

## CLINICAL CONDITION OF PERIODONTIUM IN THE DYNAMICS OF CONVENTIONAL AND COMPLEX THERAPY WITH USE OF MEXIDOL AND BLOOD LASER EXPOSURE IN CASE OF CHRONIC PERIODONTITIS

Rizaeva S.M.

*Tashkent Academy of Medicine, Tashkent, e-mail: MikaSabi@yandex.ru*

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Isolated examinations of the local processes determining progression of periodontitis as well as local medical measures do not comply with up-to-date medical practice requirements. Complex clinical evaluation showed positive treatment results within all groups of patients. System approach to the treatment of patients suffering from periodontitis with application of system and local correction means within the boundaries of this research resulted in improvement of clinical results in comparison with conventional treatment method.

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**Keywords:** periodontium, Mexidol, blood laser, chronic periodontitis

**Topicality.** The periodontium diseases represent one of the most complicated problems of stomatology and regardless improvement of stomatological treatment the number of the patients remains rather considerable. As of today it has been ascertained that 5 to 15% of the population alone suffers from generalized severe periodontitis while moderately severe periodontitis affects the most of adults [5, 6]. According to the data of WHO (report of scientific group of WHO issued in 1990 based on examination of population in 53 countries) level of development of the periodontium diseases is very high at the age of 35-44 years old (65 to 98%) and at the age of 15-19 years old (55 to 99%) [1]. The results given below show no decline tendency of the periodontitis development within last 15 years in spite of considerable success in revelation of aetiology and pathogenesis of this pathology. Three principal hypotheses explaining development of inflammatory periodontium diseases prevail in the foreign literature: [2, 3, 7, 4].

1. Nonspecific inflammation caused by microflora within the oral cavity in the setting of immunodeficiency.

2. Specific inflammation caused by one or several bacterial species in the setting of normal organism resistance.

3. Combination of first and second hypotheses that is decline of the organism resistance and specific inflammation.

Actually the principal essence integrating these hypotheses is represented by presence of inflammation. Considering all mentioned above, the **purpose** of our research has been represented by selection of the optimal complex treatment.

### Materials and methods of research

Before the therapy all patients were subjected to required oral cavity sanitization, supra-gingival and sub-gingival scaling, removal of occlusion traumatic nodes, and curettage of pathologic recesses. All pathologic recesses were irrigated by 0,1% solution of chlorophyllipt. Metragil Denta Professional gel was applied to the areas of affected recesses. After removal of the effects of acute inflammation and at the absence of serous-purulent discharge the pathogenetic therapy had been performed as per methodology of such type of treatment. Depending on the type of treatment applied 4 groups of the patients have been defined.

Group 1 (control) – proceeding of antibacterial therapy – 25 patients;

Group 2 (main) – antibacterial treatment in combination with PBLE (percutaneous blood laser exposure) – 26 patients;

Group 3 (main) – antimicrobial treatment in combination with IBLE (intravascular blood laser exposure) and PBLE – 26 patients.

Group 4 (main) – 25 patients who along with IBLE and PBLE had been subjected to local application of Mexidol saturated turunda to the area of affected pathologic recesses under protective fixed bandage after PBLE procedure, and systematic administration of Mexidol in the form of 0,56-2,0 intramuscular injections as per the treatment course providing for 14 injections.

IBLE procedure (output power – 2MV, exposure duration – 15 minutes) had been applied on daily basis. The treatment course provided for 15 sessions. IBLE was performed by means of «Matrix-IBLE» apparatus, radiating head KL-IBLE, wavelength – 0,63 micrometer, light conduit output power – 1,5-2 mV, equipped with special Teflon coated needles.

Local exposure to radiation of nidus (PBLE) by means of «Mustang 017 – MCS-PC» apparatus with magnet head generating intensity of magnetic field equal to 50 mT, exposure – per 5 minutes, frequency – 1000 Hz. Treatment course – 15 sessions as a rule along with IBLE.

