



PERIODONTITIS AND GENERAL DISEASES – MUTUAL INFLUENCE, DIAGNOSIS AND TREATMENT.

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ABSTRACT

Periodontitis and the above systemic diseases are considered through common pathogenetic mechanisms associated with systemic inflammation. The postmenopausal period of women's life is characterized by metabolic disorders in various tissues, including the dental system, in the form of tooth loss, periodontal damage, and increased resorption of alveolar and jaw bones. At present, the high prevalence of dental diseases in women in the postmenopausal period and the difficulties that arise in their treatment and prevention are largely due to insufficient knowledge of the pathogenesis.

In recent years, a large number of studies around the world 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.

There are over 50 million women in the CIS countries arrive in the peri- and post-climacteric periods, while one third women remain living in a state of deficiency of female sex hormones. Periodontitis is a multifactorial disease that occurs under the influence of periodontopathogenic microflora, accompanied by bone loss, the formation of deep periodontal pockets and is the cause of tooth loss. Susceptibility to periodontitis is influenced by both the reactions of the macroorganism and additional risk factors: heredity, systemic diseases, habits, social factors, stress, etc. Considering that osteoporosis is dominated by bone resorption processes, certain features should be assumed when planning treatment for chronic generalized periodontitis in such cases.

In our country, active measures are being taken to develop the medical sphere, in particular to reduce dental diseases and their complications, as well as to provide qualified medical care to the population suffering from dental diseases, and the following tasks have been set: "Strengthening support for a healthy lifestyle and disease prevention, including standardization of the health care system, the introduction of high-tech diagnostic and treatment methods, effective models of patronage and medical examination, efficiency, quality and accessibility of medical services". These tasks determine the priorities of in-depth scientific research, such as improving the level of modern medical care, diagnostics and

treatment of complications of dental diseases among the population, the use of modern technologies to provide quality medical care.

Objective of the study: To improve the efficiency of diagnosis and treatment of periodontal diseases in postmenopausal women.

Materials and methods. The study involved an in-depth examination of the main parameters of periodontal tissue condition in 75 postmenopausal women aged 45-55 years. These patients were divided into two groups: the main group (45 people) and the control group (30 people). The control group was treated with a generally accepted traditional method, while the patients in the main group were given an advanced treatment method in addition to the traditional one.

All examined women were subjected to clinical, functional, immunological, and statistical research methods.

During examinations, the hygienic condition of the oral cavity was taken into account, according to the hygiene index (HI) (Green, Vermillion), the gingival bleeding index (IB) (Muhlemann), and the PMA index (modified by Parma).

The depth of periodontal pockets was measured on four sides of the teeth using a periodontal graduated probe. Three sextants (anterior and two lateral) were identified on each jaw, in which the greatest depth of the periodontal pocket was recorded.

For a comprehensive assessment of the condition of periodontal tissues, the periodontal index (PI) (Russell) was used.

To determine the concentration of sodium, potassium and calcium ions in oral fluid, an AVL electrolyte analyzer and the principle of ion-selective electrodes (ISE) were used. The concentration of hemocysteine in serum was determined using Axis diagnostic kits (Norway). Interleukin-6 (IL-6) and endothelin-1 (ET-1), a marker of damage, were determined in serum using the Multiscan enzyme immunoassay Labsystem (Finland).

Results of the study. Hygienic condition and clinical and laboratory parameters of the oral cavity in postmenopausal women The hygienic condition of the oral cavity was assessed. The results of the Green- Vermillion index indicate (Table 1) that no serious differences in the hygienic picture of the oral cavity were found among women diagnosed with generalized periodontitis of moderate and mild severity.

Table 1

Results of the Green-Vermilion Oral Hygiene Index in Postmenopausal Women with Chronic Generalized Periodontitis

Parameters under study	Postmenopausal period				
	HGPLST (n=25)	HGPSST (n=29)	R ₁	HGPTST (n=21)	R ₂
GI according to Green-Vermilion	1.58±0.18	1.82±0.17	0.335	3.18±0.37	< 0.003

Note: P₁ - statistical significance of differences among groups with mild and moderate degrees of generalized periodontitis; P₂ - statistical significance of differences among groups with moderate and severe degrees of generalized periodontitis (Mann - Whitney , U - test).

The examined postmenopausal women with worsening periodontitis showed a significant deterioration in the main periodontal parameters, which was confirmed in particular by the values of the papillary-marginal-alveolar index (PMA), which characterizes the prevalence of the inflammatory process of the gums (Fig. 1). According to the data obtained, in women in the group with moderate periodontitis, the PMA index values were 25.07% higher compared to those in women with mild disease. In patients with severe damage to periodontal tissues, an even greater increase in the PMA index

values was noted, which exceeded the results of the studied parameter in women with moderate generalized periodontitis by more than 16.83%.

