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ANALYSIS OF THE RISK FACTORS PROMOTING DEVELOPMENT OF CHRONIC CATARRHAL GINGIVITIS IN CHILDREN SUFFERING FROM SIMPLE DIFFUSE GOITER

A leading etiopathologic factor promoting the development of an inflammatory process in the gums is oral microflora which realizes its pathogenic action in case favorable local and general conditions are created [1; 2]. As a rule, these conditions in children are caused by excessive dental deposits due to both inadequate oral hygiene, lesions of the hard dental tissue available, and occlusive disturbances etc. Disorders of the protective mechanisms, metabolic and regulating processes in the child's organism play an important role as well, which is the subject of our research [3; 4]. To understand the issue comprehensively we have analyzed the major local risk factors promoting the development of gingivitis in children, estimated alimentary, social-behavioral and preventive measures in the groups of observation.

Objective: *to determine risk factors promoting the development of chronic catarrhal gingivitis in children suffering from simple diffuse goiter (SDG).*

Materials and methods. *With the aim to find these factors we have examined two age groups 12 and 15 years of age including 180 children suffering from SDG and 80 somatically healthy children.*

Conclusion. *The course of chronic catarrhal gingivitis in children with underlying simple diffuse goiter is characterized by the following periodontal-pathogenic factors available: semi-solid and solid dental deposits, lesions of the hard dental tissues, defects of separate teeth, irrational nutrition and lack of preventive measures. At the same time, the action of these factors is equally strong both in somatically healthy children and those suffering from SDG, which is evidenced by little reliable difference in the groups of observation.*

Key words*: simple diffuse goiter, children, chronic catarrhal gingivitis.*

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АНАЛІЗ ЧИННИКІВ РИЗИКУ РОЗВИТКУ ХРОНІЧНОГО КАТАРАЛЬНОГО ГІНГІВІТУ В ДІТЕЙ, ЯКІ СТРАЖДАЮТЬ НА ДИФУЗНИЙ НЕТОКСИЧНИЙ ЗОБ

Провідним етіопатологічним чинником розвитку запального процесу в яснах є мікрофлора ротової порожнини, яка реалізує свою патогенну дію у випадку створення сприятливих місцевих та загальних умов [1; 2]. У дітей ці умови, як правило, спричинені надмірними зубними відкладеннями як унаслідок недостатньої гігієни ротової порожнини, так і за наявності уражень твердих тканин зубів, оклюзійних порушень тощо. Неостанню роль відіграють також порушення захисних механізмів, метаболічних та регулюючих процесів в організмі дитини, що і є предметом вивчення нашої роботи [3; 4].

Для комплексного розуміння проблеми нами проаналізовано основні місцеві чинники ризику розвитку гінгівіту в дітей та проведено оцінку аліментарних, соціально-поведінкових і профілактичних заходів у групах спостереження.

Мета. *Метою нашої роботи стало визначення чинників ризику розвитку хронічного катарального гінгівіту в дітей, хворих на дифузний нетоксичний зоб.*

Матеріали і методи. *Із метою виявлення даних показників нами досліджено дві вікові групи – 12 та 15 років, з яких 180 дітей хворих на ДНЗ та 80 соматично здорових дітей.*

Висновок. *Отже, перебіг хронічного катарального гінгівіту у дітей на тлі дифузного нетоксичного зобу характеризується наявністю таких пародонтопатогенних чинників: м'які та тверді зубні відкладення, ураження твердих тканин зубів, аномалії окремо розташованих зубів, нераціональне харчування та відсутність заходів профілактики. Однак дія цих чинників є однаково сильною як у соматично здорових дітей, так і за умов ДНЗ, на що вказує відсутність вірогідної різниці в групах спостереження.*

Ключові слова: *дифузний нетоксичний зоб, діти, хронічний катаральний гінгівіт.*

Problem statement. In spite of initiated preventive measures stomatological sickness rate among children remains very high. Pathology of the periodontal tissue is the second after caries by its occurrence and rate. The refore it is a considerable problem of pediatric dentistry.

Chronic catarrhal gingivitis (CCG) is most frequently diagnosed in children and teenagers. According to the data of different authors its share is from 30 to 80 % of cases [5–12].

Objective: to determine risk factors promoting the development of chronic catarrhal gingivitis in children suffering from simple diffuse goiter (SDG).

Materials and methods. With the aim to find these factors we have examined two age groups 12 and 15 years of age including 180 children suffering from SDG and 80 somatically healthy children.

