

HEALTH, ENVIRONMENT, DEVELOPMENT**CLINICAL AND PATHOGENETIC BASES OF DIFFERENTIATED APPROACH
IN THE TREATMENT OF GENERALIZED PERIODONTITIS****Inna Gorb-Gavrylchenko**

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Summary

To assess the effectiveness of a differentiated approach in the treatment of generalized periodontitis in women after ovariectomy, the indicators of bone tissue metabolism (bone metabolism markers osteocalcin and oxyproline, and calcium-regulating hormones – calcitonin and parathormone)) in this contingent of patients were investigated. According to the results of the research, it was established the need to distinguish three forms of the activity of the osteoporotic process (low activity, medium and high activity) in the alveolar bone with the subsequent application of individual tactics for the treatment of generalized periodontitis in patients of these groups. According to the obtained results, it was established that with low activity of osteoporosis in the alveolar bone (the presence of weakly active foci), monotherapy with calcium preparations is sufficient for women after total ovariectomy. With medium and high activity (moderately active and active foci of osteoporosis), it is advisable to prescribe, in addition to calcium preparations, antiresorptive agents in combination with drugs that normalize the hormonal background.

According to the conducted studies, it is advisable to prescribe the drug Calcium D₃ to women with mildly active foci of osteoporosis in the alveolar bone. In the presence of moderately active and active foci of osteoporosis in the alveolar bone, it is recommended to prescribe the drugs Calcium D₃ Nikomed, Fosamax and the drug Progynova as a replacement hormone therapy.

Key words: ovariectomy, foci of osteoporosis, markers of bone metabolism, generalized periodontitis, treatment.

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1. Introduction

Generalized periodontitis is an urgent problem of modern dentistry, the main direction of which is the search and justification of the use of pathogenetic therapy, differentiated prescription of drugs in accordance with the periodontitis clinic, dental status and general somatic condition of patients (*Mazur I.P., 2004*). The number of patients suffering from this pathology still remains at a high level, despite the high level of organization of modern qualified assistance

(Civitelli R, Ziambaras K., 2011). The main mass the patients who consult a periodontologist, there are women in whom periodontal tissue diseases most often occur and progress during artificial menopause (Leder B.Z., 2020). Treatment of generalized periodontitis in women with surgical menopause should take into account the causes and mechanisms of osteoporosis in the alveolar bone, that is, be etiopathogenetic. It has been established that in women with "disabled" ovarian function, suffering from generalized periodontitis, foci of osteoporosis of low, medium and high activity are formed in the alveolar bones (Gorb-Gavrylchenko I.V., 2002). Earlier studies made it possible to develop clear indications for prescribing osteotropic and replacement hormone therapy and to test treatment schemes depending on the activity of the osteoporotic process in the alveolar bone (Mashchenko I.S., 2005).

The aim is to evaluate the results of the effectiveness of the differentiated use of drugs in the treatment of generalized periodontitis in women after total ovariectomy.

2. Research results

70 women who underwent ovariectomy and suffer from generalized periodontitis between the ages of 30 and 50 were examined. The first group (32 women) included patients with weakly active foci of osteoporosis in the alveolar bone, the second (38 women) – with moderately active and active foci of osteoporosis. The control group consisted of 20 healthy women without clinical and biochemical signs of the inflammatory and destructive process in the periodontium. For women with weakly active foci of the osteoporotic process in the alveolar process (group I), it is advisable to use Nicomed Calcium-D₃. With medium and high activity of the osteoporotic process in the bone structures of the periodontium (II group) – it is necessary to use a combination of drugs with different mechanisms of action. Such a combination was made up of Calcium-D₃ Nikomed, Fosamax and hormone replacement therapy drug Proginova. Inspection, necessary corrective treatment, preventive measures were carried out by actively challenging patients with generalized periodontitis, against the background of surgical menopause, 3 and 5 years after the completed course of treatment. Clinical examination of patients was carried out according to the generally accepted scheme, which includes analysis of patients' complaints, collection of anamnesis, examination, objective data. To objectively assess the condition of periodontal tissues, the parameters of periodontal tests and indices were taken into account: periodontal index data according to A.L. Russel (1956), Schiller-Pysarev digital test, PMA index, gum bleeding index according to H.R. Muhlemain (1971). The bone tissue of the periodontium was evaluated according to orthopantomograms using the index of the osteoporotic process (I.S. Mashchenko, A.V. Samoilenko, 2002). Bone tissue remodeling processes were assessed by blood osteocalcin levels and urinary oxyproline excretion. The content of calcitonin and parathyroid hormone in the blood was determined by the radioimmunological method.

