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IMPROVEMENT OF TREATMENT AND DEVELOPMENT OF PREVENTIVE MEASURES FOR CHRONIC DISTRIBUTED PERIODONTITIS IN ADULT WOMEN

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ABSTRACT

Periodontal diseases are one of the most difficult problems of dentistry, despite the improvement of dental care, the number of patients remains significant, and periodontitis is the main cause of tooth loss. More than half of those who seek dental help for periodontal diseases are women, and the disease most often occurs and progresses during postmenopause. Postmenopause is a special period in a woman's life, characterized by hormonal and metabolic changes that lead to changes in bone mineral density of bone tissue, microcirculation, and immune status. All this creates prerequisites for the formation and progression of inflammatory periodontal diseases.

KEYWORDS. women during postmenopause, chronic diffuse periodontitis, density, clinical condition.

ANNOTATSIYA.

Parodont kasalliklari stomatologiyaning eng dolzarb muammolaridan biri bo‘lib, stomatologik yordamning yaxshilanishiga qaramay, bemorlar soni sezilarli darajada qolmoqda va parodontit kasalligi tishlarning yo‘qotilishining asosiy sababi bo’lib hisoblanmoqda. Parodont kasalliklari bo‘yicha stomatologik yordamga murojaat qiluvchilarning yarmidan ko‘pini ayollar tashkil qiladi va bu kasallik ko‘pincha postmenopauza davrida paydo bo‘ladi va rivojlanadi. Postmenopauza - bu ayol hayotining o‘ziga xos davri bo‘lib, suyak to‘qimalarining mineral zichligi, mikrotsirkulyatsiya va immunitet holatining o‘zgarishiga olib keladigan gormonal va metabolik o‘zgarishlar bilan tavsiflanadi. Bularning barchasi parodont yallig‘lanish kasalliklarining shakllanishi va rivojlanishiga zamin yaratadi.

Kalit so’zlar: postmenopauza davri, surunkali tarqalgan parodontit, suyak to‘qimasining mineral zichligi, klinik holat.

АННОТАЦИЯ

Заболевания пародонта являются одной из самых сложных проблем стоматологии, несмотря на улучшение стоматологической помощи, количество пациентов остается значительным, а пародонтит является основной причиной потери зубов. Более половины тех, кто обращается за стоматологической помощью по поводу заболеваний пародонта, составляют женщины, и это заболевание чаще всего возникает и прогрессирует в период постменопаузы. Постменопауза -это особый период в жизни женщины, характеризующийся гормональными и

метаболическими изменениями, которые приводят к изменению минеральной плотности костной ткани, микроциркуляции и иммунного статуса. Все это создает предпосылки для формирования и прогрессирования воспалительных заболеваний пародонта.
Ключевые слова. период постменопаузы, хронический диффузный пародонтит, минеральной плотности костной ткани, клиническое состояние.

The relevance of the topic. Today, women's lives in the postmenopausal period are characterized by metabolic disorders in various tissues, including teeth, in the form of tooth loss, periodontal diseases, increased alveolar and jaw bone resorption. Currently, 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 their pathogenesis[1]. A number of domestic studies have shown that systemic osteoporosis caused by estrogen deficiency in postmenopausal women affects the dental system. This is manifested by a decrease in the height of the interdental septum, the appearance of osteoporosis foci in the body of the lower jaw, and a decrease in the density of the alveolar process[2].

More than 50 million women worldwide are in perimenopause and postmenopause, but one-third of women survive under conditions of insufficient female sex hormones. In recent years, numerous studies worldwide have been dedicated to studying the nature of the relationship between systemic osteoporosis and generalized periodontitis, however, the available data are contradictory and require further research[3]. Periodontitis is a multifactorial disease caused by bacterial pathogens, the main cause of which is the destruction of the structure of the connective tissue, the formation of deep periodontal pockets, and the loss of alveolar bone tissue. Given that bone resorption processes predominate in osteoporosis, certain features should be taken into account when planning treatment for chronic generalized periodontitis in such cases[5].

Development of the healthcare sector in our country, reduction of its complications, as well as provision of qualified medical care to the population suffering from these diseases

OBJECTIVE.studying the condition of periodontal tissue in postmenopausal women; to determine the level of homocysteine in the blood, leading to osteoporosis as a result of increased activity of platelet aggregation and impaired methionine metabolism; studying the concentration of interleukin-6, C-reactive protein, endothelin-1 in the blood serum of postmenopausal women, as well as the amount of total calcium, phosphates, and ionized potassium in oral fluid; to improve the tactics and evaluate the effectiveness of conservative treatment of chronic generalized periodontitis in postmenopausal women.

THE OBJECT OF RESEARCH AND METHODS OF RESEARCH

The study involved in-depth clinical and laboratory examination of the main parameters of periodontal status in 75 postmenopausal women aged 45-55 years. These patients were divided into two groups: the main group (45 people) and the comparison group (30 people). In this case, the comparison group was treated using the traditional method, while patients in the main group received an improved treatment method in addition to the traditional method.

