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MODERN VIEW ON THE PATHOGENESIS OF PERIODONTITIS

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ABOUT ARTICLE

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Abstract: Periodontal diseases are one of the most difficult and common problems in modern dentistry, the importance of solving which is beyond doubt.

INTRODUCTION

According to the World Health Organization (WHO), periodontal diseases occur in different regions, amounting to 55.0-99.0% in people aged 15-20 years and 65.0-98.0% in people aged 35-44 years. According to WHO, the factors causing human diseases are heredity, environmental conditions and lifestyle. Numerous scientific studies indicate that insufficient oral hygiene is one of the main causes in the etiology of periodontal diseases, along with the general immune status, the presence of common medical diseases, genetic predisposition, etc. Fedorov Yu.A. and Koren V.N. found that with regular oral care, the incidence of periodontal diseases is very low - 30.4%, whereas with unsystematic care they occur in 40% of cases, and without it - in 50%. Since all inflammatory periodontal diseases develop against the background of progressive pathological changes in the oral cavity, this directly affects the local immune status of the oral cavity. Poor oral hygiene is one of the main factors in the formation of plaque and biofilms, which consist of specific microflora, have high periodontological pathogenicity and are considered the main etiological factor in the development of inflammatory processes in periodontal tissues. The main role in the formation of plaque is played by microorganisms and their waste products. Improper and irregular brushing of teeth leads to the rapid growth of colonies of microorganisms. For example, after four hours, the number of microorganisms in plaque reaches about 103-104 per mm2 of

tooth surface. If the rules of oral hygiene are not followed during the day, the number of bacteria increases by orders of magnitude. The main actors here are streptococci, which attach to the pellicle and synthesize homopolysaccharides from sucrose; After three days, the accumulation of bacteria along the gingival margin creates favorable conditions for bacterial growth and changes the composition of the bacterial flora. In addition to plaque flora, anaerobic flora, i.e. endotoxins of periodontal pathogenic microorganisms, plays an important role in the formation of the inflammatory process in periodontal tissues; According to WHO, the anaerobic flora is mainly represented by anaerobically breathing species, highly aggressive, adhesive and toxic to periodontal tissues, characterized by the fact that it contains not one, but several microorganisms involved in the formation and progression of periodontitis, a complex (association) of microorganisms associated with periodontal diseases. In addition to oral hygiene, local factors predisposing to the development of inflammatory diseases of periodontal tissues include various anomalies of the maxillofacial region, attachment of nodes of the lips and tongue, pathological occlusion, dental plexus, shallow vestibule - News of higher educational institutions.

METHODS

Samarkand region 120 Proceedings of the University. Samarkand r region, pronounced protrusion of the mucous membrane, bruxism, vicious habits, etc. Vices such as cigarette smoking, which is one of the risk factors for periodontitis, deserve special mention. Nicotine suppresses the vascular response usually associated with gingivitis and periodontitis, which leads to a sharp decrease in the immune response. Nicotine leads to the destruction of periodontal tissues by regulating the release of cytokinins, which probably explains the less pronounced inflammation and bleeding of the gums in smokers. Another role in the etiology of chronic inflammatory processes in periodontal tissues is attributed to the immune system. Macrophages, lymphocytes and mast cells constantly migrate to the surface of the gum, instantly react to changes in the external environment and quickly switch to protective mechanisms. The inclusion of specific links of immune protection in the pathogenesis of inflammatory periodontal diseases is evidenced by the high frequency of positive skin tests for gingival antigens in patients with periodontitis. A number of microbial products (exotoxins and endotoxins) have been identified as activators of pathways through macroorganisms. Scientists have given the name "modulins" to substances with such microbial properties. Numerous studies by domestic and foreign scientists have demonstrated a certain relationship between inflammatory periodontal diseases and general systemic pathologies. Examples of such conditions are cardiovascular, diabetic, atherosclerotic, gastrointestinal, respiratory, diseases of the central nervous system and immunodeficiency conditions.

