

відповідного терапевтичного середовища на тлі пацієнт-центрованого підходу задля потенціювання психологічної, психотерапевтичної роботи, спрямованої на відновлення взаємин комбатантів на рівні мікро- та макро-оточення.

Ключові слова: комбатанти, посттравматичний стресовий розлад, постстресовий психічний розлад, бойова психічна травма.

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среды на основе пациент-центрированного подхода для потенцирования психологической, психотерапевтической работы, направленной на восстановление отношений комбатантов на уровне микро- и макро-окружения.

Ключевые слова: комбатанты, посттравматическое стрессовое расстройство, постстрессовое психическое расстройство, боевая психическая травма.

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CHANGES IN INDICES OF CHEMICAL COMPOSITION AND MINERALIZING PROPERTIES OF ORAL FLUID IN CHILDREN WITH INTESTINAL DYSBIOSIS

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The purpose of our work was to study the indices of calcium, inorganic phosphorus and mineralizing properties of oral fluid in 2-3 year-old children with intestinal dysbiosis. The results obtained allowed us to conclude that in the oral fluid of 2-3 years old children with intestinal dysbiosis there was a decrease in the content of calcium and inorganic phosphorus compared to similar indicators in healthy children. Thus, the rate of ionized calcium in the oral fluid was 0.23 ± 0.01 mmol/l, which is 1.6 times less than the corresponding indice in children of the control group (0.37 ± 0.02 mmol/l). The content of inorganic phosphorus in the oral fluid in children with intestinal dysbiosis was 4.38 ± 0.03 mmol/l, and in somatically healthy children it was 4.66 ± 0.03 mmol/l, which is correspondingly lower by 0.28 mmol/l. They also showed a decrease in the mineralizing potential of the oral fluid, which indicates the tendency of the erupted teeth to the enamel demineralization and increasing the prevalence of dental caries. The distribution of children by the level of mineralizing potential indicated that only 6.6% of children with intestinal dysbiosis have a high rate, which is more than 2 times worse than in the control group. The cooperation of a dentist and a pediatrician is necessary for the timely detection and prevention of dysbiosis emergence in children and, as a consequence, dental pathology – dental caries.

Key words: dysbiosis, oral fluid, children.

This work is a fragment of the research project "Improvement of methods of prevention and treatment of hard teeth tissues and periodontal tissues on the background of somatic pathology in children, taking into account socio-economic factors and psycho-emotional state", state registration No. 0119U102852.

In recent years, the number of children with caries developed in early childhood has been increasing [9, 11]. This is due to various local and general factors [2, 4, 6, 12], one of which is the child's diseases in the first years of life [9, 11].

Currently, the number of intestinal diseases has increased, which is caused by a violation of the qualitative and quantitative ratio of aerobic and anaerobic microflora in the lumen of this organ. This disease is called "intestinal dysbiosis" [5, 8]. Intestinal dysbiosis occurs more often and faster in infant children, any intestinal infection in them in 100% of cases is accompanied by dysbiosis. Modern epidemiological studies show that the population of the Earth to some extent have disorders in the microflora composition, which is the basis of the organism microecology [8].

Changes in the normal intestinal microflora in dysbiosis can lead to functional changes in the intestine, which leads to impaired absorption of nutrients, calcium and phosphorus, synthesis of a number of vitamins, and this adversely affects the formation of hard teeth tissues [1, 3].

The study of the condition of the hard teeth tissues and increasing their resistance in children with dysbiosis, arose because of the recent increase in clinical cases of the most acute aggressive early dental caries in children aged 1 to 5 years [9, 11]. There is a clear relationship between the intestinal flora and calcium and phosphorus metabolism, which, of course, affects the mineralization of hard teeth tissues, as well as the influence of these processes on the early caries occurrence in children with intestinal dysbiosis [1].

The purpose of the study was to study the indices of calcium and inorganic phosphorus in oral fluid and mineralizing properties of oral fluid in children with dysbiosis.