During the examination of the clinical condition, the oral hygiene status was assessed using the hygiene index (HI) (Green, Vermilion), the gum bleeding index (GBI) (Mullman, Covell), and the PMA index (Parma).

The depth of the periodontal pockets was measured using a special periodontal probe on all four surfaces of the teeth. The maximum

depth of the periodontal pocket was checked by dividing it into three sextants (frontal and two lateral) in each case.

Property values were determined using the N. P. Mulleman index.

The periodontal index (PI) was used to comprehensively assess the condition of periodontal tissues (Fig.1)

Table No. 1

The results of oral hygiene indicators in women with chronic generalized periodontitis in the postmenopausal period.

Tested indicators	Postmenopausal period				
	MChGP (p=25)	MChGP (p=29)	P_1	SChGP (p=21)	P_2
GI Green Vermilion	1,58±0,18	1,82±0,17	0,335	3,18±0,37	<0,003

Note: P1 is the statistical significance of the differences between groups with mild and moderate degrees of generalized periodontitis. P2 is the statistical significance of differences between groups of moderate and severe generalized periodontitis (Mann-Whitney, U-test). Significant negative changes in key periodontal parameters in postmenopausal women were observed in the development of periodontitis, which was confirmed, in particular, by the papillary-marginal-alveolar index (RMA) indicators characterizing the inflammatory process of the dental system (Fig. 1). According to the data obtained, the PMA index values in the group of women with moderate periodontitis were 25.07% higher than in women with mild periodontitis. Patients with severe periodontal tissue also showed an increase in the PMA index values, which is 16.83% higher than the results of the studied parameter in women with moderate severity of generalized periodontitis.

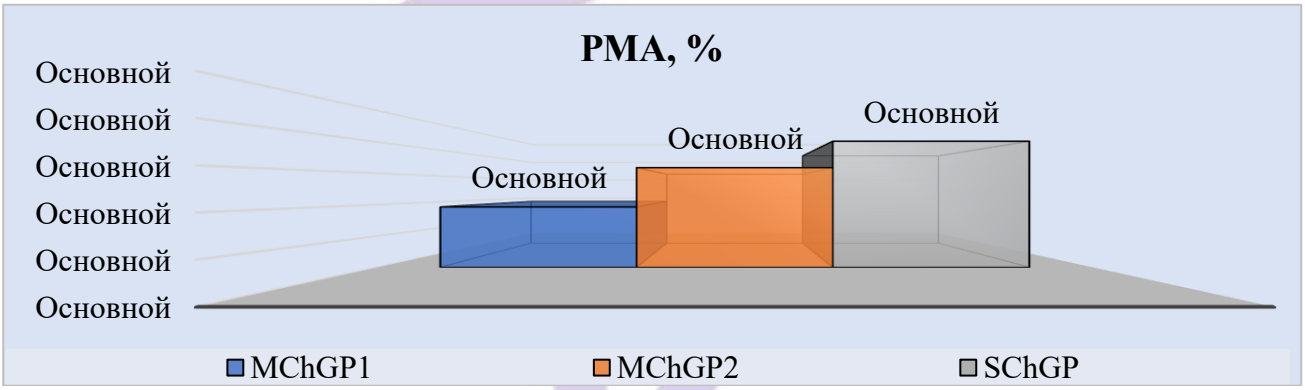

Figure 1. The values of the papillary-marginal-alveolar index in postmenopausal women with chronic generalized periodontitis.

According to the Mullemann index of gingival bleeding (Table 2), in the majority of patients with mild generalized periodontitis, this indicator averaged 2.25 points (a spot was found in the gingival artery when mildly probed), while in patients with moderate severity of generalized periodontitis, it was 3.21 points (a spot was found in the gingival artery when mildly probed). Bleeding from the gingival tissue was more pronounced in patients with severe periodontitis and amounted to approximately 3.68 points (the gingival margin was filled with blood and leaked out of its borders).

Table No. 2

The Müller index of property hospitality in postmenopausal women with chronic generalized periodontitis.

Tested indicators	Postmenopausal period				
	MChGP (p=25)	**MChGP (p=29)**	**P_1**	**SChGP (p=21)**	**P_2**
Mülliman Accommodation Index, in points	2,25±0,11	3,21±0,13	P<0,03	3,68±0,12	P<0,002

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

Patients with moderate severity of generalized periodontitis exhibited significant damage to the tissues of the periodontium at the depth of the periodontal pockets of the lateral and anterior sextants of both jaws compared to generalized periodontitis of mild severity. This correspondence of the studied values was also noted when comparing moderate and severe chronic generalized periodontitis in postmenopausal patients (Table 3).

