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Research Article

ASSESSMENT OF CLINICAL EFFECTIVENESS OF OWN BLOOD PLASMA IN COMPLEX TREATMENT OF GENERALIZED PERIODONTITIS

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ABSTRACT

Generalized periodontitis is one of the most common dental diseases. The problem of effective treatment of periodontal pathology remains relevant. According to statistics, this nosological form ranks second among dental diseases after dental caries. The following distribution among the population is observed: 86% of adults and 65% of children have pathological changes in periodontal tissues. Tooth loss due to periodontal disease is 2–3 times higher than caries. The results of the study showed that the dynamics of changes in the depth of periodontal pockets in the long-term results of treatment were noted in groups where plasma preparations with a high content of platelet-derived growth factors AMK and PRP were used as part of the treatment complex. The use of autoplasma preparations led to a decrease in the rate of bleeding in all study groups, however, a more pronounced anti-inflammatory effect persisted for a longer time in the first group where AMK and PRP were used, which allows us to recommend these drugs in the complex treatment of generalized periodontitis. In the second group with the use of PPP and i-PRF, a trend towards improvement was observed, which makes it possible to recommend the use of these drugs as an option for maintenance therapy in the treatment of generalized periodontitis.

KEYWORDS

Generalized periodontitis, plasma therapy, platelet-derived growth factors, periodontal pocket depth, bleeding.

INTRODUCTION

Generalized periodontitis represents a general medical and socio-economic problem. As the disease progresses, chronic inflammation in the periodontal tissues manifests itself in bleeding, bad breath, exposure of tooth roots, mobility and, ultimately, tooth loss. Despite the improvement in the quality of dental care, periodontal diseases are one of the most common dental diseases [1,9].

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WHO data indicate that from 80 to 100% of the population of various age groups have one or another form of periodontal pathology, which leads to significant changes in the dental system, adversely affects the digestive process, helps reduce the body's resistance, negatively affects the psycho-emotional sphere of the patient, and therefore , worsens the quality of his life, which determines the social significance of the problem [2,10]. A promising direction is the use of preparations from the patient's own plasma, since it is rich in growth factors, cytokines and hormones, which can also promote the regeneration of periodontal tissue during treatment [3,8].

Purpose of the study: to evaluate the effectiveness of using own blood plasma preparations in the complex treatment of patients with generalized periodontitis.

METHOD

This work is based on an analysis of our own data obtained as a result of a comprehensive examination of 40 patients aged 35 to 50 years with a diagnosis of HP of II–III severity, chronic course. The diagnosis was established in accordance with the taxonomy of periodontal diseases N.F. Danilevsky (1994) [4].

To evaluate the effectiveness of the proposed treatment regimens, patients were divided into 4 groups, one comparison group and 3 experimental ones. The main therapy was the same for patients of all groups; it included professional oral hygiene, smoothing the surface of the roots with antiseptic treatment of the oral cavity with a 0.12% solution of chlorhexidine bigluconate. Biofilm and mineralized dental plaque were removed with a Sonyflex sonic instrument, a Prophiflex handy blaster (KaVo), using glycine-based powder – Perio (KaVo). The root surface was smoothed using Gracie zone-specific curettes (Hu-Friedy) [5, 6]. In addition to basic therapy, the complex treatment of patients of the 2nd group included the administration of human platelet automesoconcentrate (HPA), the 2nd group - plasma with a high concentration of platelets PRP, the 3rd group - plasma with a low concentration of platelets PPP, the 4th group - plasma with active fibrin fraction i-PRF.

Protocols for administering autoplasma preparations:

-AMK- 3 procedures, which were carried out with an interval of 7 days. The amount of the drug used for the entire course was 24 ml, for 1 procedure for 2 jaws 8 ml.

-PRP- 3 procedures, administration interval - 7 days. The amount of the drug for the entire course is 18 ml, for 1 procedure - 6 ml.

-PPP – 5 procedures, administration interval 7 days. The amount of the drug for the entire course is 30 ml, for 1 procedure - 6 ml.

-i-PRF – 5 procedures, administration interval 7 days. The amount of the drug for the entire course is 30 ml, for 1 procedure - 6 ml.

Platelet autoplasma (PRP, PPP, i-PRF) was obtained by collecting blood from the patient's vein with a sterile intravenous catheter into a sterile vacuum tube (Greiner Bio-One) containing ACD-A solution for PRP, sodium heparinate and separation gel for PPP, for i-PRF into a clean tube without any impurities, which were then placed in a centrifuge (Hettich, Germany). Centrifugation protocols at temperature T=22±2°C: for PRP - acceleration 500 G, centrifugation time 5 minutes, for PPP - 3000 revolutions for 5 minutes, for i-PRF - 1000 G, time 5 minutes. After this, a clear separation into two fractions was obtained in the test tubes: the upper platelet autoplasma, the lower erythrocyte clot. The effectiveness of treatment was

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assessed by comparing the depth of periodontal pockets and bleeding, which were determined using the Florida Probe computer system.

The results were processed using variational statistical methods of analysis on an IBM PC personal computer in SPSS SigmaStat 3.0 and StatSoft Statistica 6.0. [7].