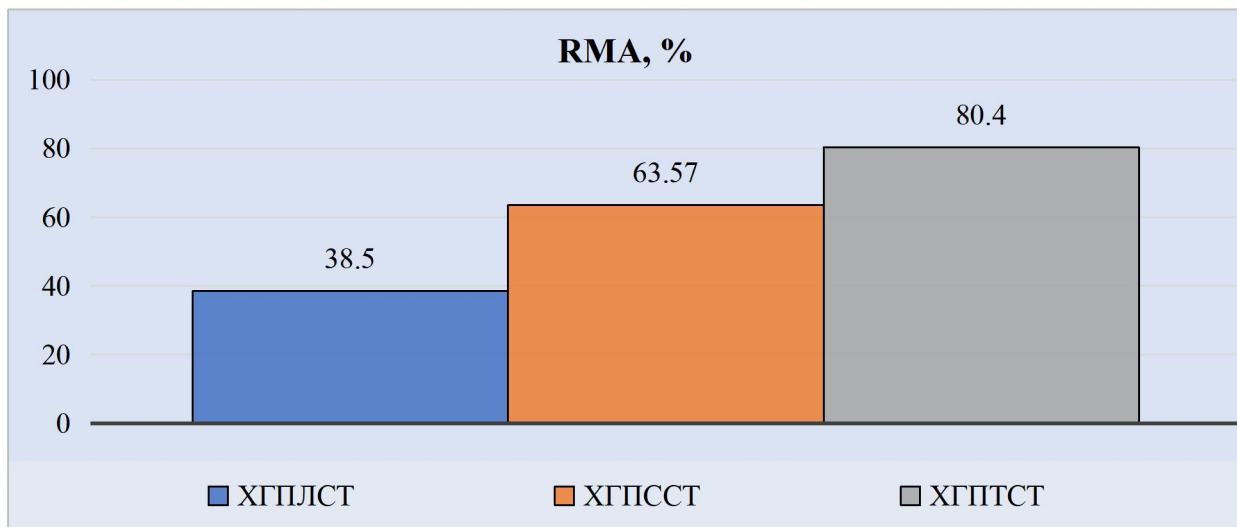


Figure 2. Papillary-marginal-alveolar index in postmenopausal women with chronic generalized periodontitis

The results of the study of gingival bleeding according to Mühlemann showed (Table 2) that in a large number of patients with mild generalized periodontitis this parameter received 2.25 points (a spot was determined during light probing of the gingival fossa), and in patients with moderate generalized periodontitis 3.21 points (during light probing the gingival gap was filled with blood). Bleeding of the gingival tissue was even more pronounced in patients with severe generalized periodontitis and received about 3.68 points (blood was poured into the gingival groove and oozed beyond its borders).

Table 2

Parameters of gingival tissue bleeding according to Mühlemann in patients with chronic generalized periodontitis in the postmenopausal period ($X \pm m$)

Parameters under study	Postmenopausal period				
	HGPLST (n=25)	HGPSST (n=29)	R ₁	HGPTST (n=21)	R ₂
Bleeding gums according to Müllemann, points	2.25±0.11	3.21±0.13	P< 0.03	3.68±0.12	P< 0.002

Note: P₁ - statistical significance of differences among groups with mild and moderate degrees of generalized periodontitis; P₂ - statistical significance of differences among groups with moderate and severe degrees of generalized periodontitis (Mann - Whitney, U - test).

In the studied patients with generalized periodontitis of moderate severity, significant damage was found in the depth of the periodontal pockets in the area of both lateral and anterior sextants of both jaws when compared with similar lesions in mild generalized periodontitis in the area of periodontal tissues. This kind of correspondence of the studied values was also noted when comparing chronic generalized periodontitis of moderate and severe severity in postmenopausal patients (Table 3).

