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## THE NEAREST RESULTS OF TREATMENT OF PERIODONTAL DISEASES IN WOMEN TAKING ORAL CONTRACEPTIVES

**Abstract.** Nowadays the use of hormonal contraceptives is a popular means of contraception. However, these agents also contain estrogens, which can provoke periodontal inflammation. Therefore, the development of methods of treatment of periodontal diseases in this category of women is an urgent issue. Objectives: to determine clinical efficacy of the suggested method of treatment of inflammatory periodontal disease in women taking hormonal contraceptives for the purpose of planning pregnancy. Materials and methods. Clinical investigation was conducted on the groups of 90 women taking oral contraceptives for the purpose of planning pregnancy. Pharmacological treatment of these patients was performed using the suggested medical composition. A comprehensive examination of patients with periodontal tissue was conducted before and after treatment. To evaluate a clinical efficacy of treatment Schiller-Pisarev test (1962), the index of PMA by C. Parma (1961), hygienic index OHI-S (1964), PBI by H.R. Muhlemann and others were used. Results. As a result of investigation it was found that the usage of the suggested medical composition in a comprehensive therapy of inflammatory periodontal diseases in women taking oral contraceptives produces a positive effect. It is confirmed by decline in the index OHI-S, PMA, PBI, improving oral hygiene. Conclusions. The use of the suggested medical composition increases the effectiveness of treatment of inflammatory periodontal diseases in women taking oral contraceptives.

**Key words:** women taking oral contraceptives, inflammatory periodontal diseases, medical composition.

According to the clinical evidence available periodontal lesions in pregnant women are associated with hyperestrogenemia [5, 6, 9]. Nowadays administration of hormonal contraceptives is a popular means of contraception. Though, these agents contain estrogens, and they can provoke occurrence of inflammatory processes in the periodontal tissue. Meanwhile, instructions to hormonal contraceptives do not contain indications concerning possible complications from the side of periodontal tissue [7].

Our previous experimental work [1] indicated that a long administration of the hormonal contraceptive "Yaryna" causes development of gingivitis in the gums. It is evidenced by biochemical examinations, namely, a considerable increase of elastase level, a marker of inflammation, in the blood of experimental animals. Mineralizing activity of the periodontal osseous tissue decreased in rats taking this contraceptive. It resulted in an increased degree of bone atrophy of the mandibular alveolar process.

To prevent occurrence of gum inflammation under experimental conditions in rats taking a hormonal contraceptive the bioflavonoid angioprotector "Normoven" was used. It contains diosmin and hesperidin in the dose of bioflavonoids 84 mg/kg, stimulates mineralizing activity of the periodontal osseous tissue, and reduces degree of alveolar process atrophy. Though, it does not eliminate inflammatory signs in the periodontal tissue completely [15].

Considering the obtained experimental data for medical treatment of periodontal inflammation in women taking hormonal contraceptives, with the purpose of family planning, a method of treatment of the periodontal tissue in women taking oral hormonal contraceptives was suggested.

**Objective:** to determine clinical efficacy of the suggested method of treatment of periodontal inflammation in women taking hormonal contraceptives with the purpose of family planning.

**Materials and methods.** To achieve the goal clinical-radiological examination of 120 women was

conducted. The main group included 90 (72,73%) women taking oral contraceptives with the purpose of family planning. The control group included 40 (27,27%) women, who were consulted at the Stomatological Center at O.O.Bogomolets National Medical University, and the University students. Exclusive criteria for the main group were: smoking and other bad habits; pregnancy; abortions; comorbid common somatic diseases. Entry criteria were: patients of a reproductive age (from 19 to 35 years) taking low doses of oral contraceptives containing 0,03 mg of ethinyl estradiol and 3 mg of drospirenone no less than for a year.

Distribution of patients into groups according to the degree of disease and age was practically similar (Table 1).