Table No. 3

Periodontal pocket depth indices in postmenopausal women with chronic generalized periodontitis, mm (X±m)

Tested indicators	Postmenopausal period				
	MChGP (p=25)	MChGP (p=29)	P_1	SChGP (p=21)	P_2
Depth of periodontal pockets, mm					
Top-side sextant	3,29±0,06	4,21±0,07	P<0,002	6,29±0,22	P<0,002
Front sextant	3,20±0,05	3,59±0,12	P<0,03	5,80±0,16	P<0,002
Pasty side sextant	3,39±0,05	4,59±0,09	P<0,002	6,79±0,25	P<0,002

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

It was noted that the periodontal index (PI) parameters increased with the progression of chronic generalized periodontitis in the studied patients, in particular, in the group with mild periodontitis, the value of the studied parameter showed an average of 2.5 points, in patients with moderate periodontitis it increased to 4.7 points, while in patients with severe periodontitis it increased to 6.40 points (Fig. 2).

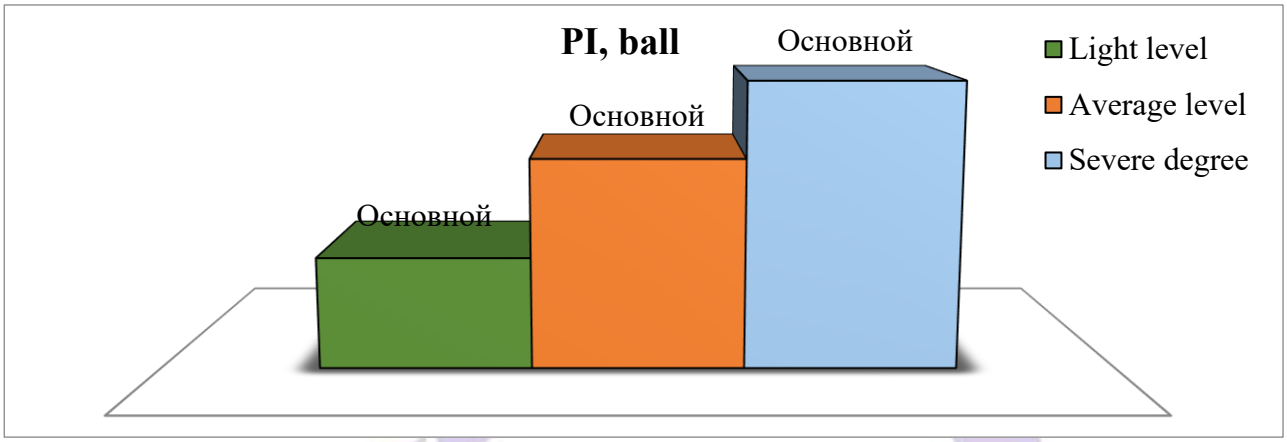

Figure 2. Periodontal index (PI) indicators in postmenopausal women with STIs

Analysis of the composition of mixed saliva in patients with chronic generalized periodontitis in the postmenopausal period showed that in a certain part of them, the amount of total calcium was up to 3.2±0.2 mmol/L, ionized potassium up to 23.1±0.7 mmol/L, and total phosphates were equal to 4.2±0.2 mmol/L.

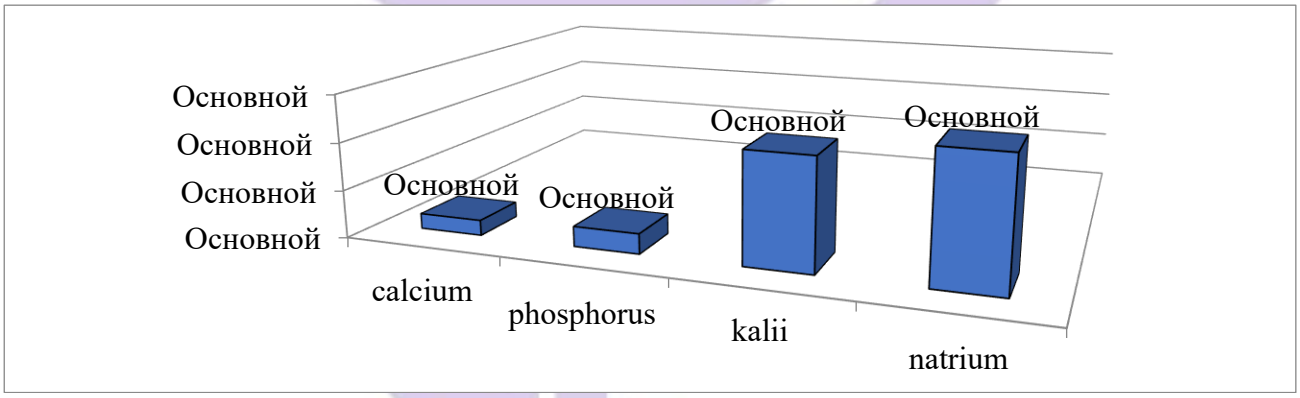

Figure 3. Indicators of oral fluid composition in postmenopausal women

In each of the three patient groups, a significant increase in homocysteine levels in blood serum was observed under conditions of significant hypoestrogenia (Fig. 4), and accordingly, a significant increase in the progression of periodontitis was observed.

