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Research Article

ETIOPATOGENETIC FACTORS IN THE DEVELOPMENT OF PARODONTAL DISEASES IN POST-MENOPASIS WOMEN

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ABSTRACT

The postmenopausal period of women's life is characterized by metabolic disorders in various tissues, including the dentition, in the form of tooth loss, periodontal disease, increased resorption of the alveolar and jaw bones (Khokhlova E. Yu., Volozhin A. I., Markov B. P. and others, 2015). The high prevalence of dental diseases in postmenopausal women and the difficulties encountered in their treatment and prevention are largely due to insufficient knowledge of the pathogenesis. In recent years, a large number of works have been devoted to studying the nature of the relationship between systemic osteoporosis and generalized periodontitis, however, the available information is contradictory and requires additional research (1, 4).

KEYWORDS

Postmenopausal period, periodontal disease, taste analyzer, chronic generalized periodontitis.

INTRODUCTION

In the age period of menopause, irreversible violations of the hormonal activity of the ovaries develop, the amount of estrogens decreases. In particular, in this period there is an increasing development of various

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diseases [8]. A study of the dental condition of the female body during menopause confirmed the presence of a correlation between a reduced amount of estrogens and a significant increase in the development of dental diseases [9, 3]. Based on the fact that the oral mucosa and salivary glands include receptors for estrogen-containing hormones, disturbances at the level of hormonal changes can be detected in the oral cavity itself [4, 12]. Lamolo-Vartare and co-authors proved the existence of mRNA and immunoreactive protein of estrogen-containing hormone in the mucosa and salivary glands, which at the same time prove its biological place [4]. In this regard, the period of menopause is a violation of metabolism and work in the tissues of the oral cavity [1]. As a result, there is a loss of teeth, damage to periodontal tissues, high resorption of the bone septa of the alveolar processes [5, 8; 6].

Oral fluid and saliva are essential essential in maintaining a healthy oral cavity. A decrease in oral fluid secretion increases the risk of carious lesions, inconvenience in the oral cavity and the development of thrush. The total volume of amylase, calcium and phosphorus remains unchanged, and the acidity of saliva decreases. Over time, oral fluid or saliva begins to become even thicker, its secretion decreases - salivation, because the content of ptyalin decreases, and mucin and lysozyme increases [2, 5].

Most authors in their studies have found that with a decrease in the content of estrogens in the female body, in 40% of cases it leads to osteoporotic changes in bone tissue, which is a decrease in bone mass and density [12, 5]. Osteoporosis tends to develop in older people, with younger women affected more often than men. It was revealed that increased bone metabolism develops 4-5 years ahead before the onset of menopause [10]. Under conditions of weakening of the activity of osteoblast cells, the release of bone tissue matrix increases the development of bone erosion by osteoclast cells.

The course of osteoporosis lasts slowly and without pronounced symptoms [4, 7]. According to a series of analyses, osteoporosis should be considered as a risk factor for the progressive course of periodontitis. Due to the fact that the defeat of the bone skeleton in osteoporosis is accompanied by the disappearance of the periodontal junction, teeth and bone height of the alveolar process [5, 8]. During the examination of the periodontal status of women in the period of menopause accompanied by osteoporosis, S. Falids-Villiams established a much significant depth of periodontal pockets and a decrease in the ligamentous apparatus in relation to those age control groups in which osteoporosis was not detected [12].

For practitioners, there is a question of choosing an adequate complex therapy for chronic generalized periodontitis in postmenopausal women. Given that bone resorption processes prevail in osteoporosis, certain features should be assumed when planning the treatment of chronic generalized periodontitis in such cases.

One of the likely etiological factors is low bone mineral density of the facial skeleton in the postmenopausal period (Norderyd O.M. et al., 2013).

Currently, there are practically no well-reasoned data on the use of medications that correct mineral metabolism in the complex treatment of periodontitis, in particular, there is not enough data on the effect of antiresorptive drugs on osteogenesis of the alveolar bone.

Studies of dentists and osteologists have determined the role of hypoestrogenemia in postmenopausal

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women in the development of systemic osteoporosis and pathological processes in periodontal tissues.

It has been noted that systemic osteoporosis caused by estrogen deficiency in menopausal women extends to the dentition. This is manifested in a decrease in the height of the tops of the interdental septa, the appearance of foci of osteoporosis in the body of the lower jaw, and a decrease in the density of the alveolar process (E.C.Shen, C.H.Gau, Y.D.Hsiehet et al., 2014). At the same time, the nature of the development of inflammatory periodontal diseases in postmenopausal women, its structure, prevalence, and clinical and diagnostic features have not been studied enough.

