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ANALYSIS OF PREVALENCE, STRUCTURE AND CLINICAL CHARACTERISTICS OF DENTAL DISEASES IN MILITARY PERSONNEL SERVING IN EXTREME CLIMATIC CONDITIONS.

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ABSTRACT

This article provides information on the causes, clinical course, and preventive measures for chronic generalized periodontitis in military personnel and in extreme climatic conditions. Nowadays, protecting the health of military personnel and maintaining their high level of combat readiness is one of the main factors in ensuring state security and defense capability, and extreme climatic conditions - very high or low temperatures, drought, wind, sharp changes in humidity, and fluctuations in atmospheric pressure - cause significant physiological and biochemical changes in the human body, including in the structures of the oral cavity.

Keywords. High or low temperatures, drought, wind, sudden changes in humidity, caries, gingivitis, periodontitis, chronic generalized periodontitis.

EKSTREMAL IQLIM SHAROITIDA XIZMAT QILAYOTGAN HARBIY XIZMATCHILARDA STOMATOLOGIK KASALLIKLARNING TARQALISHI, STRUKTURASI VA KLINIK XUSUSIYATLARINI TAHLIL QILISH

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ANNOTATSIYA

Ushbu maqolada harbiy xizmatchilarda va ekstremal iqlim sharoitida surunkali umumiy periodontitning sabablari, klinik kechishi va oldini olish choralari haqida ma'lumot berilgan. Hozirgi kunda harbiy xizmatchilarning sog'lig'ini himoya qilish va ularning yuqori darajadagi jangovar tayyorgarligini saqlash, davlat xavfsizligi va mudofaa qobiliyatini ta'minlashning asosiy omillaridan biri bo'lib, ekstremal iqlim sharoitlari - juda yuqori yoki past haroratlar, qurg'oqchilik, shamol, namlikning keskin o'zgarishi va atmosfera bosimining tebranishlari - inson tanasida, shu jumladan og'iz bo'shlig'i tuzilmalarida sezilarli fiziologik va biokimyoviy o'zgarishlarni keltirib chiqaradi.

Kalit so‘zlar. Yuqori yoki past haroratlar, qurg'oqchilik, shamol, namlikning keskin o'zgarishi, karies, gingivit, periodontit, surunkali umumiy periodontit.

«АНАЛИЗ РАСПРОСТРАНЕННОСТИ, СТРУКТУРЫ И КЛИНИЧЕСКИХ ХАРАКТЕРИСТИК ЗАБОЛЕВАНИЙ ЗУБОВ У ВОЕННОСЛУЖАЩИХ, НЕСУЩИХ СЛУЖБУ В ЭКСТРЕМАЛЬНЫХ КЛИМАТИЧЕСКИХ УСЛОВИЯХ»

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АННОТАЦИЯ

В данной статье представлена информация о причинах, клиническом течении и профилактических мерах хронического генерализованного пародонтита у военнослужащих и в экстремальных климатических условиях. В настоящее время защита здоровья военнослужащих и поддержание их высокого уровня боевой готовности является одним из главных факторов обеспечения государственной безопасности и обороноспособности, а экстремальные климатические условия — очень высокие или низкие температуры, засуха, ветер, резкие изменения влажности и колебания атмосферного давления — вызывают значительные физиологические и биохимические изменения в организме человека, в том числе в структурах полости рта.

Ключевые слова: Высокие или низкие температуры, засуха, ветер, резкие изменения влажности, кариес, гингивит, пародонтит, хронический генерализованный пародонтит.

Nowadays, protecting the health of military personnel and maintaining their high level of combat readiness is one of the main factors in ensuring state security and defense capability, and extreme climatic conditions - very high or low temperatures, drought, wind, sharp changes in humidity, and fluctuations in atmospheric pressure - cause significant physiological and biochemical changes in the human body, including in the structures of the oral cavity[3].

Under the influence of such factors, the protective mechanisms of dental tissues and oral mucosa weaken, mineral metabolism is disrupted, and the microbiological environment is disturbed. This leads to the accelerated development of dental diseases such as caries, gingivitis, and periodontitis[5].

According to the World Health Organization (WHO), periodontal inflammatory diseases are the second most common after caries and are one of the main causes of tooth loss among the adult population. According to recent studies, chronic disseminated periodontitis is diagnosed in more than 90% of adults in the CIS countries, including the Republic of Uzbekistan. At the same time, its frequency of detection among adolescents and young people is rapidly increasing, which indicates a large-scale and ongoing epidemic of inflammatory-destructive periodontal diseases [1,4].