Inflammation in the periodontal tissues was determined by means of Schiller-Pisarev test [8]. Greene-Vermillion index and simplified oral hygiene index OHI-S [4], gingival index [11] were used to assess hygienic state of the oral cavity. To determine intensity of inflammation in the periodontal tissue papillary-marginal-alveolar (PMA) index by C.Parma [14] was applied. Papillary bleeding index (PBI) by H.R.Muhlemann [13], alveolar plaque index (API) to determine dental plaque by Lange [10] was used as well. Condition of the osseous tissue was determined by means of orthopantomogram. The diagnosis of periodontal lesion was made according to M.F.Danylevsky's classification [2, 3]. The obtained experimental and clinical data were statistically processed according to the standard processing programs [12].

To treat inflammatory lesions of the periodontal tissue in women taking hormonal contraceptives with the purpose of family planning, a method of treatment was suggested (Declaration Patent of Ukraine № 131972 of 11.02.2019). The treatment includes elimination of local irritating factors and topical pharmaceutical treatment of symptomatic gingivitis using the bioflavonoid angioprotector "Normoven" produced by Ltd "Kyiv Vitamin Plant" (Ukraine) against the ground of general treatment with the same agent "Normoven". For the general treatment the drug "Normoven" was indicated per 1 tablet twice a day (in the morning and in the evening) during meals. The duration of the course depended on pronunciation of symptomatic gingivitis and was on an average 10 days. For the local treatment "Normoven" 0,5 in tablets was used.

It was grinded in a mortar and medical composition was prepared ex tempore:

Normoven 0,5 g

Metrogyl-denta gel 0,5 g

The agents were mixed and applied on the afflicted area of the gums. Application lasted 20-30 minutes. This medial composition was applied twice a day by a patient herself. The period of treatment was 7-10 days.

All the patients used a manual toothbrush, dental floss, toothpaste "Lacalut" and lotion "Lacalut" for professional oral hygiene. All the irritants of the periodontal tissue were removed completely (dental plaque, tartar etc.). Subgingival dental deposits were removed with further treatment of surfaces of dental roots (so-called SRP – Scaling and Root planning).

**Results and discussion.** A comprehensive examination of the periodontal tissue before treatment showed that in 80 women of the main group and 30 women of the control group inflammatory and dystrophic-inflammatory diseases of the periodontal tissues were found. Chronic catarrhal gingivitis of a mild and moderate degree was diagnosed more often among inflammatory diseases. It was found in 68 (85,0%) women of the main group and 24 (80,0%) women from the control group. The main complaints included unpleasant sensations in the gums and edema of the gums. They were found in 67(83,75%) women from the main group. Complaints on bleeding were found in 66 (82,5%) women. Edema of the gums was found in 24 (80,0%) women, bleeding from the gums - in 23 (76,67%) women from the control group. Dystrophic-inflammatory diseases of the periodontal tissue were found in 12 (15,0%) women from the main group including 7 (8,75%) women with diagnosed chronic generalized periodontitis of I degree, and 1 (1,25%) woman with generalized periodontitis of an initial degree of chronic course. Dystrophic-inflammatory diseases were found in 6 (20,0%) women from the control group including 5 (16,67%) of them with detected generalized periodontitis of an initial degree of chronic course and 1 (3,33%) woman – generalized chronic periodontitis of I degree. The data of assessment of the oral hygiene in women from the main group (Table 2) ranged within 1,2-3,0 of OHI-S, on an average  $2,1 \pm 0,1$  API ranged within 14%-100% – on an average  $37,7 \pm 0,3\%$ . In the control group the values of these indices were  $2,4 \pm 0,1$  (OHI-S) and

31,3±0,3% - API respectively. It is indicative of a relatively satisfactory condition of the oral hygiene in both groups. PMA index in the main group was on an average 34,8±0,3%, and in the control one – 29,2±0,3%. Bleeding of the gums determined by PBI in women from the main group was within 1,25±0,1 points and 1,28±0,1 points in women from the control group respectively. Therefore, a

comparative analysis of the periodontal tissue condition among the women from the examined groups is indicative of relatively satisfactory condition of the marginal gums due to unsatisfactory condition of oral hygiene.