### Results of research and their discussion

Stomatological examination of patients has revealed the changes of periodontal complex tissues corresponding to GMSP (generalized moderately severe periodontitis). In order to evaluate the intensity of clinical symptoms and general severity of clinical course of pathologic process in periodontium the evaluation of clinical symptoms by points and integral index of general severity of periodontium affection have been applied – IGS [Kamilov H.P., Bekjanova O.E. 2008].

It should be noted that before the treatment the intensity of patients' complaints, independent research data, indexes of hygiene, inflammation and destruction of periodontium in compared groups didn't have statistically significant differences (table). Preliminary research of stomatological status allowed performing of comparative clinical evaluation of various treatment methods.

As a result of treatment applied the general state of the patients in the groups improved, the

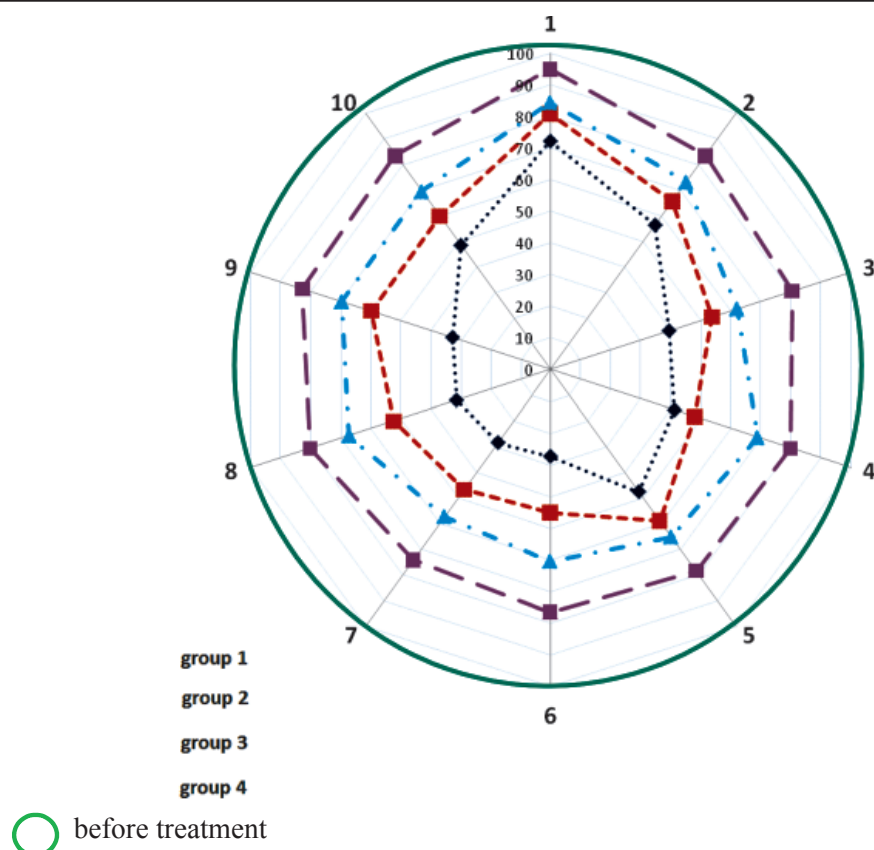
intensity of patients' complaints diminished, and the stomatological indexes decreased. The teeth mobility and induration of marginal gingiva had impartially reduced, and the periodontal recesses abated and in some cases disappeared completely. The pain and offensive breath had also abated, and gingival hemorrhage diminished or disappeared.

The gingiva was of pale pink color, with no hemorrhage, bearing against the teeth. The gingival papilla was of distinct festoon shape occupying interdental spaces in the area of dental neck. Part of the patients still had the edema and hyperemia of interdental papilla. As a rule the capillary network pattern occurred on mobile mucous coat.

Application of unified method of evaluation of particular complaints, symptoms and data of objective research by IGS indexes allowed comparison of treatment results in separate groups and making of quantitative evaluation thereof (table).

According to the data given in the table the improved efficiency of treatment in compared groups was unequal and had been determined by the type of therapy applied.