Materials and methods. The content of mineral components (calcium and inorganic phosphorus) in the oral fluid was determined in 80 children aged 2-3 years: 60 children had intestinal dysbiosis and 20 children were the control group (almost healthy children). Children with intestinal dysbiosis were registered with a pediatrician at the place of residence. Their diagnosis was determined by an infectious disease doctor on the basis of bacteriological examination during the child's stay at hospital, dental status was determined by the oral cavity examination. The content of ionized calcium and phosphorus in the oral fluid was determined using the kit "Reagent" (DAC – SpekroMed s.r.l., Moldova). The mineralizing potential of oral fluid (MPOL) was determined by its microcrystallization. Oral fluid was taken in an amount of 0.2-0.3 ml from the bottom of the oral cavity with a sterile pipette. Then at least three drops of

oral fluid were applied to the slide treated with alcohol and ether. Drying of microslides was performed at the room temperature. Dried drops of oral fluid were studied under a microscope (type MBS-9,10) at low magnification of 2x6. The MPOL evaluation was performed taking into account the total area of dried drops of oral fluid and expressed in the average score depending on the detected types of crystal formation. The mineralizing potential of oral fluid was evaluated on a scale: 0.0-1.0 – very low; 1.1-2.0 – low; 2.1-3.0 – satisfactory; 3.1-4.0 – high; 4.1-5.0 – very high.

The obtained results were processed by the Student's-Fisher's variational statistics method. The difference of indices at $p < 0.05$ was considered probable. All statistical processing of the results was performed using Microsoft Office Excel software package for a PC.

Results of the study and their discussion. Our studies showed that children aged 2-3 years with intestinal dysbiosis belong to the risk group, as evidenced by a decrease in the chemical composition of oral fluid in these children compared with similar indices in healthy children. Thus, the rate of ionized calcium in the oral fluid was 0.23 ± 0.01 mmol/l, which is 1.6 times less than the corresponding indice in children of the control group (0.37 ± 0.02 mmol/l) (table 1). The content of inorganic phosphorus in the oral fluid in children with intestinal dysbiosis was 4.38 ± 0.03 mmol/l, and in somatically healthy children it was 4.66 ± 0.03 mmol/l, which is correspondingly lower by 0.28 mmol/l.

Table 1

The content of calcium and inorganic phosphorus in the oral fluid of children (M \pm m)

Age of children in years	Groups of children	Number of children	Calcium, mmol/l	Phosphorus, mmol/l
2-3 years	Main	60	0.23 ± 0.01	4.38 ± 0.03
	Control	20	0.37 ± 0.02	4.66 ± 0.03
p			<0.01	<0.01

Note: p – the probability between the indices of the main and control groups.

The calcium content in the oral fluid of children affects the processes of enamel mineralization after the tooth eruption. The obtained data on the mineral components of the oral fluid in terms of calcium and inorganic phosphorus indicate a decrease in their concentration, which leads to the fact that the oral fluid ceases to perform remineralizing function, and leads to a carious process. The decrease in remineralizing properties of oral fluid in children with intestinal dysbiosis in comparison with healthy children is confirmed by indices of the mineralizing potential of oral fluid (table 2).

Table 2

Indices of the mineralizing potential of oral fluid in children (m \pm M)

Age in years	Groups of children	Number of children	Indices of mineralizing potential, scores			p ₂
			mean value	with caries	without caries	
2	Main	60	1.88 ± 0.09	1.43 ± 0.08 (n=30)	2.34 ± 0.12 (n=30)	<0.002
	Control	60	2.12 ± 0.10	1.71 ± 0.10 (n=30)	2.52 ± 0.12 (n=30)	<0.001
p ₁			<0.002	<0.002	<0.001	
3	Main	60	2.06 ± 0.10	1.70 ± 0.10 (n=30)	2.44 ± 0.14 (n=30)	<0.001
	Control	60	2.20 ± 0.11	1.69 ± 0.10 (n=30)	2.72 ± 0.14 (n=30)	<0.002
p ₁			<0.001	<0.001	<0.001	
Total	Main	120	1.97 ± 0.05	1.56 ± 0.06 (n=60)	2.39 ± 0.09 (n=60)	<0.001
	Control	120	2.37 ± 0.06	2.12 ± 0.10 (n=60)	2.62 ± 0.10 (n=60)	<0.001
p ₁			<0.01	<0.001	<0.002	

Notes: p₁ – the probability of data between indices of the main and control groups in each age period; p₂ – the probability of data between indices within the main and control groups in children with and without caries; n – number of children in the group.

