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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

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Содержание:

ხასიათს. კვლევის შედეგების ანალიზით გაირკვევა, რომ სუბიექტებში ცხვირით სუნთქვის დროს ელექტრომიოგრაფიული პოტენციალები სტანდარტიზებული მაჩვენებლების ფარგლებშია. შერეული სუნთქვის ჯგუფში საღეჭი და საფეთქლის კუნთების ელექტრული აქტივობა ასიმეტრიულია. ასიმეტრია (მხარე) და არასტაბილურობა (კუნთთა წყვილების) ნორმალიზებული კუნთოვანი აქტივობის დროს შესაძლოა წარმოადგენდეს ფუნქციურად არასტაბილური ოკლუზიის შედეგს. ბამბის ლილვაკებზე კბილების მოჭერისას დენტოალვეოლური პროპიორეცეპციის მოქმედება მიღებულ ელექტრომიოგრაფიულ მონაცემზე მინიმალურია, რაც კონკრეტულად კუნთის აქტივობის შეფასების შესაძლებლობას იძლევა მაქსიმალური დაჭერისას.

სტანდარტიზებული მაქსიმალური კონტრაქციის პირობებში დარეგისტრირებული კუნთების საშუალო კუმშვადობის ხარისხის მაჩვენებლის მიხედვით, ცხვირით სუნთქვის პირობებში როგორც მარჯვენა და მარცხენა საკუთრივ საღეჭი კუნთების, ასევე, საფეთქლის კუნთების აქტივობა ჰომოგენური და სიმეტრიულია. შერეული სუნთქვის შემთხვევაში კი მათ შორის დისოციაცია იზრდება: უფრო გამოხატულია საფეთქლის კუნთების ელექტრული აქტივობა, საღეჭთან შედარებით; როგორც საფეთქლის, ასევე საღეჭი კუნთების ელექტროფიზიოლოგიური აქტივობა, შესაბამისად - კუმშვადობა, ცხვირით სუნთქვის ჯგუფთან შედარებით, დაქვეითებულია. აღნიშნულის მიზეზს უნდა წარმოადგენდეს აგზნებაში ჩართული მაღალზღურბლოვანი მამოძრავებელი ერთეულების რაოდენობის შემცირება.

მიღებული შედეგები მიუთითებს საღეჭი აპარატის ნერვ-კუნთოვანი ბალანსის მდგომარეობის მნიშვნელობაზე ორთოდონტიული სტატუსის განსაზღვრისათვის, ასევე, ელექტრომიოგრაფიული მახასიათებლების გამოყენების შესაძლებლობის შესახებ, მათ შორის, ორთოდონტიული დისფუნქციის ხარისხის შეფასების და მკურნალობის ინდივიდური სქემის დაგეგმვის დროს. კვლევა ამ მიმართულებით გრძელდება.

INDICATORS OF LOCAL IMMUNITY IN THE COMORBID COURSE OF CARIES AND GASTROESOPHAGEAL REFLUX DISEASE

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The prevalence of hard tooth tissue diseases (dental caries) is very high (up to 96,0%) among young people in former Soviet Union, especially in Ukraine. Diseases of the digestive system have same prevalence.

It should be noted that advertising for medical help for these diseases does not always occur on time. This is due to the reluctance of treatment to the doctor (dentist), and practice of avoiding treatment generally that begins in adolescence. Survey shows that about 63,0% of young men and 87,0% of young women take drugs for the treatment of gastrointestinal disorders and pain symptoms in dental diseases without the recommendations of a doctor (dentists) focusing solely on commercial advertising [1,2,8].

Today is clearly proven the relationship between diseases of the digestive tract and pathological processes that occur in the oral cavity [8,19,21]. It was found that oral diseases have a direct influence on the condition of the digestive system. It was proved that receptors which are located in the oral mucosa, affecting the motility and secretory activity of the digestive system. Along with this, it was found that “pathological” reflexes of internal organs have a negative influence on the oral cavity [3-5,9,15]. Caries and its complications take the leading role in the development of gastrointestinal diseases in young people. The organism of young people is influenced by constant microbial invasion and sensitization when diseases of the digestive system are combined with carious teeth [10].