RESULTS AND DISCUSSION

To objectively assess the initial clinical situation, we measured the depth of periodontal pockets and counted the number of points with bleeding in the Florida Probe program in patients before treatment. The results of clinical assessment of the depth of periodontal pockets are presented in the table:

Dynamics of periodontal pocket depth indicator.

Groups \ Deadlines	Depth of periodontal pockets, mm	
	Before treatment n=66	2 years after treatment
Group 1 Main AMK (3 procedures), n=14	6,09±0,18 P>0,25	3,34±0,15 P<0,001 P2<0,001
Group 2 Main PRP (3 procedures), n=12	5,02 ± 0,20 P>0,3	2,89±0,18 P<0,001 P2<0,001
Group 3 Main PPP (5 procedures), n=13	7,21±0,28 P<0,001	5,56±0,21 P>0,25 P2>0,1
Group 4 Main i-PRF (5 procedures), n=12	6,44±0,19 P<0,02	4,79±0,26 P>0,25 P2<0,05

Note: P – significance of differences with the comparison group; P2 – significance of differences with the group before treatment.

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Rice. 1. Indicators of gingival-periodontal indices

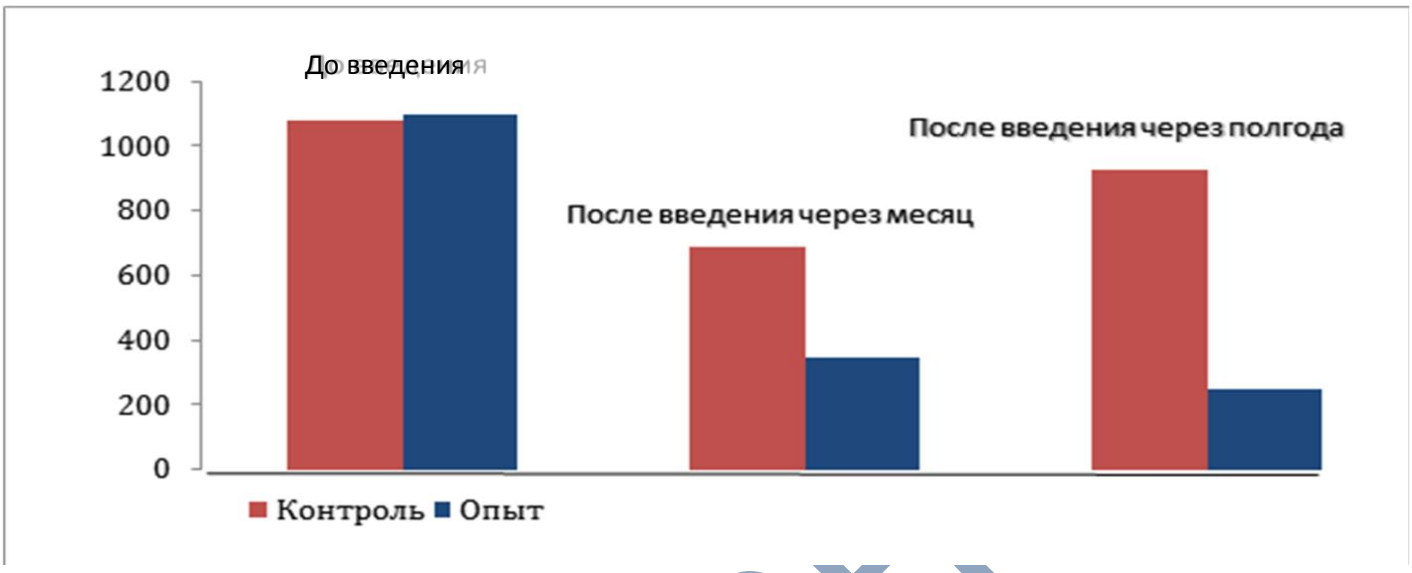

Fig: Indicators of gingivo-periodontal indices.

When assessing the depth of the periodontal pocket after treatment, one can note a significant decrease in indicators in the groups of patients in which active forms of injectable plasma containing a large amount of platelet-derived growth factors were used for treatment, AMK 3.34 ± 0.15 mm and PRP 2.89 ± 0.18 mm these the indicators were significant both in comparison with these groups before treatment P2<0.001, and in comparison with the comparison group after treatment P<0.001.

The group in which treatment was carried out with the normoplasma preparation PPP, there were no significant differences 2 years after treatment, not in comparison with this group before treatment P2>0.1, not in comparison with the comparison group after treatment P>0.25, it was not noted that can only be regarded as a tendency to reduce the depth of periodontal pockets.

CONCLUSION

The results obtained showed that the dynamics of changes in the depth of periodontal pockets in the long-term results of treatment were observed in groups where plasma preparations with a high content of platelet-derived growth factors AMK and PRP were used as part of the treatment complex. In the PPP and i-PRF groups, there was a trend toward improvement, which makes it possible to recommend the use of these drugs not as a single use, but as an option for maintenance therapy in the treatment of generalized periodontitis. The use of platelet autoplasma is a progressive method in the treatment of inflammatory and destructive processes of periodontal tissue. The use of Autoplasma is a new stage in clinical periodontology. The effectiveness of this method of treatment allows you to achieve the desired results in a shorter time and for a longer time.

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