According to the study results, the mean value of the mineralizing potential of oral fluid in children 2 years old with intestinal dysbiosis was 1.88 ± 0.09 scores, and in somatically healthy children – 2.12 ± 0.10 scores. The mineralizing potential indice of oral fluid in children 3 years old of the main group was 2.06 ± 0.10 scores, and in somatically healthy children – 2.20 ± 0.11 scores. We found that in children 2-3 years old of the main group the mean value of mineralizing potential was 1.97 ± 0.05 scores, which corresponds to a low level of microcrystallization, and in healthy children – 2.37 ± 0.06 scores, i.e. they have a satisfactory level. There is a probable difference in the studied indice in children with caries and without caries of both the main and control groups, but the indice in children with intestinal dysbiosis is always worse than in somatically healthy children ($p < 0.001$). Thus, the mineralizing potential indice of oral fluid in children 2-3 years old of the main group with caries was 1.56 ± 0.06 scores and corresponded to a low level of microcrystallization, without caries – 2.39 ± 0.09 scores and corresponded to a satisfactory level of microcrystallization. The mineralizing potential indice of oral fluid in children 2-3 years old in the control group with caries was 2.12 ± 0.10 scores, without caries – 2.62 ± 0.10 scores.

The distribution of children by the level of mineralizing potential indicated that only 6.6% of children with intestinal dysbiosis have a high rate, which is more than 2 times worse than in the control

group. A very low mineralizing potential is more common in children of the main group than in practically healthy children.

The study of oral fluid in children under three years of age is important for early detection of the causes of cariogenic situation in the oral cavity and subsequent preventive measures. The obtained data confirm that the composition and properties of the oral fluid are an important factor determining dental caries resistance. Enamel mineralization after the teeth eruption occurs under the influence of chemical components of oral fluid. Decreased concentration of calcium and inorganic phosphorus, deterioration of physical parameters of oral fluid leads to a decrease in enamel resistance and increase the prevalence of dental caries in infant children [1, 3, 7, 10, 12].

Conclusions

Studies have shown a decrease in calcium and inorganic phosphorus in the oral fluid of children 2-3 years old with intestinal dysbiosis compared with healthy children. They also have a decrease in the mineralizing potential of oral fluid, which causes the tendency of erupted teeth to enamel demineralization and increasing the prevalence of caries in these children. Therefore, preventive measures should be aimed at improving the studied indicators.

Prospects for further research lie in the fact that intestinal dysbiosis in children of 2-3 years old may be due to a violation of other components of the oral cavity homeostasis. Therefore, further comprehensive studying of this question will be expedient.

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Реферати

ЗМІНА ПОКАЗНИКІВ МІНЕРАЛЬНОГО СКЛАДУ ТА МІНЕРАЛІЗУЮЧИХ ВЛАСТИВОСТЕЙ РОТОВОЇ РІДИНИ У ДІТЕЙ ІЗ ДИСБАКТЕРІОЗОМ КИШЕЧНИКУ
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Метою нашої роботи було вивчення показників вмісту кальцію, неорганічного фосфору та мінералізуючих властивостей ротової рідини у дітей 2-3 років з дисбактеріозом кишечника. Отримані результати дозволили зробити висновок, що у дітей 2-3 років з дисбактеріозом кишечника в ротовій рідині виявлено зниження вмісту кальцію і неорганічного фосфору в порівнянні з аналогічними показниками здорових дітей. Так показник іонізованого кальцію в ротовій рідині склав $0,23 \pm 0,01$ ммоль/л, що в 1,6 рази менше в порівнянні з відповідним показником у дітей контрольної групи ($0,37 \pm 0,02$ ммоль/л). Показник вмісту неорганічного фосфору в ротовій рідині у дітей з дисбіозом кишечника склав $4,38 \pm 0,03$ ммоль/л, а у

ИЗМЕНЕНИЯ ПОКАЗАТЕЛЕЙ МИНЕРАЛЬНОГО СОСТАВА И МИНЕРАЛИЗУЮЩИЕ СВОЙСТВА РОТОВОЙ ЖИДКОСТИ У ДЕТЕЙ С ДИСБАКТЕРИОЗОМ КИШЕЧНИКА
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Целью нашей работы было изучение показателей содержания кальция, неорганического фосфора и минерализующих свойств ротовой жидкости у детей 2-3 лет с дисбактериозом кишечника. Полученные результаты позволили сделать вывод, что у детей 2-3 лет с дисбактериозом кишечника в ротовой жидкости выявлено снижение содержания кальция и неорганического фосфора по сравнению с аналогичными показателями здоровых детей. Так показатель ионизированного кальция в ротовой жидкости составил $0,23 \pm 0,01$ ммоль/л, что в 1,6 раза меньше по сравнению с соответствующим показателем у детей контрольной группы ($0,37 \pm 0,02$ ммоль/л). Показатель содержания неорганического фосфора в ротовой жидкости у детей с дисбиозом кишечника составил $4,38 \pm 0,03$ ммоль/л, а у соматически здоровых детей