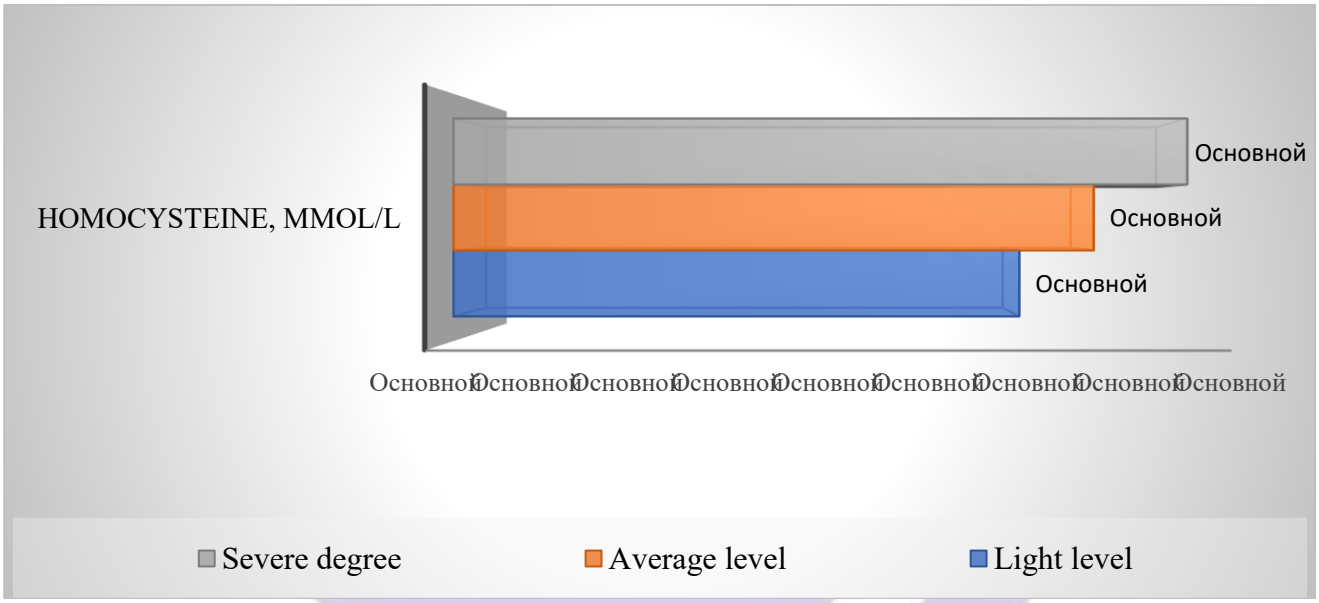

Figure 4. Homocysteine levels in chronic generalized periodontitis in postmenopausal women

In our opinion, the analysis conducted by us is of great importance for studying the composition of complex inflammatory mediators in blood serum (C-reactive protein and interleukin-6) in the category of patients under study. The results of studying the parameters of C-reactive protein and IL-6 in the blood serum of the examined women (Fig. 5) showed a significant increase in this indicator with an increase in the course of periodontitis.

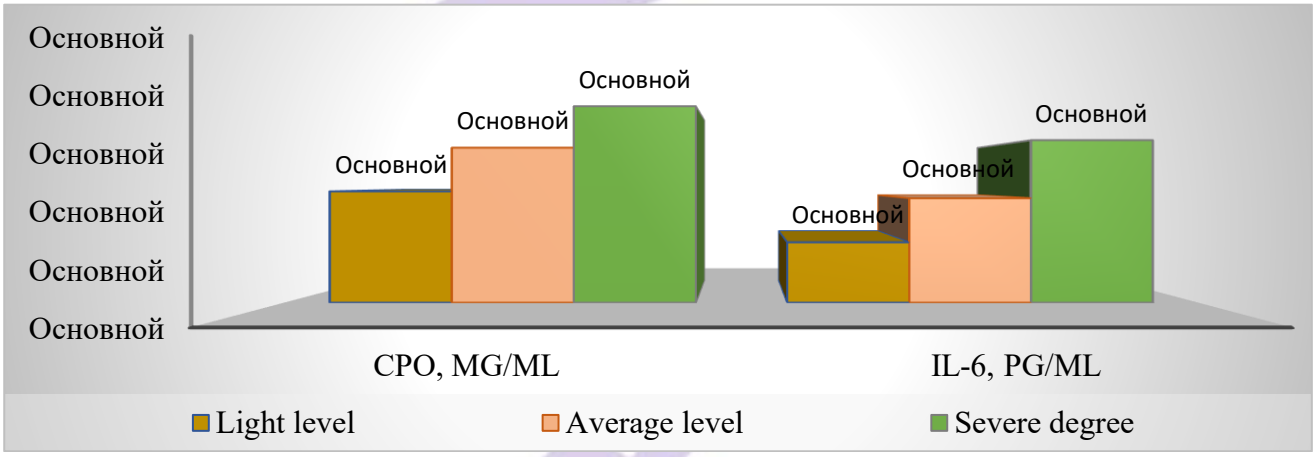

Figure 5. CRP and IL-6 concentrations in chronic generalized periodontitis in postmenopausal women

Analysis of the conducted research showed (Fig. 6) that the content of ET-1 levels in patients with moderate periodontitis increased by 13.88% compared to patients with mild periodontitis and by 29.41% compared to women with moderate periodontitis.