All this together was the premise of the present scientific work.

The purpose of this study is to study the etiological pathogenetic features of periodontal tissue diseases in women in the postmenopausal period of life.

Periodontal diseases are one of the most common inflammatory and destructive diseases, which has been recorded in 4 billion people worldwide [4, 2]. Along with this, the attendance of patients to dental clinics with periodontal diseases has increased, which represents 65% of all visits to the dental office [9, 4].

The formation and development of inflammatory-destructive lesions of periodontal tissues is associated not only with local, but also with general factors. According to a number of surveys, periodontal tissue diseases are detected in 81% of women who are in the menopausal period, moreover, among these diseases of various forms, periodontitis is most common [3, 9].

RESULTS AND DISCUSSION

The conducted studies made it possible to analyze that great importance is given to the impact of a lack of estrogen-containing hormones on the formation of periodontal tissue diseases. D. Darpa and G. Jann studied periodontal tissues in postmenopausal women. They studied 95 women, with an average age range of 54-55 years, and an average menopause duration of 9.33 years. Bleeding index on probing (BOP) was set at 53.55 and periodontal index was PI=4.44. 12 women had a mild degree of chronic periodontitis, 35 had moderate periodontitis, and 29 had deeper destructive changes in periodontal tissues. These survey indicators suggest that females in the postmenopausal period are at a dangerous risk of being affected by severe inflammatory and destructive forms of chronic periodontitis.

Numerous data on the study of the pathogenesis of periodontal diseases have demonstrated the direct and indirect effects of periodontopathogenic microorganisms on the holistic state of the body. Modern epidemiological, clinical, functional and laboratory experimental studies prove a correlation between microbial invasion of blood or an inflammatory process characterized by lesions of periodontal tissues and concomitant diseases of the body as a whole [9, 4].

N. Naozi and co-authors established a correlation between periodontal disease in women during menopause with an increased risk of tumor formation of the breast, esophagus, lungs, gallbladder and melanoma. This follows from the fact that periodontal pathogens are likely to be able to penetrate the esophagus through the oral fluid, by inhalation into the lungs, including in a single circulation, to reach hard-to-reach areas. Most scientific research has been carried out on the etiology of periodontitis that enters many body processes , including lymph nodes, arteries, lungs.

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Periodontitis is a multifactorial disease initiated by bacterial pathogens, generating a protective reaction with another loss of the connective tissue structure, the formation of deep periodontal pockets, loss of alveolar bone tissue and are the main cause of tooth loss [7, 6]. In addition, in the formation of periodontitis, a separate mood, dangerous habits, malnutrition, lack of trace elements, uneven bite, changes in blood circulation in microvessels and general lesions are of no small importance. As a result of the fact that a large number of causal factors act on the formation and progressing course of inflammatory-destructive diseases of periodontal tissues, signs should be established to prevent the formation of periodontitis in the initial phases.

The bioecology of the oral cavity, among bacterial associations, is considered one of the most difficult microbial floras of the human body, which contains over 500 different types of microbes. The main role in the formation of lesions of periodontal tissues is a bacterial sign of development, and the diversity of microbioecology of the oral cavity, entering into a sequence of immuno-specific reactions, causes the formation of inflammatory-destructive changes in periodontal tissues. As a result of an increase in the number of pathogenic and conditionally pathogenic bacteria, the concentration of representatives of ordinary microbioecology decreases.

It has been established that dental plaque, as the multiplication of bacteria and the results of the accumulation of their products, is the main causal feature that exhibits a mechanical-physical and chemical-biological effect. The decomposition products of microorganisms of well-digestible carbohydrates (sucrose, glucose) entail the appearance of organic acids, which play a leading role in reducing the pH of the oral fluid and disturbing the mineralization of tooth enamel. Dental plaque is a long-term development and strong fixation to tooth enamel, as a result of the synthesis of polysaccharides by microorganisms - dextrans and levans. As the plaque develops, there is an increasing shift from Gram-positive to more Gram-negative anaerobic types.

Changes in periodontal tissues are stimulated as a result of the reproduction of dental plaque, which contains pathogenic and opportunistic bacteria. This exposes to the destruction of periodontal tissues: the expansion of the gingival groove, the formation of a periodontal periodontal pocket, the destruction of the connection of the gum to the root surface. In addition, the development of plaque leads to its passage under the gingival end, leading to loss of alveolar bone and gingival loss. The speed of plaque formation is determined by the diet, oral hygiene, quality and quantity of oral fluid.

