Xu H, Snider TN, Wimer HF, Yamada SS, Yang T, Holmbeck K et al. Multiple essential MT1–MMP functions in tooth root formation, dentinogenesis, and teeth eruption. Matrix Biol. 2016; 52–54: 266–283.

Стаття надійшла 12.02.2020 р.

DOI 10.26724/2079-8334-2021-2-76-37-42
UDC 616.517-056.5: 615.26

Ya.O. Yemchenko, K.Ye. Ischeikin, I.P. Kaidashev, O.V. Izmailova
Poltava State Medical University, Poltava

IL-33 AS A BIOMARKER OF INFLAMMATORY ACTIVITY IN PSORIASIS PATIENTS WITH CONCOMITANT OBESITY

e-mail: yanaumsa@ukr.net

Recently, there has been an increase in cases of comorbid psoriasis and obesity, which leads to severe, atypical, disabling, and therapy - resistant forms of dermatosis which form a vicious circle at the level of the immune system, which must be broken in order to treat these diseases successfully. In this study, we examined the serum IL-33 level and its association with rates of systemic inflammation, the severity of psoriasis and obesity. We applied the enzyme immunoassay to evaluate the severity of systemic inflammation. We determined the concentration of IL-33, interleukin-6, and high sensitivity C-reactive protein in the serum. PASI was used to assess the severity of psoriasis. We used BMI to determine the extent of alimentary obesity. There was a positive statistically significant correlation between the serum IL-33 concentration, the severity of psoriasis, the level of systemic inflammation, and the degree of alimentary obesity.

Key words: psoriasis, alimentary obesity, IL-33, clinic.

Я.О. Ємченко, К.Є. Іщейкін, І.П. Кайдашев, О.В. Ізмайлова

ІЛ-33 ЯК БІОМАРКЕР АКТИВНОСТІ ЗАПАЛЕННЯ ХВОРИХ НА ПСОРІАЗ ІЗ СУПУТНІМ ОЖИРІННЯМ

Останнім часом спостерігається збільшення випадків коморбідності псоріазу та ожиріння, що призводить до тяжких, атипових, інвалідизуючих та резистентних до терапії форм дерматозу, які мають ідентичні патогенетичні механізми запальних процесів, що формують порочне коло на рівні імунної системи, яке необхідно розірвати для успішного лікування даних захворювань. У цьому досліджені ми вивчали рівень ІЛ-33 в сироватці крові та його зв'язки з показниками СЗ, тяжкістю перебігу псоріазу та ожиріння. Ми використовували імуноферментний метод для оцінки вираженості показників СЗ. В сироватці крові визначали концентрацію ІЛ-33, IL-6 та вч-СРБ. Для визначення тяжкості перебігу псоріазу використовували індекс PASI. Для визначення ступеня аліментарного ожиріння використовували ІМТ. Спостерігався позитивний статистично значимий кореляційний зв'язок між концентрацією ІЛ-33 в сироватці крові, тяжкістю перебігу псоріазу, рівнем показників системного запалення та ступенем аліментарного ожиріння.

Ключові слова: псоріаз, аліментарне ожиріння, ІЛ-33, клініка.

The study is a fragment of the research project "Study of the pathogenetic role of the circadian molecular clock in the development of metabolic diseases and systemic inflammation, and the development of a treatment methodology focused on these processes" state registration No. 0120U101166.

Psoriasis is a chronic, inflammatory, recurrent, immune-mediated disease of the skin involving several organs and systems in the pathological process. According to the results of clinical and epidemiological studies, about 3–4 % of the population of our planet, regardless of gender, age and ethnic group, suffers from psoriasis, and the share of this pathology in the general structure of skin diseases, according to various authors, ranges from 1 % to 40 %. However, despite the considerable spread of psoriasis and a large amount of research on this problem, there is still no single view of the pathogenesis