In determining the results, the aim was not only to identify the sustainability of the achieved effect of complex measures, but also to establish what adjustments should be made at the stages of dispensary observation depending on the degree of expression of clinical and paraclinical signs of generalized periodontitis in women after ovariectomy. During the analysis of the remote results of treatment of generalized periodontitis in women who underwent ovariectomy, a tendency towards longer clinical and radiological stabilization was noted when using complex treatment, most fully correcting the hormonal and metabolic disorders observed in the work.

During the analysis of the long-term results of treatment of generalized periodontitis in women, after total ovariectomy, clinical and radiological stabilization 3 years after the

procedure was observed in 61 (87.1%) of 70 patients, relapse of the disease occurred in 9 (12.9%) women, after 5 years, respectively, in 80.0% and 20.0% of patients. In patients of the first group of the study, positive clinical results were registered after 3 years in 84.4% of cases, and after 5 years in 75.0% of cases, there were no clinical and paraclinical signs of generalized periodontitis, positive radiological dynamics of the process were noted. The return of the clinical and radiological state to the initial before treatment after 3 years was observed in 5 (15.6%) patients, after 5 year – in 8 (25.0%). In patients of the II group, a return to the initial state of generalized periodontitis after 3 years was registered in 4 (10.5%) women, and after 5 years – in 6 (15.8%) (Diagram 1).

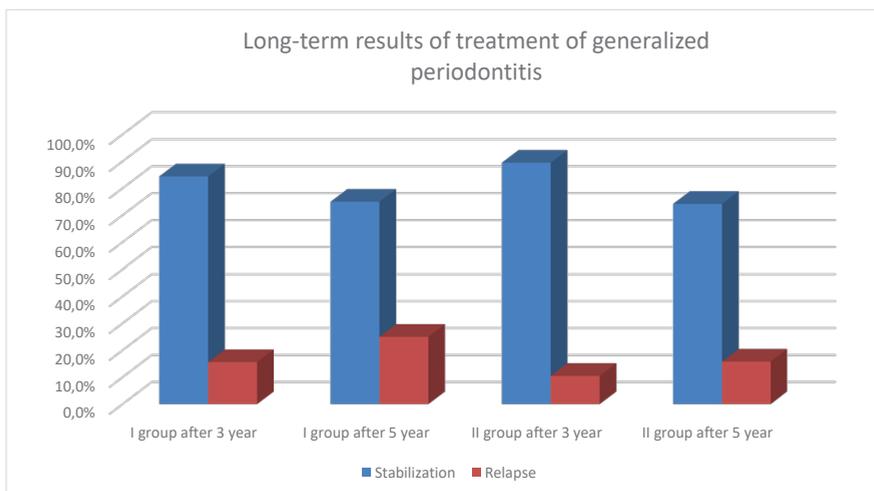


Diagram 1

In all women, clinical and radiological stabilization was accompanied by the absence of any complaints. The mucous membrane along the entire length of the gingival margin on objective examination was pale pink in color, tightly covering the necks of the teeth, painless on palpation and did not bleed. The Schiller-Pysarev test was negative. The index of hygiene, PMA and bleeding were within normal limits. Positive dynamics were also observed in the indicators of the periodontal index. Radiographically, patients with generalized periodontitis did not show a decrease in the height of the interdental alveolar septa in the long term. The bone contours became denser with signs of increased sclerosis, foci of spotted osteoporosis were eliminated, the number of zones of excess calcium deposition along the periphery of bone tissue increased.

The index of the osteoporotic process is the most informative indicator of the effectiveness of the treatment. Thus, after 3 years, in patients of the II group, the indicator of this index decreased to 7.44 ± 0.17 points against 13.64 ± 0.18 before treatment, and after 5 years to 5.11 ± 0.17 points. In women of the I observation group with clinical and radiological stabilization, after 3 years, the indicator of this index was 4.41 ± 0.50 points, and after 5 years, it was 4.55 ± 0.70 points ($p < 0.05$). A decrease in the index of osteoporosis activity in the alveolar process in all observation groups, in the long term after the treatment, indicates an increase in the mineralization of the alveolar bone and persistent clinical and radiological stabilization.

