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.*

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

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[2].

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[4].

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 [1,5].

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].

In our country, targeted and practical measures are being taken to reform the healthcare system and bring it into line with global requirements, including measures to develop effective ways to prevent, improve the effectiveness of complex treatment and early diagnosis of dental diseases in military personnel serving in extreme climatic conditions. In this regard, part 4 of the 7 priority areas outlined in the Strategy for the Development of New Uzbekistan for 2022-2026, goal 56, sets out tasks such as implementing a comprehensive set of measures aimed at protecting the health of the population, increasing the potential of medical workers, and implementing the program for the development of the healthcare system for 2022-2023. In this regard, it is indicated that the implementation of the practice of improving the treatment of oral mucosal diseases and dental diseases in military personnel serving in extreme climatic conditions is considered one of the relevant scientific directions [4,6].

A number of works have been carried out in our republic to study various aspects of periodontal diseases (Abduvakilov Zh.U. 2016; Bekzhanova O.E. 2010; Rizaev J.A. 2020; Khaidarov A.M. 2016; Rizaev E.A. and others). However, despite the accumulated theoretical data, the problem of a comprehensive assessment of the diagnostic value of markers of inflammation and tissue remodeling in chronic disseminated periodontitis has not yet been sufficiently resolved. This confirms the need for systematic clinical and laboratory studies to verify the informativeness of these markers and justify their use in personalized treatment of periodontal diseases.

Periodontal diseases are one of the main and most complex problems in the structure of oral diseases in modern dentistry. According to WHO, a healthy periodontium occurs in only 2-10% of the population, the main place is occupied by generalized periodontitis [3]. Its prevalence is high among the pathological processes of the oral cavity, periodontal disease was detected in 98% of those examined in Russia [5].

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 [3]. 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 [1,5].

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[3].

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[6].

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 [4]. 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 [4].

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