However, quite often various changes can be determined in the tissues and organs of the oral cavity on the early stages of systemic diseases. This is due to the fact that in the etiology and pathogenesis of dental caries, periodontal and oral mucosa diseases play main local and systemic immunity reactions.

In the organism, there is a close relationship between the main systems, including the endocrine, nervous, hematopoietic, as well as digestive. In different investigations were found likely to increase prevalence and intensity of hard tooth tissue diseases, oral mucosa diseases in adolescents and young people with various diseases of the digestive tract [12-14,20].

A number of researchers found a higher prevalence of caries, oral mucosa diseases, periodontal diseases in children and adults with inflammatory and destructive diseases of the stomach and intestines.

Different researches shown that caries of permanent teeth in children with gastrointestinal pathology was revealed in 78.4% versus 70.6% in children without digestive diseases. Children with gastroduodenitis have higher prevalence and intensity of dental caries, hyposalivation and decrease calcium level in saliva, and acidosis of saliva. It was shown the influence of the stomach and duodenum contents with reflux on the homeostasis of the oral cavity, basic salivation, and also the activation of the demineralizing properties of saliva [22, 23].

Investigating of digestive tract diseases influence on the status of the oral cavity in adult patients, researchers pay attention to the intensity of caries, the status of periodontal tissues, the hygienic state of the oral cavity, indicators of local immunity, and some indicators of saliva. Many authors note the high intensity of caries in presence of gastritis and peptic ulcer (PU) up to 22. Such high level of dental lesion in patients with PU is explained by the gastroesophageal reflux in patients of this group.

It contributes to the throwing of gastric juice into the oral cavity, which promotes the development of caries and non-carious diseases, in particular dental erosion [18].

Gastroesophageal reflux disease is one of the most common diseases of the digestive tract [18]. Some authors believe that principal causes of developing pathologies of periodontal tissues lead to gastroesophageal reflux [4,10]. According to published data, a large number of cases of erosive and ulcerative lesions of the stomach and duodenum are accompanied by reflux disease. According to several authors [1, 7], the fact of deterioration of the hygienic state of the oral cavity in people with pathology of the digestive system can change the biochemical composition of the saliva and, in particular, affect tooth decay with caries. However, the role of saliva is currently undeniable in supporting the physiological and development of pathological processes of hard and soft tissues of the oral cavity.

It was found that patients with peptic ulcer (PU) in 98% have combined immune system deficiency. It is not known what is the primary factor of internal organs diseases with subsequent damage to the oral cavity or vice versa. Authors associate indications of immunological deviations with the localization of the ulcer, the nature and period of the course of the PU, as well as with the clinical signs of periodontitis. An important role among the components of the immune defense of the oral cavity belongs to non-specific humoral factors [6,17] produced by various cells. These include the so-called factors of natural resistance: lysozyme, lactoferrin, lactoperoxidase, mucin, interferon, some components of complement, etc. All these factors are present in saliva in significant quantities and directly involved in the destruction or suppression of the vital activity of microorganisms. These components act in a complex manner, duplicate each other, which increases the final effect of protection. However, describing the properties of saliva, researchers adhere mainly to their changes in various types of dental pathology, not taking into account the general condition of the body.

Material and methods. In total were exanimated 33 patients with dental caries in age from 18 to 25 years (average age - 20,4±0,9 years), 21 (63.7%) of them were men and 12 (36.4%) were women. The main group consisted of 17 patients who had a combined dental pathology (caries) and gastroesophageal reflux disease. The comparison group consisted of 16 people who had dental caries without the other systemic diseases. The groups were randomized by age and sex.

All patients who were included in the study evaluated the dental status, immunological analysis of blood and saliva, gastroesophageal reflux disease assessment by questionnaire.

All patients were investigated for dental status with registration of the prevalence and intensity of dental caries (DMF + dm, DMF).