Results and discussion. Oral hygiene of children was analyzed by means of two hygienic indices. The results of their detection for the children at the age of 12 are presented in Table 1.

Table 1

The values of oral hygiene indices in children at the age of 12 suffering from chronic catarrhal gingivitis depending on gender and somatic health condition, M±m

Index	Gender		
	total	boys	girls
Somatically healthy children (n=21)			
OHI-S, score			
Index value	1,65±0,14	1,73±0,12	1,57±0,15
DI	1,62±0,13	1,70±0,12	1,54±0,13
CI	0,03±0,01	0,03±0,001	0,03±0,001
Silness-Loe index, score			
Index value	1,32±0,09	1,34±0,05	1,31±0,10
Children suffering from simple diffuse goiter (n=72)			
OHI-S, score			
Index value	1,81±0,13	1,83±0,16	1,78±0,10
DI	1,74±0,15	1,75±0,15	1,72±0,10
CI	0,07±0,003*	0,08±0,003*	0,06±0,001*
Silness-Loe, score			
Index value	1,46±0,13	1,49±0,13	1,44±0,11

*Note. * – reliable difference from the indices of somatically healthy children, p<0,05.*

According to the assessment criteria of OHI-S, the level of oral hygiene was unsatisfactory in all the examined children, except the girls from the group of comparison. The values of both indices correlated, but to our mind, the oral hygiene index-simplified was more informative, since it demonstrated the factors causing dynamics of changes of its values. The increase of OHI-S values in children suffering from CCG with underlying SDG occurs at the expense of elevated amount of solid dental deposits to (0,07±0,003) in comparison with (0,03±0,01) in children from the group of comparison (p<0,05).

The results of detection of hygienic indices for children at the age of 15 are presented in Table 2.

Table 2

The values of oral hygiene indices in children at the age of 15 suffering from chronic catarrhal gingivitis depending on gender and somatic health condition, M±m

Index	Gender		
	total	boys	girls
Somatically healthy children (n=21)			
OHI-S, score			
Index value	1,41±0,07	1,55±0,06	1,27±0,06
DI	1,33±0,10	1,47±0,10	1,20±0,07
CI	0,08±0,01	0,08±0,003	0,07±0,003
Silness-Loe index, score			
Index value	1,12±0,05	1,15±0,04	1,09±0,05
Children suffering from simple diffuse goiter (n=72)			
OHI-S, score			
Index value	1,76±0,14	1,82±0,17	1,71±0,10
DI	1,64±0,11	1,70±0,13	1,58±0,12
CI	0,12±0,007	0,12±0,006	0,13±0,010
Silness-Loe index, score			
Index value	1,39±0,10	1,42±0,12	1,37±0,09

The results contained in the Table are indicative of the fact that oral hygiene improves with age that might be explained by a motivational behavior of teenagers. According to OHI-S, the state of oral hygiene in the group of comparison is satisfactory – (1,41±0,07), while in children under conditions of SDG lesion it remains unsatisfactory – (1,76±0,14). The patients of older age suffering from SDG showed poor oral hygiene and solid and semi-solid dental deposits. It is a precondition for occurrence of an inflammatory process in the periodontal tissue.

In general it should be noted that the level of oral hygiene was unsatisfactory in all the children, which is indicative of a considerable medical and social problems requiring attention from the side of preventive dentistry. The children of 12 years of age have approximately similar amounts of dental deposits in the structure of the oral hygiene index-simplified, while the amount of solid dental deposits increases reliably under conditions of thyroid gland dysfunctions, which is one of the provocative factors promoting development of periodontal diseases.

The state of the hard dental tissues in children from the groups of observation was analyzed by

the indices of occurrence and intensity of caries affliction process, which is shown in the figure 1.

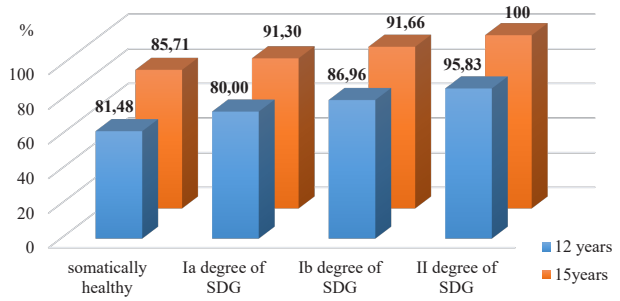

Fig. 1. Occurrence of dental caries in children suffering from chronic catarrhal gingivitis in case of somatic health and simple diffuse goiter

In general, occurrence of dental caries was high in all the groups. It had a tendency to increase with age and degree of severity of somatic pathology reaching its maximum ate the age of 15 (100 %).