Taking into account the indicators obtained during the examination, it is necessary to consider the need for therapeutic and prophylactic measures aimed at normalizing hyperhomocysteinemia and restoring the values of periodontal indicators in postmenopausal patients.

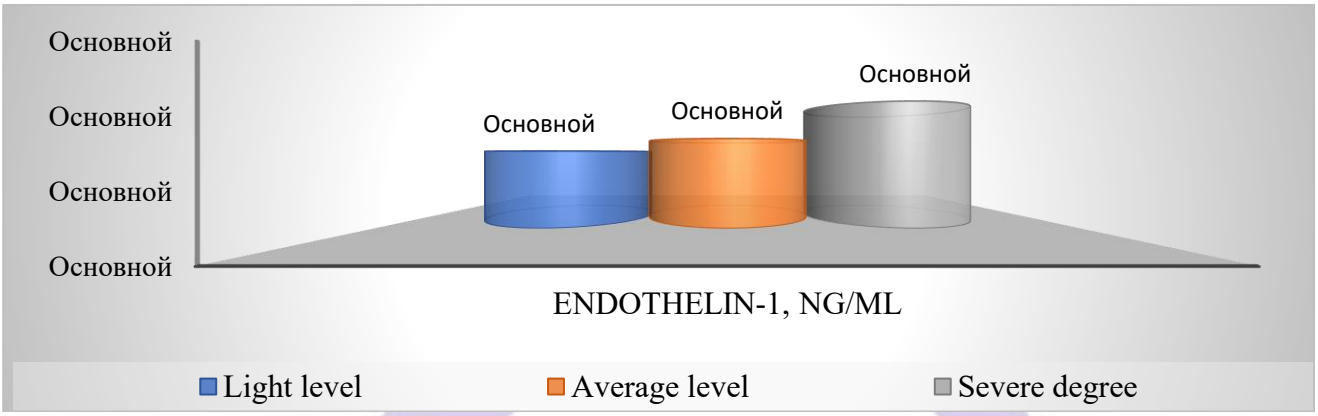

Figure 6. Endothelin-1 levels in serum in chronic generalized periodontitis in postmenopausal women

RESULTS:

In order to increase the effectiveness of treatment in the treatment of periodontal diseases in patients in the postmenopausal period in combination with hyperhomocysteinemia, the influence of the improved treatment complex of generalized periodontitis on the parameters of the dental status, the level of homocysteine concentration, signs of systemic inflammation and signs of endothelial damage was evaluated.

As a result of the improved treatment complex, a normalization of oral hygiene indicators according to Green-Vermilion was found in each of the studied patients, which corresponded to the normalized state of mild and moderate periodontitis and showed good results in severe periodontitis (Table 4).

Table 4

Oral regulation of therapeutic measures for patients with chronic generalized periodontitis in the postmenopausal period in the main and comparison groups.

The studied indicator	Postmenopausal period											
	MChGP (p=25)				MChGP (p=29)				SChGP (p=21)			
	Treatment lash until	From treatment later	Compare group	P	Treatment lash until	From treatment later	Compare group	P	Treatment lash until	From treatment later	Compare group	P
Green-Vermillion GI, points	1,61± 0,16	0,89± 0,08	1,09± 0,08	<0,002	1,79± 0,17	0,97± 0,12	1,07± 0,12	<0,002	3,21± 0,41	1,66± 0,18	2,66± 0,18	<0,01
CPU Index	7,6± 0,89	7,49± 0,87	7,59± 0,87	>0,04	15,69± 1,05	15,69± 1,05	15,69± 1,05	>0,04	14,28± 1,09	14,61± 1,09	14,61± 1,09	>0,04

CPU-n Index	7,9± 0,89	7,71± 0,91	7,81± 0,91	<0,01	16,31± 1,09	15,89± 1,05	15,99± 1,05	>0,04	15,06± 1,12	14,70± 1,12	14,90± 1,12	>0,04

Note: P is the statistical significance of the difference between the parameters before and after treatment according to the Wilcoxon T-test.

It can be concluded that a significant decrease in the PMA index, which represents the development of inflammation in the dental arch, has occurred compared to the baseline level. (Fig. 7). After improved treatment in the main group, a significant decrease was observed in each of the three studied patient groups, including 19% for mild periodontitis, 36% for moderate periodontitis, and 24% for severe periodontitis.