All patients were investigated for dental status with registration of the prevalence and intensity of dental caries. Were determined the intensity and prevalence of dental caries (DMF + dm, DMF). The structural resistance of dental hard tissues was determined by using ERT test [16]. Hygienic status of the oral cavity was determined by using the Green-Vermillion (1964) [24] and Silness-Loe (1964) Index [28]. Papillary-marginal alveolar index (PMA) was used to determine the intensity of periodontal inflammation [27]. The intensity of gingival bleeding was evaluated by index SBI (H.P. Muhlemann, S. Son (1971) [26].

Also were conducted a questionnaire survey of 33 patients, body mass index (BMI = 22.8±2.07 kg/m²), who complained of heartburn and had endoscopic signs of gastroesophageal reflux disease (non-erosive form). Questionnaire survey was carried out by using a special questionnaire to identify the clinical symptoms of gastroesophageal reflux disease, risk factors for heartburn and the course of the disease, the nature and prevalence of esophageal manifestations.

Immunological screening was carried out on 1st-2nd day from the first date of application and after 6 months and includes conducting tests of I and II levels according to the requirements of World Health Organization (WHO) Memorandum. Quantify major populations and subpopulations of lymphocytes to determine their functional activity of serum immunoglobulins, the concentration of circulating immune complexes of different molecular size, the phagocytic activity of neutrophils and cytokine status.

Defining phenotype lymphoid cells conducted indirect immunofluorescent method using monoclonal antibodies produced by "Sorbent service" (Moscow, Russia) against CD 3 lymphocyte antigens, CD 4, CD 8, CD 16, CD 22, with a final count on the fluorescent microscope "LUMAM I3" 200 of each cell phenotype.

Using this method were defined the following lymphocyte subsets - CD3+ lymphocytes (T-cells) CD4 + lymphocytes (T-helper) CD8 + lymphocytes (T-cytotoxic lymphocytes / suppressor) CD16 + cells (NK-cells), CD22 + lymphocytes (B -cell).

The functional activity of T-lymphocytes was studied morphological method by determining the proliferative activity of lymphocytes in lymphocyte blast transformation reaction (LBTR) with mitogen phytohemagglutinin (PHA) from «Burroughs Welcome».

The phagocytic activity of neutrophils was assessed by the degree of absorption of latex particles with calculation Hamburg phagocytic index and phagocytic number Wright.

The study of the functional state of B-lymphocytes was carried out by determining the level of the main classes of serum immunoglobulins Ig G, Ig A, Ig M by simple radial immunodiffusion in a gel according to G., Mancini et al., 1965 [25].

The concentration of circulating immune complexes (CICs) in the serum was determined by precipitation in polyethylene glycol solution (PEG-6000) on microspectrophotometry «Specol-21» (Germany) at a length wave 450 nm. At the same time, based on the differentiated precipitation in a 2.5%, 3.5% and 7.0% PEG-6000 solution, CICs fractions with different molecular weights - large-molecular (> 19S), medium- (11-19S) and small-molecular (<11S) CICs, with the last two fractions of the CICs showed high pathogenic properties.

The obtained results were processed by statistical methods using personal computers [11].

Results and discussion. As seen from the data presented in Table 1, in patients with concomitant gastroesophageal reflux disease the prevalence of caries was significantly higher than in healthy individuals without pathology of the digestive system. Indicator of dental caries intensity (DMF) in the main group was also in 1.7 higher ($p<0,05$). The results of the stability values of hard tissue to the effects of cariogenic factors had a high positive correlation with the intensity of dental caries lesions ($r=0,68$). This confirms the presence of interconnections of manifestations of somatic pathology with the development of dental caries, especially against the background of a decrease in caries resistance.

Table 1. The prevalence rate of dental caries and tooth enamel resistance cariogenic factors in the examined persons (M±m)

Indicators	Patient groups		Probability of difference indicators
	Main group (n=17)	Comparison group (n=16)	
Caries prevalence (%)	72, 2	54, 4	
Dental caries intensity (DMF)	4,31±0,21	2,53±0,14	p <0,05
Enamel resistance	41,8±2,1	42,7±2,3	p <0,05

Table 2. Oral hygiene and periodontal tissue status indices in the examined individuals (M±m)