соматично здорових дітей дорівнює $4,66 \pm 0,03$ ммоль/л, що на $0,28$ ммоль/л відповідно нижче. Також в них спостерігалось зниження мінералізуючого потенціалу ротової рідини, що вказує на схильність зубів, які прорізалися, до демінералізації емалі і підвищення показників поширеності карієсу. Розподіл дітей за рівнем мінералізуючого потенціалу свідчить про те, що серед дітей з дисбактеріозом кишечника високий його показник мають лише $6,6\%$ дітей, що більше ніж в 2 рази гірше в порівнянні з контрольною групою. Для своєчасного виявлення та запобігання дисбактеріозу у дітей і, як наслідок, стоматологічної патології – карієсу зубів, необхідна співпраця стоматолога і педіатра.

Ключові слова: дисбактеріоз, ротова рідина, діти.

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равен $4,66 \pm 0,03$ ммоль/л, что на $0,28$ ммоль/л соответственно ниже. Также у них наблюдалось снижение минерализующего потенциала ротовой жидкости, что указывает на склонность зубов, которые прорезались, к деминерализации эмали и повышению показателей распространенности кариеса. Распределение детей по уровню минерализующего потенциала свидетельствует о том, что среди детей с дисбактериозом кишечника высокий его показатель имеют только $6,6\%$ детей, что более чем в 2 раза хуже по сравнению с контрольной группой. Для своевременного выявления и предотвращения дисбактериоза у детей и, как следствие, стоматологической патологии – кариеса зубов, необходимо сотрудничество стоматолога и педиатра.

Ключевые слова: дисбактериоз, ротовая жидкость, дети.

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PREVENTION OF AUTONOMIC DISADAPTATION IN SERVICE MEMBERS

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The autonomic nervous system (ANS) is the main regulator of maintaining homeostasis and organism adaptation to changes in the environment. Most often, autonomic dysfunction occurs under the conditions of chronic psychoemotional stress. To prevent emotion dysregulation and stress-related disorders in service members, the state of the autonomic nervous system was assessed by examining 145 military servicemen, considering the initial autonomic tone, autonomic reactivity and autonomic support of the individual. In most subjects there was tension and dysfunction of the ANS, which allowed us to recommend a more thorough study of its three main components in order to identify autonomic disorders and the allocation of these persons to the risk group for psychosomatic pathology.

Key words: autonomic nervous system, service member, tone, stress-associated disorders.

The work is a fragment of the research project “Development of a system of diagnostic, psychocorrectional, treatment, rehabilitation and preventive measures for patients with non-psychotic mental disorders and their family members”, state registration No. 0118U001281.

The autonomic nervous system (ANS) is the main regulator of maintaining homeostasis and organism adaptation to changes in the environment. Dysfunction leads to the development of autonomic dysregulation, which is a risk factor for many psychosomatic diseases, such as somatoform autonomic dysfunction, anxiety or panic neurosis, various paroxysmal conditions or stress-associated disorders, irritable bowel or stomach syndrome and others. Most often, autonomic dysfunction occurs under conditions of chronic psychoemotional stress or under certain conditions that lead to the development of physical or sexual impotence, emotional and psychological disorders [4, 6, 8, 12, 14].

In recent years, there has been a significant increase in the development of stress-related disorders in the service members (SM), who are within the anti-terrorist operation (ATO) conditions [1, 9, 10]. In this regard, the SM with signs of autonomic dysfunction most often have difficulties in adapting to the conditions of military service, which is manifested in the violation of military discipline, reduced professional efficiency, harmony of interpersonal relations and social status. In terms of military service, this leads to negative consequences: suicide attempts, conflicts within the military personnel, the unauthorized leaving of a military unit. This fact requires more attention to the state of SM health, which should be put forward to the autonomic state of persons participating in the ATO [5, 6, 7, 9]. Unfortunately, autonomic dysfunction in military conflict is regarded not as pathology but as a clinical normology, which, in our opinion, is not right given that the already low level of functioning should be regarded as preclinical disadaptation conditions.

The purpose of the study was to assess the state of the autonomic nervous system to prevent disadaptation and stress-related disorders in the service members.

Materials and methods. For this purpose, 145 servicemen aged 18 to 37 were examined. All service members underwent a clinical and neurological examination, assessing the autonomic status [2, 3,