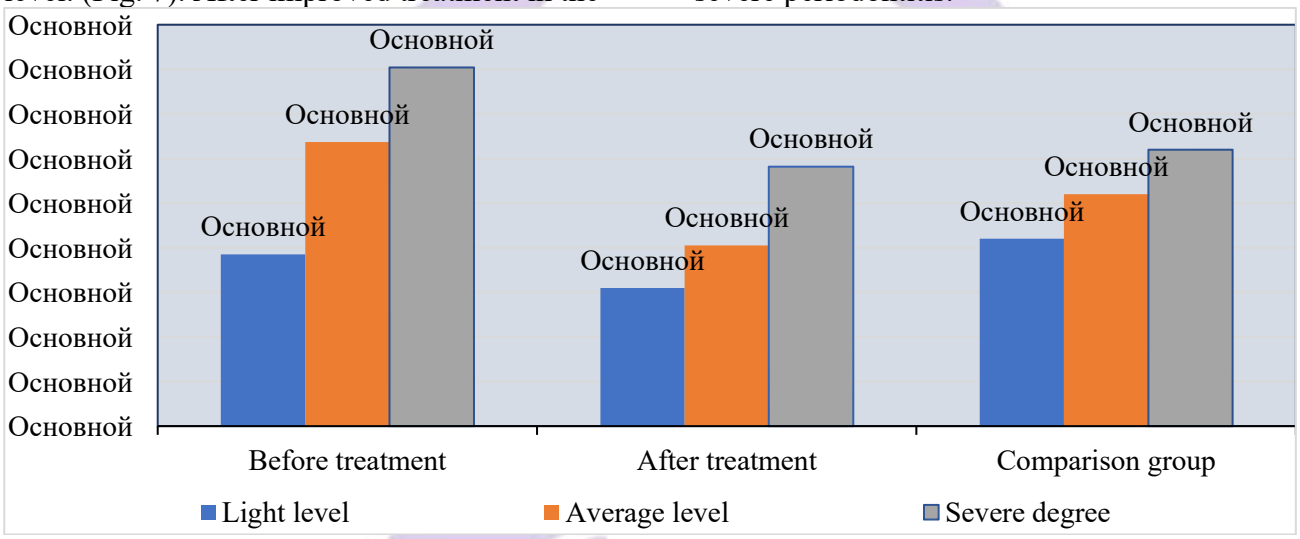

Figure 7. The PMA index values in patients with chronic generalized periodontitis in the postmenopausal period before and after treatment in the main group and the comparison group

The satisfactory effect of the improved treatment used on periodontal tissues has been proven by a significant decrease in property lodging according to the Mulleman index, with patients in the postmenopausal period scoring approximately 1.3 points for mild periodontitis, 1.4 points for moderate periodontitis, and 1.9 points for severe periodontitis

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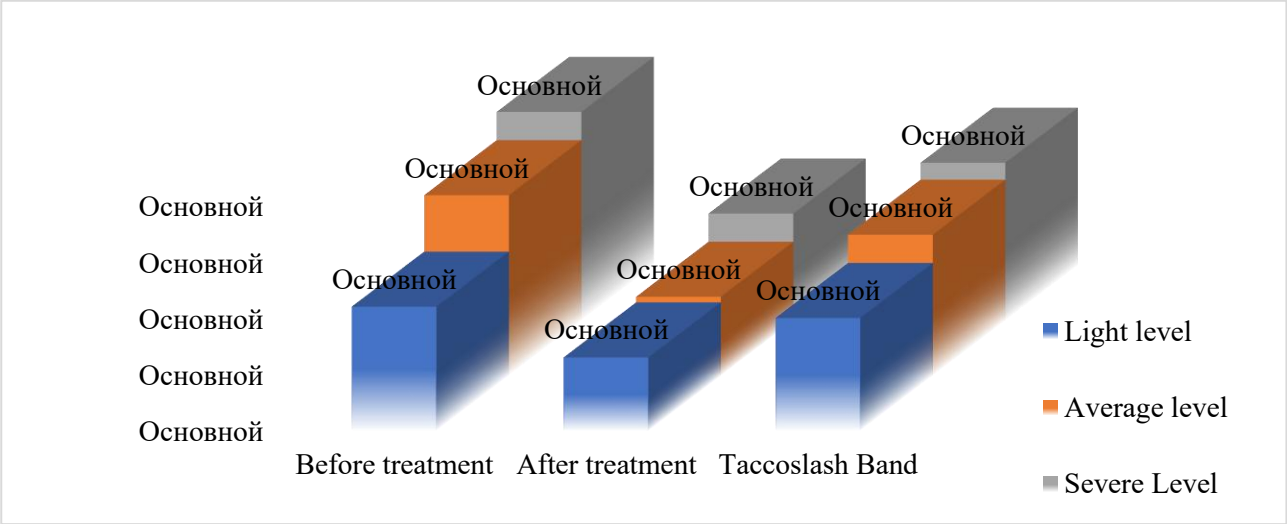

Figure 8. The results of milky bleeding according to Mulleman in patients with chronic generalized periodontitis in the main and comparison groups in postmenopausal women

To study the influence of a complex of therapeutic measures on the organs and tissues of the oral cavity in the studied patients, an analysis of the known qualities and structure of oral fluid was conducted before and after treatment. The results of this study showed (Fig. 9) that the treatment conducted had a positive effect on the mineral structure of the oral fluid, which was confirmed by a significant decrease in potassium ions and the level of total calcium and phosphates. At the same time, the studied patients showed a significant improvement in the level of sodium ions in mixed saliva.