The results of dental caries intensity in children from the groups of observation are presented in Table 3.

According to the results in the Table, the level of caries process afflicting the hard dental tissues in children at the age of 12 in case somatic diseases are absent and in case of I degree SDG is assessed as a moderate one, while with II degree SDG a high level of dental caries intensity is observed.

At the age of 15 the degree of affliction of the hard dental tissues by caries process is high: in children suffering from SDG the mean value was 6,89±0,27, in the group of comparison – 4,97±0,20. At the same time, reliably higher indices of caries intensity are registered in all the children with underlying SDG. These indices were especially considerable in case of Ib and II degree SDG.

Under conditions of the examined thyroid pathology in all the age groups of children the analysis of caries assessment system showed that the mean SiC score was significantly higher than DMFT scores. There was no reliable difference found between boys and girls.

Considering orthodontic problems, it should be noted that children with marked dentofacial deformities and anomalies were not included into the groups of observation in order to eliminate additional action of this periodontal-pathogenic factor. Exceptions were anomalies of separately located teeth occurring in the groups of children suffering from CCG associated with SDG (at the age of 12 years – 52,24 %, at the age of 15 – 56,94 %), and in somatically healthy children suffering from CCG (at the age of 12 – 59,26 %, at the age of 15 – 57,14 %).

The effect of general alimentary, social-behavioral and preventive measures on the development of the periodontal tissues in children was analyzed by means of the questionnaire.

There were no differences found in the groups of observation concerning the distribution of children by their social status. In the majority of cases the examined children were urban residents (92,69 %).

Dietary habits of children according to their age were similar and they are presented in Table 4. Special attention is paid to low intake of food useful for the body in general and periodontal tissue in particular.

The quality of dietary habits decreases with age. Thus, the intake of dairy products becomes lower,

Table 3

Results of dental caries intensity in children at the age of 12 and 15 suffering from chronic catarrhal gingivitis in case of somatic health and simple diffuse goiter of various degrees of severity, M±m

Groups		12 years		15 years	
		gender	DMF	gender	DMF
Somatically healthy children		boys	2,83±0,24	boys	5,05±0,18
		girls	3,04±0,15	girls	4,89±0,24
		total	2,93±0,18	total	4,97±0,20
Children suffering from simple diffuse goiter	Ia degree	boys	3,05±0,22	boys	6,28±0,21*
		girls	2,97±0,11	girls	6,14±0,15*
		total	3,01±0,18	total	6,21±0,18*
	Ib degree	boys	3,35±0,13	boys	7,23±0,39*
		girls	3,87±0,25	girls	6,72±0,51*
		total	3,61±0,20	total	6,96±0,45*
	II degree	boys	4,52±0,18*	boys	7,11±0,31*
		girls	4,74±0,21*	girls	7,89±0,51*
		total	4,63±0,19*	total	7,50±0,45*

*Note. * – reliable difference from the indices of somatically healthy children, p<0,05.*

which is very dangerous, since at this period of time active processes of the musculoskeletal system formation occur. Therefore, supplement of macro- and trace elements is an essential condition with the aim to restore the balance of the child's body.

Table 4

Dietary habit factors of children at the age of 12 and 15 suffering from chronic catarrhal gingivitis in case of somatic health and simple diffuse goiter, %

Dietary habits	Children at the age of 12		Children at the age of 15	
	Somatically healthy (n=27)	SDG (n=67)	Somatically healthy (n=21)	SDG (n=72)
carbohydrates	81,48 %	77,61 %	66,67 %	65,28 %
dairy products	51,85 %	52,24 %	38,10 %	34,72 %
vegetables and fruit	62,96 %	62,69 %	71,43 %	66,67 %
fish and seafood	33,33 %	32,84 %	38,10 %	33,33 %

Conclusions. Therefore, the following periodontal-pathogenic factors are found in the examined children: dental deposits, including solid dental deposits, lesions of the hard dental tissues, defects of separately located teeth, poor dietary habits and lack of knowledge concerning prevention of the major dental diseases. At the same time, the action of these factors is equally strong both in somatically healthy children and those suffering from SDG, which is evidenced by little reliable difference in the groups of observation.

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