Indicators	Patient groups		Probability of difference indicators
	Main group (n=17)	Comparison group (n=16)	
Green-Vermillion index	1,95±0,07	1,32±0,06	P<0,05
Silness-Loe index	0,72±0,08	0,36±0,05	P<0,05
PMA, %	21,35±3,21	9,31±1,02	P<0,05
SBI index	1,53±0,05	0,62±0,04	P<0,05

Table 3. Cellular immunity status in patients with caries and gastroesophageal reflux disease (M±m)

Immunological indicators	Main group (n=17)	Comparison group (n=16)	Probability of difference indicators
Leukocytes, 10^9/l	6,15±0,27	5,87±0,32	P>0,05
Lymphocytes, %	30,20±1,65	32,30±1,31	P>0,05
$CD3^+$ lymphocytes, %	56,12±1,17	57,16±1,21	P>0,05
$CD4^+$ lymphocytes, %	40,98±1,49	36,40±1,63	P>0,05
$CD8^+$ lymphocytes, %	16,70±0,94	24,60±1,19	P<0,05
$CD4^+/CD8^+$	2,42±0,09	1,32±0,07	P<0,05
$CD22^+$ lymphocytes,%	42,40±1,47	34,96±1,23	P<0,05
$CD16^+$ lymphocytes,%	16,80±0,83	16,29±0,87	P>0,05

An objective dental examination during the initial examination was also established that in the main group were significantly higher hygienic index of Green-Vermillion and Silness-Loe in 1.6 and 2.1 times, accordingly. PMA index was 21.35±1.96%, that indicating the presence of mild gingivitis and bleeding index was 1.53±0.03 points (Table 2).

A study was also conducted of the main manifestations of gastroesophageal reflux disease in the examined individuals. Analyzing the survey data in 77.4% (13 people) of respondents, the appearance of heartburn caused significant physical exertion (including physical education classes) and the adoption of fatty foods. Overeating has led to the emergence of heartburn in 52.9% of the respondents, smoking - at 29.4%, alcohol - in 23.5%, coffee - in 29.4% of the respondents.

Survey results also indicate a high incidence of flatulence among respondents that confirm previous studies on the negative impact of bloating in the onset and progression of gastroesophageal reflux disease. Thus, 12 (70.59%) patients are periodically disturbed distension.

The assessment of indicators of the immune status in patients with caries and gastrointestinal pathology was made.

The relative populations of CD3+ lymphocytes were not significantly different in the groups of patients, the total number of leukocytes and lymphocytes also had no significant differences.

The relative number of CD4+ lymphocytes/helper-inductors in the main group and comparison group had no significant differences.

The relative number of subpopulations of CD8+ lymphocytes in the main group was significantly lower by 32.12% ($p<0.05$) relative to the comparison group. As a result, was revealed an increase of the immunoregulatory index, which indicates an imbalance of immunoregulatory subpopulations associated with the development of autoimmune disorders in gastroesophageal reflux disease.

The level of B-lymphocyte population in patients with gastroesophageal reflux disease with caries significantly exceeded the data of the comparison group by 21.5% ($p<0.05$).

The number of natural killer cells does not differ from the standard values of both and examined between the groups.

By analyzing the above data, it should be noted that the reason for the activation of T- and B-lymphocytes of peripheral blood is gastroesophageal reflux disease when it is combined with caries promotes activation of immune system cells due to the appearance in blood of autoantigens.

The high number of activated lymphocytes can also be due to a significant content of proinflammatory cytokines - TNF-α and IL-1β, the level of which is elevated in patients with gastroesophageal reflux disease and caries.

Based on the detected changes in the quantitative composition of the main lymphocyte subpopulations were studied functional activity of immune cells in patients with gastroesophageal reflux disease and dental caries (Table 4).