During the analysis of bone metabolism markers, it was revealed that the osteocalcin levels after 3 years and 5 years after the treatment in patients of the II group did not change significantly (osteocalcin: after treatment 20.7 ± 1.3 IU g/l, after 3 years – 20.1 ± 1.4 IU g/l, after 5 years – 19.6 ± 1.1 IU g/l), and corresponded to this in the control group (20.9 ± 1.4 IU g/l) (Table 1).

Table 1

Dynamics of markers of bone metabolism (M±m)

Groups	Terms of treatment	Indicators	
		Osteocalcin (MO g/l)	Oxyproline / Cr (mmol/l)
I group (n = 32)	After treatment	20,1±	0,83±
	After 3 years	18,1 ± 1,2 **	0,53±
	In 5 years	17,7 ± 0,8* **	0,61±
II group (n = 38)	After treatment	20,7±	2,40±
	After 3 years	20,1±	0,55±
	In 5 years	19,6±	0,70±
Control group (n=20)		20,9±	0,54±

Notes:

1. * $0,05 < p$ – reliability in relation to indicators after treatment;
2. ** $0,05 < p$ – reliability in relation to the persons of the control group;
3. n is the number of patients in the group

In the women of observation group I, in the long term after the treatment, a slight decrease in the level of osteocalcin was observed to 18.1 ± 1.2 IU g/l – after 3 years and to 17.7 ± 0.8 IU g/l after 5 years. At the same time, the study of oxyproline indicators indicates a significant decrease in the bone resorption marker in this contingent of patients after the tested treatment complexes. 3 years after treatment, the index of oxyproline in women of the II group decreased by 3 times, compared to the baseline (0.70 ± 0.02 mmol/l, against 2.40 ± 0.04 mmol/l, $p < 0,05$), and in the I group by 1.5 times (0.61 ± 0.03 mmol/l, against 0.83 ± 0.03 mmol/l, $p < 0,05$).

In parallel with the clinical and radiological stabilization of the process in the periodontal tissues, against the background of hypoestrogenemia, the stabilization of indicators and the hormonal background was observed. In the II group of patients who received a combination of hormonal replacement, Calcium – D_3 Nicomed and Fosamax after 3 and 5 years, there was no statistically significant decrease in calcitonin parameters (16.1 ± 0.2 pg/ml and 16.9 ± 0.4 pg/ml) compared to those immediately after treatment (17.8 ± 0.2 pg/ml), their values were almost equal to those of the control group (18.2 ± 0.7 pg/ml). In the first group (osteotropic therapy Calcium – D_3 Nicomed), calcitonin values were 17.8 ± 0.2 pg/ml after 3 years and 16.9 ± 0.4 pg/ml – after 5 years, which differed somewhat from the control group.

Dynamic monitoring of the parathyroid hormone level in blood serum in women after total ovariectomy suffering from generalized periodontitis revealed that in patients of the II group, 3 years after treatment, the parathyroid hormone level was 16.7 ± 1.5 pg/ml, which did not differ significantly from such indicators after treatment (16.8 ± 1.5 pg/ml), and after 5 years it increased slightly and did not significantly differ from the control (17.4 ± 1.3 pg/ml and 16.9 ± 0.9 pg/ml, respectively, $p < 0,05$). The level of parathyroid hormone in the patients of the first group in the long term after the treatment was 18.9 ± 1.2 pg/ml after 3 years and

18.5±1.6 pg/ml after 5 years, and did not differ significantly from the control ($p < 0.05$).

3. Conclusions

Treatment of generalized periodontitis in women after total ovariectomy should be based on an etiotropic approach (treatment of the underlying disease) and affect the mechanisms of bone remodeling disorder development. The presented facts indicate how clinically important it is when prescribing complex methods of treating generalized periodontitis in women after ovariectomy to analyze those changes that are caused by endocrine pathology and have pathogenetic significance in the development of osteoporotic changes in the bone structures of the periodontium. The analysis of long-term results of the treatment of generalized periodontitis in women after total ovariectomy confirms the need to distinguish three forms of activity of the osteoporotic process in the bone structures of the periodontium in order to develop individual treatment tactics for each group of patients. For women after total ovariectomy with weakly active foci of osteoporosis in the alveolar bones, monotherapy with osteotropic agents is sufficient. If there are moderately active and active foci of osteoporosis in the bone structures of the periodontium, it is more appropriate to prescribe osteotropic and antiresorptive agents in combination with drugs that normalize the hormonal background. Such drugs include Calcium – D₃, Nikomed, Fosamax and Progynova.

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