Failure to timely diagnose and treat periodontal disease and the lack of an individual approach to treatment leads to progressive resorption of alveolar bone tissue, tooth loss, deterioration of chewing function, and a decrease in the quality of life of patients. Periodontitis is considered not only a dental disease, but also a systemic pathology associated with a violation of the regulation of chronic inflammation and immune mechanisms. Modern trends in world medicine are aimed at using molecular biological markers that allow for an accurate assessment of the degree of inflammation and tissue regeneration activity. Among them, special attention is paid to proteins such as periostin and transforming growth factor of fibroblasts (TGF-β), which are involved in the processes of regeneration and inflammatory response. However, the role of these biomolecules at different stages of periodontal disease has not been sufficiently studied. Furthermore, existing methods for assessing periodontal status are often based on subjective clinical observations and do not always allow for accurate prediction of disease progression or assessment of therapy efficacy. This necessitates the development of objective diagnostic criteria based on the analysis of biochemical and immunological parameters[3].

Research objectives: consists of identifying the development (pathogenetic) mechanisms of chronic generalized periodontitis in military personnel serving in extreme climatic conditions and improving the secondary prevention system aimed at their prevention.

Tasks of the research:

analysis of prevalence, structure and clinical characteristics of dental diseases in military personnel serving in extreme climatic conditions;

study and analysis of cyto-morphological changes in gum tissue in chronic generalized periodontitis caused by extreme climate;

development of a system of secondary preventive measures suitable for extreme climatic conditions in chronic generalized periodontitis among military personnel;

development of scientifically based recommendations for introduction into the practice of dental service in the military.

The research material and method. The study used anamnestic data, clinical, questionnaire, laboratory and statistical (t-Student and Pearson test) methods.

Results and discussion. Currently, methods and means for the diagnosis and treatment of periodontal diseases have been widely developed in dental practice, but their use does not always lead to the expected results [2]. The relationship between periodontal pathology and systemic disorders of the body has aroused special interest among specialists. New information is being revealed about the mechanism of development and features of the course of periodontal diseases in large and small functional disorders of hemodynamics, endocrine pathologies, and deficiency states of the body [1,7].

The subject of the study was the evaluation of the data of anamnestic, clinical, laboratory and dental examinations and analyzes of military personnel suffering from chronic generalized periodontitis in extreme climatic conditions, who received a course of complex dental treatment in combination with symptomatic drugs as a treatment.

Numerous studies have shown that endothelial dysfunction often leads to the formation of chronic inflammation in the periodontal tissue and the development of persistent microcirculatory disorders. The main role in the immunopathogenesis of periodontal disease is attributed to processes accompanied by an autoimmune reaction against periodontal antigens[2].

The presence of common immunopathological processes in the pathogenesis of periodontal disease and inflammatory diseases has been considered as another possible mechanism of interaction, for example, the formation of inflammatory dystrophic changes in the periodontium in patients with periodontal disease. On the other hand, generalized degenerative-inflammatory damage to the periapical tissues is an unsolved problem of practical dentistry. Local treatment measures in the oral cavity provide a temporary effect and do not counteract the progressive course of the disease, which confirms the need to assess its pathogenesis from the perspective of systemic mechanisms[4].

Currently, many researchers consider generalized periodontitis to be a polyetiological disease with various mechanisms of pathogenesis. Among the risk factors, impaired hemo-microcirculation and transcapillary metabolism, imbalance of

immune-component systems, and lack of antioxidant protection are of great importance[1]. Hemo-microcirculation disorders lead to the development of metabolic diseases in the periodontium, dystrophic and degenerative changes, and are the cause of the onset of inflammatory reactions [3]. In recent years, it has been established that biologically active substances produced by endothelial cells affect microcirculation, vascular tone, local hemostasis, and proliferation of blood tissue, and further research is being conducted on this topic. Assessment of endothelial cell dysfunction is a new and promising direction in modern medicine. Endothelial dysfunction is now considered not only as a sign of vascular diseases, but also plays an important role in the initiation, development and clinical manifestations of many diseases [5].

Material and methods. A study of dental diseases in patients with occupational exposures has revealed similarities in the pathogenesis of oral diseases. The high prevalence of inflammatory periodontal diseases is explained by poor oral hygiene and a large number of risk factors for dental diseases, including exposure to harmful occupational factors, including physical exertion, emotional stress, and hazardous work factors. Furthermore, the health of highly qualified specialists exposed to adverse occupational exposures is directly linked to their professional longevity; deterioration in health, including dental health, inevitably leads to a deterioration in professional performance [8].

According to domestic and international literature, stress, first described in dentistry by H. Selye in 1954, plays a significant role in the pathogenesis of periodontal diseases. Chronic psychophysical stress disrupts the body's adaptation and engages various levels of homeostasis regulation. This impacts the condition of the periodontium, where destructive processes occur, neurohumoral mechanisms are mobilized, and immunosuppression occurs [2].

Stressful exposure to the body leads to the development of muscular-articular dysfunctions, which, in turn, overloads periodontal tissues and triggers an inflammatory-destructive process. This disrupts hemodynamics and capillary permeability, leading to edema and diapedesis of blood cells, erythrocyte aggregation, embolism, and vascular thrombosis. This results in periodontal tissue hypoxia, leading to structural disruption. Musculoskeletal dysfunctions of the maxillofacial region as a result of stressful working conditions are observed in employees of extreme professions, which leads to violations of occlusion, interalveolar distance and, ultimately, to overload of periodontal tissues [3,5].