Table 4. The functional activity of T-lymphocytes and neutrophils in patients with caries and gastroesophageal reflux disease (M±m)

Immunological indicators	Main group (n=17)	Comparison group (n=16)	Probability of difference indicators
LBTR with PHA, %	78,30±2,39	79,80±2,13	P>0,05
Spontaneous LBTR, %	4,98±0,18	3,96±0,15	P<0,05
Phagocytic index,%	84,33±0,97	75,85±1,29	P<0,05
Phagocytic number	15,28±0,23	9,63±0,19	P<0,05

Table 5. Humoral immunity status in patients with gastroesophageal reflux disease, coupled with caries (M±m)

Immunological indicators	Main group (n=17)	Comparison group (n=16)	Probability of difference indicators
Ig G, g/L	12,95±0,45	13,52±0,71	P>0,05
Ig A, g/L	1,86±0,09	1,92±0,06	P>0,05
Ig M, g/L	1,21±0,07	1,26±0,05	P>0,05
CICs large (>19 S), c.u.	34,35±1,09	43,20±0,83	P<0,05
CICs medium (11-19 S), c.u.	44,26±1,16	36,12±2,53	P<0,05
CICs small (<11 S), c.u.	18,42±0,13	12,55±0,19	P<0,05

Table 6. Local immunity status in the oral fluid of patients with gastroesophageal reflux disease, coupled with caries (M±m)

Immunological indicators	Main group (n=17)	Comparison group (n=16)	Probability of difference indicators
Ig G, g/L	3,83±0,21	2,82±0,34	P<0,05
SIg A, g/L	0,16 ±0,01	0,31±0,02	P<0,05
CICs large (>19 S), c.u.	28,43±1,21	35,61±1,46	P<0,05
CICs medium (11-19 S), c.u.	55,46±2,31	43,36± 1,84	P<0,05
CICs small (<11 S), c.u.	35,72±2,06	22,16±1,74	P<0,05
TNF-α, pg/mL	74,6 ±3,7	53,9±3,1	P<0,05

As studies have shown, the proliferative activity of T-lymphocytes in patients with gastroesophageal reflux disease and dental caries was normal and had no significant difference between the examined groups.

The presence of gastroesophageal reflux disease in patients with tooth decay is the spontaneous activation of lymphocytes proliferation by 25.8%, which may be a manifestation of how autosensibilization to own tissues, and indicate the presence of circulating self antigens, which stimulate cell proliferation, and is a feature inherent in subclinical inflammation in the immune gastroesophageal reflux disease.

In both groups surveyed were found an increase in phagocytic activity of neutrophils, significantly higher rates of phagocytic and phagocytic index due to a prevalence and intensity of caries process.

Despite the presence of B-lymphocytosis in patients with gastroesophageal reflux disease and dental caries concentration of serum Ig G, Ig A, of Ig M in both groups surveyed did not have significant differences.

In the body of patients with gastroesophageal reflux disease caries was found increased content of the medium and small molecular CICs that had pathogenic properties (Table 5). Increasing concentrations of pathogenic CICs in patients with gastroesophageal reflux disease, coupled with caries, accompanied by increased activation of autologous peripheral blood lymphocytes, an increase of spontaneous proliferative activity of lymphocytes, is a consequence of the development of gastroesophageal reflux disease.

Thus, as a result of studies, patients with gastroesophageal reflux disease when it is combined with caries observed changes in the immune system, which are features of subclinical immune inflammation.

Also, a study was conducted of local immunity of the oral fluid of persons surveyed(Table 6).

As can be seen from the data presented in Table 6, individuals with caries and pathology of the digestive tract due to the constant chemical (acid or alkali) irritation of the oral mucosa is observed significantly higher levels of proinflammatory cytokines - tumor necrosis factor-α (TNF-α), increased IgG concentration as a result of antigen challenge and also significantly lower concentration of secretory IgA (SIg A).

Reduced concentration of the latter, in an apparent, and is one of the reasons for the large intensity and prevalence of caries in patients with gastroesophageal reflux disease.

Because of the aforementioned disorders revealed CICs imbalance in oral liquid of main examined group.

Conclusions. The study revealed a higher intensity of the carious process in patients with gastroesophageal reflux disease. It is connected with a permanent lesion mucous membrane of the oral cavity acid.

Furthermore, it was found violation in terms of concentration with increasing local immunity oral liquid proinflammatory factors and a reduced concentration of secretory IgA namely with concomitant pathologies of the gastroesophageal reflux disease (GERD).

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SUMMARY

INDICATORS OF LOCAL IMMUNITY IN THE COMORBID COURSE OF CARIES AND GASTROESOPHAGEAL REFLUX DISEASE

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Aim of the study -to determine the indices of local immunity in patients who had combined dental pathology (caries) and gastroesophageal reflux disease.