S.K. Sokrskay established 5 main microbial bacteria that take part in the course of inflammatory and destructive changes in periodontal tissues: Porphyromonas gingivalis, Aggregatibacter actinomycetemcomitans, Prevotella intermedia, Treponema denticola, Tanerella forsythia. Periodontal pathogens with the participation of indicators of pathogenicity activate the result of each other.

E. Karkuma and Y. Normutra, found a relationship between the presence of P. intermedia, P. gingivalis, T. Denticola and Prevotella nigrescens in oral fluid or saliva model samples and the development of periodontitis. In the meantime, T. forsythia and A. actinomycetemcomitans were not reliably detected in either oral fluid or saliva samples or periodontal periodontal pockets.

Aggregatibacter actinomycetemcomitans, a non-moving, gram-negative, facultative anaerobic

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coccobacillus, is associated with microbial bacteria related to the development of inflammatory-destructive lesions of periodontal tissues, in appearance: a rod with round edges. Established five serotypes of A. actinomycetemcomitans, which are distinguished from one another by the type of virulence. The time of observation of A. actinomycetemcomitans in dental plaque is varied. At that time, A. actinomycetemcomitans was found in 0–25% of healthy children and in 41–100% of those examined with lesions of periodontal tissues [1, 7]. A. actinomycetemcomitans bind poorly to other microbial bacteria. Using adhesin peptides, A. actinomycetemcomitans associates with and destroys transferred collagens of species I, II, III, V and fibronectin. A capsule-like polysaccharide antigen protects A. actinomycetemcomitans from phagocytosis. A. Actinomycetemcomitans with the help of a process, fixing to the outer surface of epithelial cells, leads to the formation of a vacuole in the cytoplasm, and breaks into the cell membrane, leading to its death.

The diagnosis of lesions of periodontal tissues is based on clinical and functional, which is a survey, examination of patients, analysis of the dental and periodontal condition (determination of the deepening of periodontal pockets, bleeding gums, periodontal and hygienic indices) and X-ray examination, which reveals the height of the alveolar bone.

According to a number of studies, the progression of periodontal tissue diseases entails the reproduction of individual specific microbial flora. Produced by periodontal pathogens T. forsythia, P. intermedia, T. denticola, P. gingivalis and A. actinomycetemcomitans, exo- and endotoxins set the duration of the inflammatory-dystrophic process, causing damage to the gingival tissue and alveolar bone.

The most necessary methods for diagnosing periodontal pathogens are electron microscopic, bacteriological and molecular genetic. The electron-microscopic type of diagnostics determines the generalized parameters of the microbial flora, which does not reveal the type of microorganism. The generally accepted microbiological type of diagnosing periodontal tissue lesions, which is a bacterial culture on individual nutrient media with the upcoming recognition of their genus and species, has several disadvantages: it costs to establish an irreversible course of destructive changes in periodontal tissue, the duration of analyzes is from 5 to 7 days, the obligation the use of individual-specific nutrient agars and the organization of the necessary requirements for their cultivation.

Premature detection of bacteria, prevention of their reproduction to prevent inflammatory and destructive changes in periodontal tissues is considered an important link in innovative periodontology. Today, the most truthful, relevant type of diagnosis is the molecular genetic type of diagnosis, namely the polymerase chain reaction (PCR), which contributes to the achievement of a significant increase in the low saturation of the desired nucleic acid fragments (DNA) in the biological basis.

CONCLUSIONS

In accordance with the above data, it is possible to talk about the probable and necessary use, along with the usual, generally recognized forms of therapy for chronic generalized periodontitis in postmenopausal patients, of a complex of therapeutic and preventive

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measures that restore the normal content of homocysteine in the blood, improve bone structure and eliminate inflammation. in soft and hard periodontal tissues.

The above allow us to conclude that, according to the results revealed during the scientific examination, it is possible to determine that the probability of correlation and the probable effect of hyperhomocysteinemia on the development of chronic generalized periodontitis in postmenopausal patients, which we have set above, has been proven.

The use of the proposed set of therapy in the treatment of inflammatory phenomena of the periodontium in patients in the postmenopausal period favored a significant positive development of inflammatory phenomena.

This phenomenon can be interpreted not only by the action of a complex of therapeutic measures on the level of homocysteine, but also by the estrogen-like effect of high concentrations of folic acid.

The place of the lack of estrogen-like hormones in the development of inflammatory phenomena, as the main remodulating agents of the connective tissue, is thus previously confirmed and does not present the slightest doubt at this time.

Concluding that the complex treatment proposed by us causes a multifunctional positive effect on the body of postmenopausal women, as well as on the picture of periodontal tissues, which is well manifested both in the periodontal health of the subjects and their social and household activities. The recommended treatment can be offered in the complex treatment of inflammatory periodontal diseases.

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