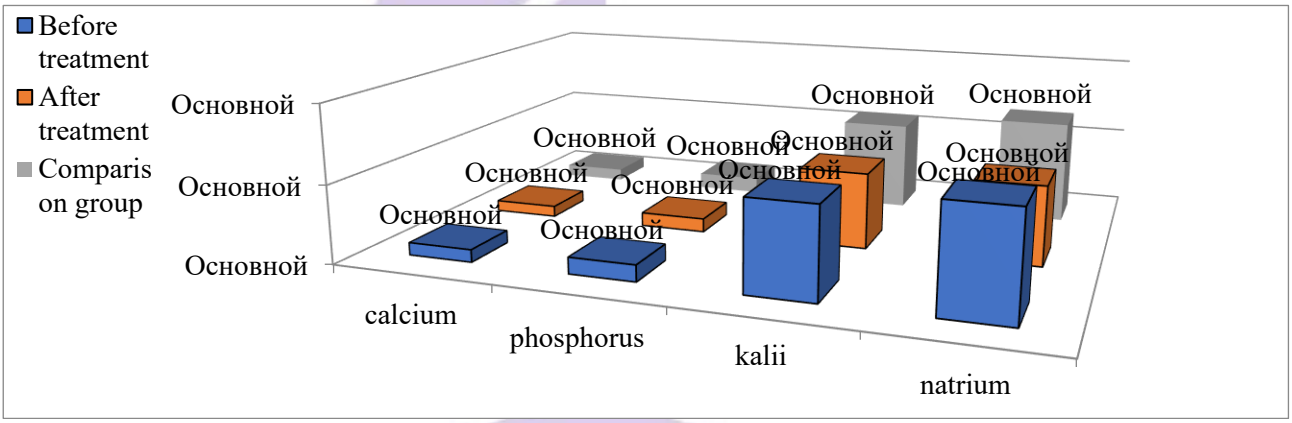

Figure 9. Parameters of oral fluid composition in patients with chronic generalized periodontitis in the main and comparison groups before and after treatment in the postmenopausal period.

Comprehensive therapeutic treatment showed a significant improvement in homocysteine concentration in blood serum in postmenopausal patients. A significant decrease in the investigated parameter was found in each of the studied groups (Fig. 10).

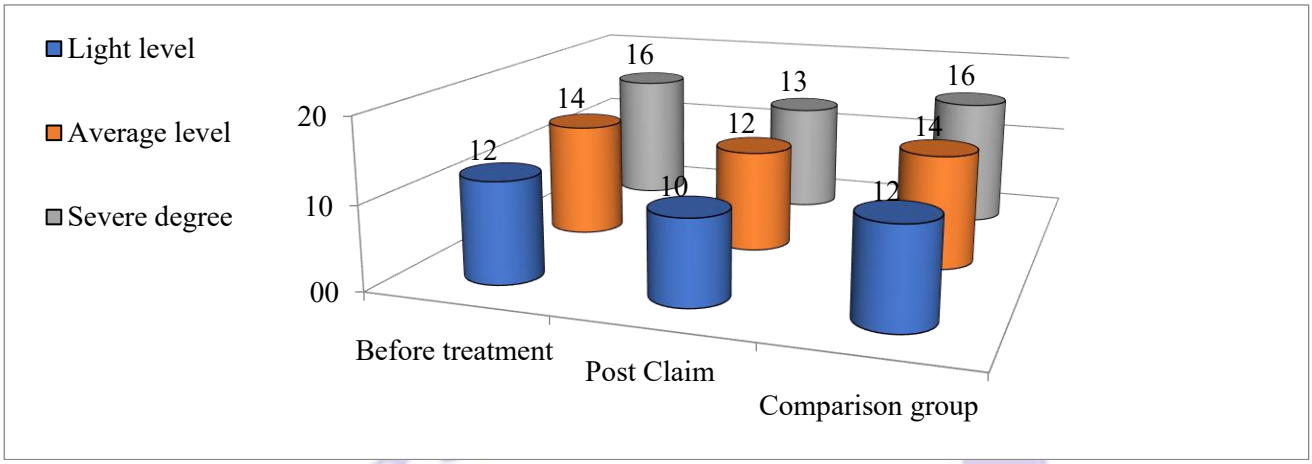

Figure 10. Homocysteine concentration in blood serum in patients with chronic generalized periodontitis in the postmenopausal period in the main and comparison groups.