Thus, in the general structure of internal pathology, coexisting with systemic periodontitis, diseases of the cardiovascular system (CVS) account for up to 68%, depending on the type of pathology: hypertension - 26%, coronary heart disease (CHD) - 10.5% and neurocirculatory disorders - 68% [24]. It is also noteworthy that the index of peripheral vascular resistance of the periodontal complex increases with the progression of chronic periodontitis, and further deterioration of blood flow in patients with various forms of coronary heart disease, including type 2 diabetes mellitus, has been reliably demonstrated. The relationship between the oral cavity and the gastrointestinal tract predisposes to the development of periodontal diseases. It was found that the prevalence of periodontitis in patients with diseases of the gastrointestinal tract, chronic pancreatitis, peptic ulcer of the stomach and duodenum is 1.5 times higher than in healthy people. In addition, modern researchers have demonstrated favorable dynamics of local immunological parameters after treatment of bacterial dysbiosis in patients with stages I and II of systemic periodontitis, which is another proof of the close relationship between diseases of the oral cavity and gastrointestinal tract. Pathological similarities are also observed in diseases of the ENT organs and oral cavity. In patients with bronchial asthma, a decrease in the properties of the oral mucosa is one of the main factors. To suppress bronchial asthma attacks, the administration of medications, especially inhaled glucocorticoids, is require. It has been proven that these drugs reduce local immunity in the oral cavity, creating favorable conditions for the growth of oral microflora and other pathogenic factors. Mild inflammation of periodontal tissues is observed in patients undergoing treatment for chronic kidney disease with intensive anti-inflammatory therapy. Metabolic changes are also observed in periodontal tissues. In more severe clinical cases, even mild periodontitis is accompanied by a recession of the periodontal edges and increased sensitivity of the hard tissues of the teeth. In children, renal osteodystrophy is manifested by changes in bone and cartilage tissue and resembles rickets clinically, hence the term "renal rickets" for this condition. Osteomalacia develops in adults, the pathogenesis of which is mainly associated with disorders of vitamin D metabolism. There is also the concept of "hepatic rickets" or "hepatic osteomalacia", which occurs in chronic hepatitis and cirrhosis of the liver. This condition occurs when the liver is affected in childhood. This condition is associated with stunting, developmental delays, and even dwarfism. Vitamin D, that is, its endogenous deficiency, also plays an important role in the mechanism of development of osteoporosis in liver damage. Alveolar bone atrophy increases in patients with chronic liver damage. Pathology of the pituitary-adrenal system is another etiological factor in the development of periodontal diseases. It is known that taking glucocorticoids causes partial resorption of the bone tissue of the alveolar process. Cortisol reduces the activity of osteoblasts of the alveolar bone, causes the destruction of collagen fibers and promotes osteoclastic resorption of bone tissue. The increased

atrophy of the alveolar bone under the influence of glucocorticoids is explained by their catabolic effect. Suppression of bone tissue formation and increased production of glucocorticoids may be due to hyperplastic processes in the adrenal glands or increased production of adrenocorticotropic hormone in the anterior pituitary gland (Cushing's disease). Similar effects occur as a result of a primary or secondary increase in the activity of the perithyroid glands that produce parathyroid hormone. This condition often develops with hypoestrogenemia as a result of an early decrease or cessation of female gonadal function. In this endocrinopathy, changes in periodontal tissues mainly reflect skeletal osteoporosis. The importance of the nervous system in the dynamics of inflammation is beyond doubt. Under the action of any pathogenic factor, the nervous system and its trophic function are involved in the process primarily or secondarily. It has been established that with short-term negative emotions, a prolonged increase in vascular tone occurs in periodontal tissues. The level of catabolic glucocorticoids in the blood increases, slowing down cellular regenerative processes. Lipid peroxides are activated in tissues, which leads to an increase in the content of free radicals and toxic effects on cells. Chronic psychological stress also has a detrimental effect on periodontal tissues. In this case, metabolism is disrupted in periodontal tissues, mainly due to an increase in the lipid content and increased formation of lipid peroxide. Lipid peroxide is pathogenic to periodontal tissues and promotes degeneration of periodontal tissues. As you know, acquired immunodeficiency syndrome affects many organs and systems, but, of course, the disease also manifests itself in the oral cavity. Periodontal lesions are a typical manifestation in HIV-infected people. Periodontal lesions usually develop with a low CD4/CD8 ratio, and their severity depends more on the degree of decrease in the number of CD4 cells than on the frequency of plaque or the presence of specific microorganisms. Many authors point to microcirculatory disorders as a trigger mechanism for the development of periodontal diseases. The microcirculatory system is a highly sensitive system and therefore reacts to the appearance of various pathogenic factors long before the appearance of clinical signs of inflammation. Chronic microcirculatory changes in the periodontal ligament are associated with a violation of leukocyte-platelet-endothelial balance. In pathology, aggregation and adhesion of blood cells to the vascular endothelium is observed during their passage through the microcirculatory bed, which can lead to obstruction of the capillary network with the development of periodontal tissue hypoxia. It should be noted that functional changes in the periodontal vascular network are responsible for the development of periodontal tissue hypoxia, not morphological ones. Under these conditions, the oxygen supply to periodontal tissues is significantly reduced to a level insufficient to maintain cellular function, metabolism and structure. In recent years, routine oral hygiene in our country, especially among organized groups of the population, has been significantly inferior to the hygiene needed by individuals. Given that the treatment of periodontal

diseases is a gradual process that requires great effort and knowledge, it is obvious that timely and proper prevention and elimination of local and general etiological factors can help reduce the likelihood of developing this disease. In addition, an important role is played by the interest and literacy of the population in matters of oral hygiene and self-detection of periodontal diseases in the early stages.

CONCLUSION

All patients undergoing dental treatment for the first time should be motivated to ensure thorough oral hygiene using various personal hygiene products and quality control of all subsequent operations. It is also important to inform patients about the key role of microbial factors in the occurrence and development of inflammatory periodontal diseases. One of the main tasks facing the doctor is to organize hygienic measures for each patient, including monitoring oral hygiene. This is the basis of hygienic education.

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