In total were exanimated 33 patients with dental caries in age from 18 to 25 years, including 21 men and 12 women. The main group consisted of 17 patients who had a combined dental pathology (caries) and gastroesophageal reflux disease. The comparison group consisted of 16 people who had dental caries without other systemic diseases.

All patients, who were included in the study was carried out the following researches: a study of the dental status, an immunological study for all patients with the determination of a quantitative assessment of the main populations and subpopulations of lymphocytes, determination of their functional activity, determination of level of serum immunoglobulins, determination of the concentration of circulating immune complexes of various

molecular sizes, phagocytic activity of neutrophils and cytokine status in serum and oral fluid, as well as assessment of the course of gastroesophageal reflux disease with questionnaires.

The results of the values of the resistance of hard tissues to the effects of cariogenic factors had a high positive correlation with the intensity of dental caries lesions. That confirms the presence of a relationship between manifestations of systemic diseases together with the development of dental caries, especially against the background of a decrease in caries resistance. In the presence of gastroesophageal reflux disease in patients dental caries detected spontaneous activation of lymphocyte proliferation by 25.8%, an increasing of the phagocytic activity of neutrophils, detected significantly higher indicators of the phagocytic number and phagocytic index, increased content of medium and small molecular circulating immune complexes with pathogenic properties. Detected significantly higher content of proinflammatory cytokines - tumor necrosis factor-α, an increased concentration of IgG as a result of antigenic stimulation, and also a significantly lower concentration of secretory IgA. It has been established that in patients with gastroesophageal reflux disease combined with dental caries observing changes in the immune system, which bear the features of subclinical immune inflammation.

The study revealed a higher intensity of the carious process in patients with gastroesophageal reflux disease, which is associated with permanent acid damage of the oral mucosa. Furthermore, it was found violation in terms of concentration with increasing local immunity oral liquid proinflammatory factors and a reduced concentration of secretory IgA namely with concomitant pathologies of the gastroesophageal reflux disease.

Keywords: caries, gastroesophageal reflux disease, local immunity, cytokines, secretory immunoglobulin A, circulating immune complexes, blood serum, oral fluid.

РЕЗЮМЕ

ПОКАЗАТЕЛИ МЕСТНОГО ИММУНИТЕТА ПРИ КОМОРБИДНОМ ТЕЧЕНИИ КАРИЕСА И ГАСТРОЭЗОФАГЕАЛЬНОЙ РЕФЛЮКСНОЙ БОЛЕЗНИ

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Цель исследования - определить показатели местного иммунитета у больных стоматологическими заболеваниями (кариес), сочетанными с гастроэзофагеальной рефлюксной болезнью.

Обследовано 33 больных (21 мужчина и 12 женщин) кариесом в возрасте от 18 до 25 лет. Основную группу составили 17 пациентов с кариесом в сочетании с гастроэзофагеальной рефлюксной болезнью, группу сравнения - 16 больных кариесом без других соматических заболеваний. Пациентам проведено исследование стоматологического статуса, иммунологическое исследование с определением количественной оценки основных популяций и субпопуляций лимфоцитов, определение их функциональной активности, уровня сывороточных иммуноглобулинов, концентрации циркулирующих иммунных комплексов различного молекулярного размера, фагоцитарной активности нейтрофилов и цитокинового статуса в сыворотке крови и ротовой жидкости, а также оценка течения гастроэзофагеальной рефлюксной болезни с использованием опросников.

При наличии гастроэзофагеальной рефлюксной болезни у больных кариесом выявлены активация спонтанной пролиферации лимфоцитов на 25,8%, повышение фагоцитарной активности нейтрофилов, достоверно более высокие показатели фагоцитарного числа и фагоцитарного индекса, повышенное содержание средне- и низкомолекулярных циркулирующих иммунных комплексов с патогенными свойствами, также достоверно более высокое содержание провоспалительных цитокинов - фактора некроза опухолей-α, повышенная концентрация IgG, как следствие антигенной стимуляции и достоверно низкая концентрация секреторного IgA. Установлено, что у больных гастроэзофагеальной рефлюксной болезнью при ее сочетании с кариесом наблюдаются изменения в иммунной системе, которые носят черты субклинического иммунного воспаления.