Thus, intensity of painful sensation in the control group (antibacterial therapy) had diminished after the treatment by 72,2% ( $P < 0,01$ ); in the main group 2 (antibacterial therapy + IBLE) – by 80,87% ( $P < 0,01$ ); in the main group 3 (antibacterial therapy + IBLE + PBLE) – by 84,44% ( $P < 0,01$ ); in the main group 4 (antibacterial therapy + IBLE + PBLE + Mexidol) – by 95,15% ( $P < 0,01$ ). The dynamics of hemorrhage reduction in the group 1 came to 56,42% ( $P < 0,01$ ); in group 2 – 65,71% ( $P < 0,01$ ); in group 3 – 73,27% ( $P < 0,01$ ) and in group 4 – 83,64% ( $P < 0,01$ ); relevant dynamics of offensive breath intensity came to 39,53% ( $P < 0,01$ ); 53,89% ( $P < 0,001$ ); 62,26% ( $P < 0,001$ ) and 80,47% ( $P < 0,001$ ); dynamics of the depth of periodontal recesses – 41,32% ( $P < 0,01$ ); 48,09% ( $P < 0,01$ ); 69,00% ( $P < 0,01$ ) and 77,87% ( $P < 0,01$ ); dynamics of teeth mobility – by 47,64% ( $P < 0,01$ ); 58,93% ( $P < 0,01$ ); 65,22% ( $P < 0,01$ ) and 78,45% ( $P < 0,01$ ); presence of elution from periodontal recesses – by 27,35% ( $P < 0,01$ ); 45,4% ( $P < 0,01$ ); 60,45% ( $P < 0,01$ ) and 76,58% ( $P < 0,001$ ) in groups 1, 2, 3 and 4 respectively (Figure).



1.	Pain	6.	Periodontal recess elution
2.	Hemorrhage	7.	PMA index
3.	Offensive bread	8.	OHI-S index
4.	Depth of periodontal recess	9.	PI index
5.	Teeth mobility	10.	IGS

### Conclusion

Positive clinical result of the treatment has been testified by decreasing of periodontal and hygienic indices' values. As well as in the case of clinical symptoms the treatment response has been arranged as follows: group 1 > group 2 > group 3 > group 4.

Dynamics of objective and subjective clinical indices, as well as indices of hygiene, inflammation and destruction of periodontium within compared groups (in% in relation to value before the treatment).

### References

1. Bekjanova O.E. Clinic – pathogenetic aspects of chronic periodontitis treatment. Abstract of a thesis of the Candidate of Medical Sciences. – Tashkent, 2008. – P. 33.
2. Bobrovnikskiy I.P., Nagornev S.N., Rygina K.V. Application of interval hypoxic training and Mexidol antioxidant in case of chronic generalized periodontitis // *Stomatology*. – 2008. – №3. – P. 27-31.
3. Zyryanova N.V., Grigoryan A.S., Gruyanov A.I., Frolova O.A., and others. Species composition of anaerobic microflora of periodontal recess depending on periodontitis stage // *Stomatology*. – 2009. – №4.43. – P. 43-46.
4. Kamilov H.P. Clinic-pathogenetic aspects of combined laser therapy applied to periodontitis patients: Abstract of a thesis of the Doctor of Medicine – Tashkent, 2002. – P. 25.
5. Kolesova N.A., Politun A.M., Kolesova N.V. Concept of heterogeneity of periodontium diseases determining specifics of treatment method // *Modern stomatology*. – 2006. – №1. – P. 61-64.
6. Albandar JM. Global risk factors and risk indicators for periodontal diseases // *Periodontol*. – 2000, 2002. – №29. – P. 177-206.
7. Baybekov I.M., Ibragimov A.I., Rizaeva S.M., Baybekov A.I. Application of laser therapy for reduction of changes in erythrocytes and cells of body in their pathology. Photodiagnosis and photodynamic therapy. Abstracts of Laser Helsinki 2010 15th International congress of EMLA, P 13. Helsinki 2010 Bergstrom J, Bostrom L. Tobacco smoking and periodontal hemorrhagic responsiveness // *J Clin Periodontol*. – 2001. – №28. – P. 680-685.