During treatment, a significant improvement in homocysteine concentration in the blood serum of patients in the postmenopausal period was accompanied by a significant decrease in endothelin-1 levels, a sign of vascular endothelial damage (Fig. 11). It was 22% for mild periodontitis, 26% for moderate periodontitis, and 31% for severe periodontitis

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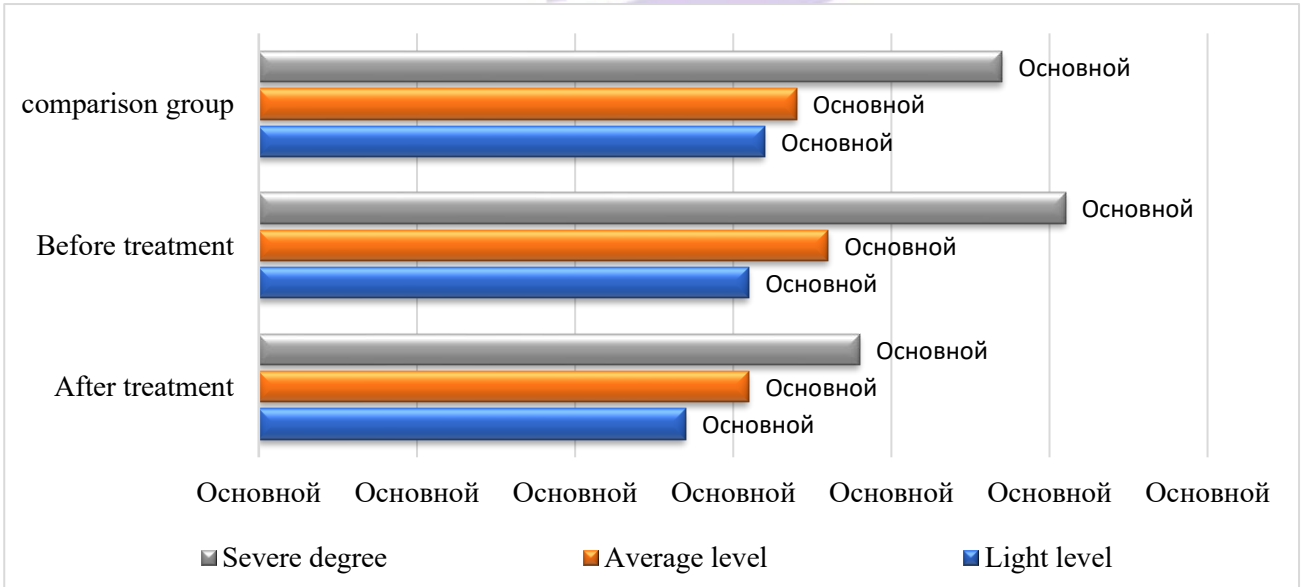

Figure 11. Endothelin-1 levels in patients with chronic generalized periodontitis in the postmenopausal period in the main and comparison groups.

Based on the above, it can be concluded that the use of osteotropic drugs, a complex of folate vitamins in the complex treatment of chronic generalized periodontitis in patients in the postmenopausal period has led to a significant decrease in the depth of pathological pockets, normalization of the flow of the gingival part, improvement in the composition and quality of mixed bone in the alveolar part of the gingival region. These positive changes in dental values led to a significant decrease in the concentration of

homocysteine, interleukin-6, endothelin-1, and C-reactive protein in blood serum, confirming the possible influence of the identified markers on the development of chronic generalized periodontitis in postmenopausal patients.

CONCLUSION.

In the development of chronic generalized periodontitis in postmenopausal patients, a significant negative change in the main periodontal parameters was observed in postmenopausal women, an increase in the parameters of the periodontal index (PI) was noted with the exacerbation of chronic generalized periodontitis, in particular, in the group with mild severity of periodontitis, the average value of the studied parameter was 6.40 points, while in the group with moderate severity of periodontitis, the average value of the studied parameter was 6.40 points.

In the postmenopausal period, a significant increase in homocysteine levels in the blood serum was observed in each patient group with chronic generalized periodontitis under conditions of significant hypoestrogenism, particularly in patients with mild chronic generalized periodontitis - 12.1, moderate - 13.6, and severe - 15.7. Its concentration is associated with deep periodontal involvement, which is a PMA

In women with chronic generalized periodontitis in the postmenopausal period, blood serum levels of C-reactive protein (with mild periodontitis - 4.59, with moderate periodontitis - 6.39, with severe periodontitis - 8.1), IL-6 (with mild periodontitis - 2.49, with moderate periodontitis - 4.3, with severe periodontitis - 6.7), and endothelin-1 (with mild periodontitis - 0.31, with moderate periodontitis - 0.31, with severe periodontitis - 0.51), as well as an increase in the amount of total

Patients with chronic generalized periodontitis in the postmenopausal period showed a decrease in total calcium, phosphates, and potassium levels compared to baseline levels after comprehensive therapeutic measures. Blood serum levels of homocysteine, interleukin-6, C-reactive protein, and endothelin-1 statistically significantly decrease.

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