Проведенное исследование выявило достоверно более высокую интенсивность кариозного процесса у пациентов с гастроэзофагеальной рефлюксной болезнью, вызванную постоянным кислотным поражением слизистой оболочки полости рта. При сопутствующих заболеваниях органов пищеварения (гастроэзофагеальная рефлюксная болезнь) установлено нарушение местного иммунитета ротовой жидкости, проявляющееся в повышении концентрации провоспалительных факторов и понижении концентрации секреторного IgA.

რეზიუმე

ადგილობრივი იმუნიტეტის მაჩვენებლები კარიესის და გასტროეზოფაგური რეფლუქსური დაავადების კომორბიდული მიმდინარეობისას

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ა. ბოგომოლეცის სახ. ეროვნული სამედიცინო უნივერსიტეტი, თერაპიული სტომატოლოგიის კათედრა, კიევი, უკრაინა

კვლევის მიზანს წარმოადგენდა ადგილობრივი იმუნიტეტის მაჩვენებლების განსაზღვრა პაციენტებში სტომატოლოგიური დაავადებით (კარიესი), რომელიც შერწყმული იყო გასტროეზოფაგურ რეფლუქსურ დაავადებასთან.

გამოკვლეულია 18-25 წლის ასაკის 33 პაციენტი (21 - მამაკაცი, 12 - ქალი) კარიესით. ძირითადი ჯგუფი შეადგინა 17 პაციენტმა კარიესით და გასტროეზოფაგური რეფლუქსური დაავადებით, შედარების ჯგუფი – 16 პაციენტმა კარიესით, სხვა სომატური დაავადებების გარეშე. პაციენტებს ჩაუტარდა სტომატოლოგიური სტატუსის კვლევა, იმუნოლოგიური კვლევა ლიმფოციტების ძირითადი პოპულაციების და სუბპოპულაციების რაოდენობრივი შეფასებით, მათი ფუნქციური აქტივობის, შრატის იმუნოგლობულინების, სხვადასხვა მოლეკულური ზომის მოცირკულირე იმუნური კომპლექსების კონცენტრაციის, ნეიტროფილების ფაგოციტური აქტივობის და ციტოკინური სტატუსის განსაზღვრით სისხლის შრატსა და პირის ღრუს სითხეში; ასევე, ჩატარდა გასტროეზოფაგური რეფლუქსური დაავადების მიმდინარეობის შეფასება კითხვარების გამოყენებით.

გასტროეზოფაგური რეფლუქსური დაავადების არ-

სებობისას კარიესის მქონე პაციენტებში გამოვლინდა ლიმფოციტების სპონტანური პროლიფერაციული აქტივობის ზრდა 25,8%-ით, ნეიტროფილების ფაგოციტური აქტივობის ზრდა, ფაგოციტების რაოდენობრივი და ფაგოციტური ინდექსის უფრო მაღალი მაჩვენებლები, პათოგენური თვისებების მქონე საშუალო- და დაბალმოლეკულური იმუნური კომპლექსების მომატებული შემცველობა. გამოვლინდა პროანთებითი ციტოკინების – სიმსივნის ნეკროზის α-ფაქტორის, IgG-ის მომატებული კონცენტრაცია, ასევე, სეკრეციული IgA-ს სარწმუნოდ დაბალი კონცენტრაცია. დადგენილია, რომ პაციენტებში გასტროეზოფაგური რეფლუქსური დაავადებით და კარიესით აღინიშნება სუბკლინიკური იმუნური ანთების ნიშნების მქონე ცვლილებები იმუნურ სისტემაში.

ჩატარებული კვლევით გამოვლინდა კარიესული პროცესის სარწმუნოდ უფრო მაღალი ინტენსივობა პაციენტებში გასტროეზოფაგური რეფლუქსური დაავადებით, რაც დაკავშირებულია პირის ღრუს ლორწოვანი გარსის მუდმივი მჟავური გაღიზიანებით. დადგენილია პირის ღრუს სითხის ადგილობრივი იმუნიტეტის დარღვევა, რაც ვლინდება პროანთებითი ფაქტორების კონცენტრაციის მატებასა და სეკრეციული IgA-ს კონცენტრაციის შემცირებაში.