In addition to stress, there are other occupational factors, such as toxic substances, vapors, industrial noise, vibration, and aerosols. Exposure to these factors leads to metabolic disturbances in the human body, which also causes pathological changes in the oral cavity [5].

As is known, the oral microbiota plays a key role in the pathogenesis of periodontitis and exists in two forms: film and planktonic. The biofilm contains virtually all members of the oral microbiota, with varying amounts in different individuals at different stages of life.

Biotope formation undoubtedly occurs as a result of the vital activity of oral microorganisms, but the state of the macroorganism, environmental factors, diet, lifestyle, and occupational hazards play a decisive role [5]. Current understanding of dental plaque classifies it as a typical variant of microbial biofilm (a symbiosis of various bacterial species) that forms in a liquid environment. Considering dental plaque as a microbial biofilm leads to the discovery of the most effective methods for its identification, study, and mechanisms of influence on the formation and destruction of formed biofilm [2].

The ecological advantages of biofilm include facilitated access of nutrients and metabolic cooperation of microorganisms within the biofilm, which are provided by a system of tubules surrounding bacterial microcolonies, improving access to nutrients and removing toxic metabolites, as well as the acquisition of resistance to antibacterial agents [7].

The thickness of the microbial biofilm layer can increase under the influence of various pathological factors or in the presence of additional retention points in the oral cavity in combination with poor oral hygiene. 21 Invasion, as a factor of aggression, is preceded by adhesion to cellular structures, and a sequential replacement of microorganisms occurs, which is one of the important forms of microbial interaction [5].

Conclusions.

1. Diagnostic criteria of chronic generalized periodontitis in military personnel serving in extreme climatic conditions were improved based on the assessment of clinical, morphological and biochemical characteristics;

2. By identifying the cyto-morphological changes that occur in gum tissues under the influence of extreme climate, the possibilities of early detection of the stages of the disease were developed, and based on the climatic, hygienic and physiological characteristics of the military personnel, a specially oriented secondary prevention system was created;

3. The developed prophylactic system was tested in clinical conditions and its practical effectiveness was confirmed - the incidence of recurrence of the disease decreased and the morphofunctional condition of gum tissue improved;

4. Scientifically based methodological recommendations and practical guidelines were developed for use in military dental service practice. These recommendations serve to improve the sanitary-hygiene work in military units and increase the effectiveness of preventive dental care.

References

1. Prokhvatilov G.I., Shelkovsky V.N. Chronic odontogenic infection and its role in the development of diseases of internal organs (infective endocarditis). Lecture. SPb.: VMedA. 2010; 32 p.
2. Wagner V.D., Nimaev B.Ts. Current tasks of further implementation of the specialty of general (family) dentist in the healthcare system. Stomatology. 2007; 86 (1): 68-69.
3. Iordanishvili A.K., Kovalevsky A.M., Novikova N.V. Dental morbidity of sailors. Marine Med. J. 1996; 4: 9-12.
4. Konarev A.V. Prevention of dental caries: diet or fluorides. Dentistry for everyone. 1998; 2: 34-35.
5. Sadokov G.I. Ship's medical journal of the screw corvette "Askold". Medical supplement to the Marine collection. 1868; 7: 57-59.
6. Zaripova E.M., Mingazova E.N., Iordanishvili A.K. Improving the therapeutic and preventive work of a dentist of the medical unit of a river shipping company. Periodontology. 2009; 1: 57-59.
7. Klyukin I.I. Noise and sound vibration control on ships. Leningrad: Sudostroenie. 1971; 416 p.
8. Borovsky E.V., Leus P.A. Dental caries. Moscow: Meditsina. 1979; 256 p.
9. Fedorov Yu.A. Oral hygiene. L.: Medicine. 1987; 64 p.
10. Varavva G.N., Bazhan A.V. Prevalence and intensity of major dental diseases among shipboard personnel. Dental Bulletin. 1995; 2: 132-134.
11. Gordienko V.G. Prevalence of dental caries and periodontal diseases among Kaliningrad sailors. Stomatologiya. 1999; 2: 65-67.
12. Suddick R.P., Harris N.O. Historical Perspectives of Oral Biology: A Series. Crit. Rev. Oral Biol. Med. 1990; 1 (2): 135-151. doi: 10.1177/10454411900010020301.
13. Opravin A.S., Pyankov S.M. Dental morbidity of the Northern Shipping Company. Stomatologiya. 1989; 68 (2): 68-69.
14. Strakhov A.P. Adaptation of sailors on long ocean voyages. L.: Medicine. 1976; 128 p.
15. Ulitovsky S.V. Oral cavity condition in long-distance sailors. Stomatologiya. 1986; 65 (3): 74-75.
16. Sasaki Y., Takahashi Y., Arita K. et al. Assessment of periodontal treatment needs in Japan maritine self-defense force by CPITN. Bull. Tokyo Dent. Coll. 1988; 29 (1): 21-25.