After the treatment with application of the suggested methods certain changes in the oral hygiene were determined (Table 2)

Table 1

**Distribution of patients with periodontal diseases of the main and control groups**

Groups	Periodontal diseases				Age (years)	General number of patients	
	Chronic catarrhal gingivitis		I degree of generalized periodontitis			abs.	%
	abs.	%	abs.	%			
Main group	68	75,56	22	24,44	23,67	90	100,0
Control group	24	60,0	16	40,0	24,33	40	100,0
Total	92	70,77	38	29,23		130	100

Table 2

**Dynamics of the hygienic index OHI-S in the nearest terms of observations (points)**

Groups of patients	Before treatment	Terms of observation after treatment		
		2 weeks	1 month	3 months
Main group	1,94±0,17	0,78±0,07	0,52±0,05	0,58±0,05
Control group	1,86±0,17	0,74±0,07	0,68±0,06	0,8±0,08
p	>0,05	>0,05	<0,05	<0,05

Primary examination of the oral cavity of all the patients from both groups determined that hygienic state was practically similar and was within the limits “satisfactory hygiene”. The hygienic index OHI-S was 1,94±0,17 and 1,86±0,17 points respectively. 2 weeks after the treatment this index in patients from the main group approximately 2,5 times improved. A month later hygienic index was 0,52±0,05 points among the patients from the main group and 0,68±0,06 points among the patients from the control group. 3 months later OHI-S in patients from the main group remained on a former level of good hygiene. It remained on a previous level of good hygiene in the main group, and in patients from the control group it increased to 0,8±0,08 points. In spite of the fact that both indices are within the range equal to the assessment “good hygiene”, in patients from the main group who underwent the suggested treatment this index was 30% better. Beginning with the term of observation of 1 month the value of OHI-S in patients from the main group and control group differed reliably (p<0,05). The obtained results enabled to predict more stable clinical effect and longer remission of periodontal pathological process.

After the course of treatment the degree of inflammation in the periodontal tissue decreased as it can be evaluated according to the values of PMA index (Table 3).

A month after treatment the value of PMA index approximately 4,63 times decreased in patients from the main group: from 39,52±2,1% to 8,53±1,2%, and in patients from the control group - 2,72 times: from 40,34±2,1% to 14,84±1,3%. 3 months later in patients from the main group the value of PMA index remained on the same level: 8,23±1,1%. In patients from the control group the index and tendency to exacerbation increase, since PMA index is close to the upper level of “mild” gingivitis: 15,32±1,1%. The difference between the values of PMA index in patients from the groups of observation is statistically reliable (p<0,05).

Therefore, the dynamics of anti-inflammatory action correlated directly with the oral hygiene state. PMA index corresponded to the assessment “moderate gingivitis”.

The suggested method of treatment produces certain capillary-protective action, which was evidenced by the changes of PBI (Table 4).

Table 3

## Dynamics of PMA index in the nearest terms of observation (%)

Groups of patients	Before treatment	Terms of observation after treatment		
		2 weeks	1 month	3 months
Main group	39,52±2,1	8,53±1,2	8,52±1,2	8,23±1,1
Control group	40,34±2,1	14,84±1,3	14,36±1,3	15,32±1,1
p	>0,05	>0,05	<0,05	<0,05

Table 4

## PBI dynamics in the nearest terms of observation (points)

Groups of patients	Before treatment	Terms of observation after treatment		
		2 weeks	1 month	3 months
Main group	1,46±0,1	0,85±0,07	0,49±0,03	0,51±0,04
Control group	1,51±0,1	0,93±0,07	0,68±0,05	0,75±0,06
p	>0,05	>0,05	<0,05	<0,05

Therefore, the conducted clinical studies and examination of patients in the nearest terms of observation showed that the suggested treatment produces a certain capillary-protective action.

**Conclusions.** Results of treatment improved gradually during one and three months after the conducted treatment. They were maximum 3 months later in patients from the main group. In patients from the control group maximum was determined a month later, and 3 months later these results deteriorated. The difference between the patients from the main and control groups within the terms of three months was statistically reliable ( $p < 0,05$ ).

Therefore, examination of patients in the nearest terms of observation showed the efficacy of the suggested therapeutic-hygienic complexes. According to the index assessment of the periodontal tissue state the results of treatment of patients from the main group differed reliably ( $p < 0,05$ ) from the data of patients from the control group.

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