STUDY OF THE HYGIENIC CHARACTERISTICS OF THE ORAL CAVITY UNDER THE COMPLEX EFFECT OF PHOTODYNAMIC THERAPY AND TSKALTUBO SPRING WATER RADON HORMESIS

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Inflammatory periodontal diseases hold the second place in the frequency and prevalence of dental diseases. Periodontitis is a disease of the tissues around the tooth in which the connection between the tooth and the gum is disrupted. The pathological process gradually damages the tooth cavity, with the loss of periodontal tissues, the tooth loses its bone support and this causes loosening of the tooth [1-5,8].

Today every third person suffers from periodontitis of some degree. Risk factors for periodontitis can be: improper oral hygiene, caries, improper occlusion, improper load on the chewing apparatus, malnutrition, especially a deficiency of proteins and vitamins [1,2,9]. Saliva is of particular importance as a natural biological environment; it plays an important role in the vitality of teeth and periodontium. Saliva maintains oral homeostasis [6,10,21].

To maintain the homeostasis of mineral metabolism in the oral cavity, it is important to have a combination of hydroxyapatites, which indicates the normal functioning of saliva, in order to maintain homeostasis of the dental tissue. For this, photodynamic therapy is very important, which does not have side effects, which is based on a special chemical preparation – photosensitizer , which is locally activated by electromagnetic radiation. Thus, a photochemical reaction occurs that affects the tissue. Radiation effect on tissues can be carried out both in oxygen and in non-oxygen environment [11-13]. The mechanism of photodynamic therapy is presented as follows: a molecule of photosensitizer that absorbs a ray quantum, passes into an excited triplet state and enters into two types of photochemical reactions.

In the case of a type 1 reaction, the direct interaction with the biological substrate occurs, resulting in the formation of free radicals.

In reactions of type 2, the interaction of an active photosensitizer and dissolved molecular oxygen occurs [11-14] oxygen-dependent interaction of substances with a ray (the so-called type 2 photodynamic therapy) was discovered in 1898 by O. Raab.

Thus, with the help of the photosensitizer “Rada Dent” and the apparatus “Photodin-K”, it became possible to treat inflammatory diseases of the oral mucosa with non-invasive methods. In this case, we will use radon inhalations and rinses with radon water, because it is the alpha radiation of radon in the water of Tskaltubo that is very important in the regulation of inflammatory processes and the maintenance of oral cavity homeostasis. As it is known, in recent years, the publications [15-17] have appeared that deny the carcinogenic effect of small doses of radiation caused by radon therapy, and, conversely, it is believed that this dose is characterized by the so-called “hormesis”, thus, our area of interest is the determination of the mechanism of action of radon hormesis and its use to maintain the homeostasis of mineral metabolism in the mouth [16,17,24]. The radioactivity of the Tskaltubo mineral water ranges around 1 nq/l, about 37 nq/m^3 [18,22]. Radon therapy has a pronounced analgesic effect on inflammatory processes in the nervous tissue. It accelerates the regeneration of nerve tissue and nerve fibers [18,24,26]. Radon possesses antiseptic, antioxidant, cytoprotective, anti-inflammatory, anti-cellulite properties. It maintains the elasticity of blood vessels, prevents the development of atherosclerosis, and reduces the risk of cardiovascular diseases. It has regenerative properties, therefore, the uniqueness of Tskaltubo water and the determination of the mechanism of action of radon are very relevant and require significant study [20,23,27].

Without treatment, periodontitis eventually leads to the destruction of the alveolar ridge, loosening of the teeth and their loss.

In connection with all of the above, our main goal is to study the method of photodynamic therapy, which has become widespread in recent decades. This method of treatment has gained popularity in the treatment of both oncological and non-oncological inflammatory diseases in dentistry and other medical fields. Photosensitizer “Rada Dent”, apparatus “Photodin-K” and inhalation of Tskaltubo water with radon and the complex