Table 3

The depth of periodontal pockets in patients with chronic generalized periodontitis in the postmenopausal period, mm ($X \pm m$)

Parameters under study	Postmenopausal period				
	HGPLST (n=25)	HGPSST (n=29)	R ₁	HGPTST (n=21)	R ₂

Depth of periodontal pockets, mm					
sextants upper side	3.29±0.06	4.21±0.07	P< 0.002	6.29±0.22	P< 0.002
front sextants	3.20±0.05	3.59±0.12	P< 0.03	5.80±0.16	P< 0.002
lower lateral sextants	3.39±0.05	4.59±0.09	P< 0.002	6.79±0.25	P< 0.002

Accordingly, with the aggravation of chronic generalized periodontitis in the studied patients, an increase in the parameters of the complex periodontal index (PI) was recorded, which was substantiated by the information in Figure 2, which indicates that if in the group with mild periodontitis the value of the studied parameter showed an average of 2.5 points, then in patients with moderate periodontitis it increased to 4.7 points, and with severe periodontitis - to 6.4 points (Fig. 5).

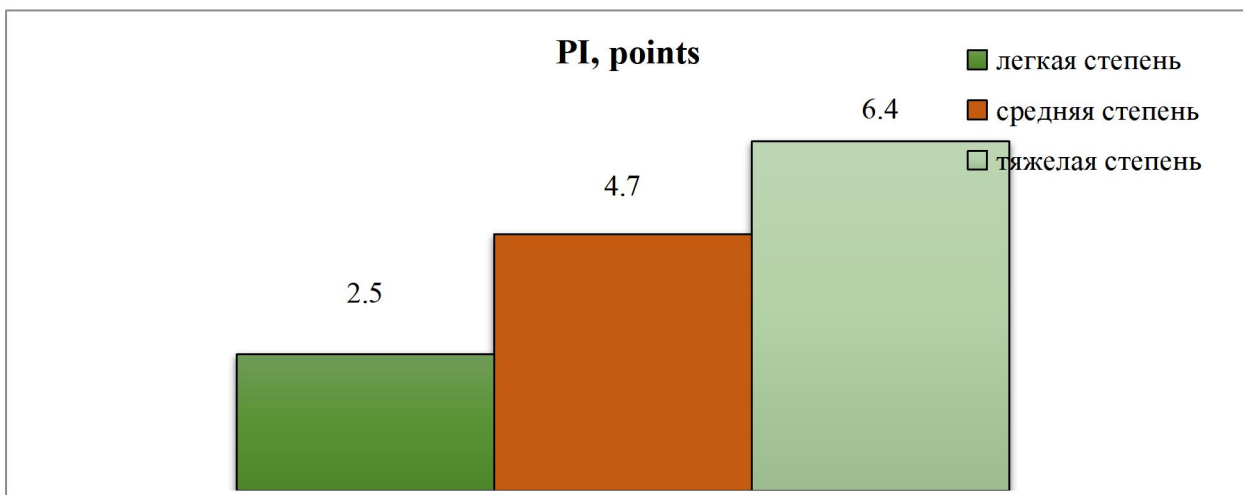
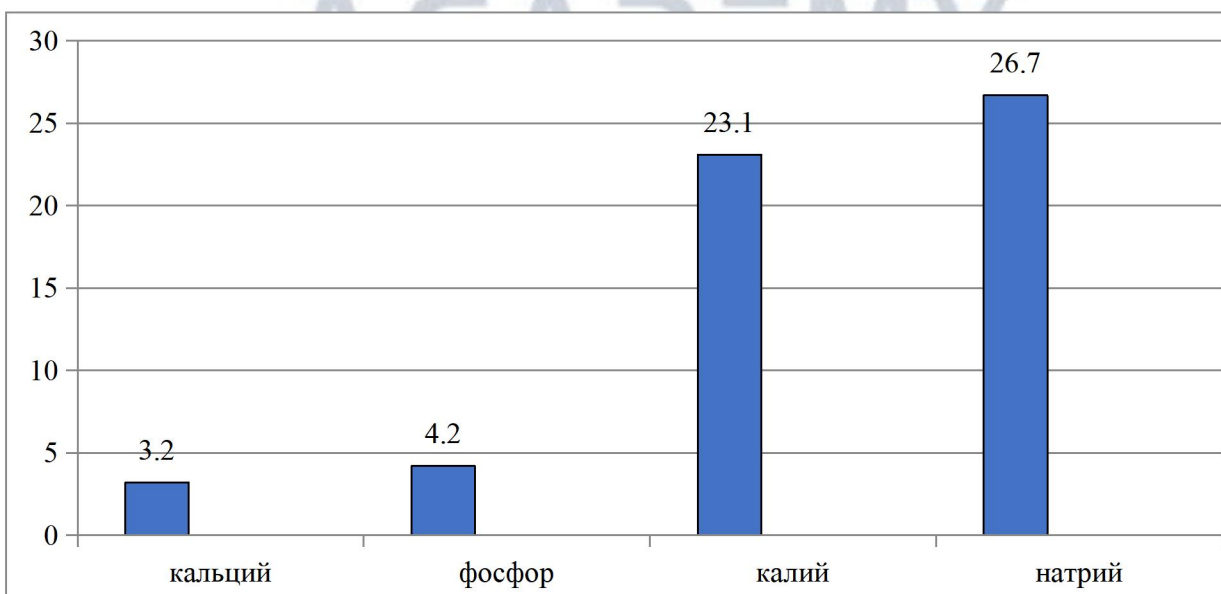


Figure 2. Parameters of the periodontal index (PI) in patients with chronic generalized periodontitis in the postmenopausal period

The conducted analyses of the examination of patients with chronic generalized periodontitis in the postmenopausal period of the content of mixed saliva revealed that a certain number of them had a total calcium content of up to 3.2±0.2 mmol/l, ionized potassium up to 23.1±0.7 mmol/l and total phosphates up to 4.2±0.2 mmol/l.



3-discussion Oral fluid parameters in postmenopausal female patients with chronic generalized periodontitis

DISCUSSION OF RESULTS

Inflammatory phenomena of periodontal tissues are one of the most demanded problems of dentistry and occupy an important and leading place among all dental diseases. According to WHO, highly functional changes in the dental system, which are predetermined by the loss of a certain number of teeth as a result of damage to periodontal tissues, progress 5-6 times more intensively, compared to complicated caries .

For this reason, the majority of domestic and foreign literature published in recent years has been influenced by a deep analysis of inflammatory phenomena of periodontal tissues, which reveals a group of etiological circumstances, the cause of periodontitis , clinical and laboratory examination methods have been identified, and a significant number of the most appropriate methods of therapy and prevention have been recommended.

Significant significance in the formation of damaging factors of periodontal is given to hormonal imbalance, which , for example, is established by significant lesions of the organs and tissues of the oral cavity in women in conditions with estrogen deficiency and, first of all, during menopause, both in natural and surgical menopause. At present, various sources indicate a significant role of estrogen deficiency in the development of dental diseases in women in the postmenopausal period , the positive effect of local hormone replacement therapy has been determined and methods of optimized treatment and prevention of these changes have been improved on these principles.

At present, the study of the causes that are likely to cause adverse effects on the female body in estrogen deficiency states, including those in the postmenopausal period , in relation to which homocysteine is involved , has become of great importance.

An increase in the concentration of homocysteine in the blood serum, which is manifested in an estrogen-deficient state, probably reliably indicates damage to the vascular wall , cellular influence due to the oxidative activity of the metabolite. At the same time, homocysteine favors an increase in the aggregation activity of platelets, exhibits an effect on several enzymes - cyclooxygenase , thromboxane A₂, thereby involving an improvement in the platelet and coagulation level of hemostasis.

CONCLUSION .

With the development of chronic generalized periodontitis in patients in the postmenopausal period, a significant deterioration in the main periodontal indices was observed; as chronic generalized periodontitis worsened, an increase in the periodontal index (PI) indices was noted; in particular, in the group with mild periodontitis, the value of the studied index averaged 2.5 points, in patients with moderate periodontitis it increased to 4.7 points, and in patients with severe periodontitis - to 6.40 points.

In each of the three groups with chronic generalized periodontitis in the postmenopausal period, a significant increase in the serum homocysteine level was observed under conditions of significant hypoestrogenism , in particular, in chronic generalized periodontitis of mild severity it was 12.1, in moderate severity 13.6 and in severe severity 15.7. Its concentration correlates with the deep damage of the periodontium, which is explained by changes in the PMA and PI indices, the depth of pathological pockets, the Müllemann gingival bleeding index and blood flow in the alveolar part of the gingival tissue.

In postmenopausal women, an increase in the concentration of C-reactive protein (4.59 in mild STP, 6.39 in moderate STP, 8.1 in severe STP), IL-6 (2.49 in mild STP, 4.3 in moderate STP, 6.7 in severe STP) and an increase in the amount of endothelin-1 (0.31 in mild STP, 0.36

in moderate STP, 0.51 in severe STP) and disorders manifested by an increase in the amount of total calcium, phosphates and ionized potassium in oral fluid were observed;

During the use of a complex of therapeutic measures in patients with chronic generalized periodontitis in the postmenopausal period, a decrease in the content of total calcium, phosphates and potassium was revealed in comparison with background parameters. In the blood serum, the content of homocysteine, interleukin-6, C-reactive protein and endothelin-1 decreased statistically significantly.

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INNOVATIVE
ACADEMY