OPPORTUNITIES FOR ULTRASOUND AND LOW-INTENSITY LASER IN THE TREATMENT OF PERIODONTAL DISEASES

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Introduction. Chronic periodontitis is characterized by high prevalence and intensity in ambulatory patients. In addition, this disease is characterized by a long, persistent course and is poorly amenable to drug therapy. Often, periodontal diseases exist against the background of chronic somatic diseases, which exacerbates the severity of this pathology. Classical treatment of periodontitis, including medical and surgical methods of exposure, are not always effective.

Currently, in the complex treatment of periodontal tissue diseases in the absence of contraindications, low-intensity laser radiation (LILR) is used. When exposed to surface formations, it is preferable to use the radiation of the LILR in the red spectrum. One of the modern methods in periodontics is the use of the Vector-system (DurrDental, Germany). The technique is based on the combined effects of ultrasound and fine hydroxyapatite. Since the antibacterial and anti-inflammatory effects of the effects of the Vector system are mediated, it seems appropriate to combine the effects of ultrasound with hydroxyapatite and low-intensity laser radiation.

The purpose of this study is to increase the effectiveness of treatment of chronic periodontitis in patients with somatic pathology.

On the basis of experimental studies carried out within the framework of the State Scientific-Technical Program "Develop a surgical method for the treatment of diseases of periodontal tissues and apical periodontal using the drug hydroxyapatite and low-intensity laser", we proposed a method for the treatment of chronic forms of periodontitis. The method is based on a combination of the effects of the Vector-system and LILR.

The method was used to treat 30 patients who were on outpatient treatment at the 8th City Clinical Dental Clinic of Minsk, with a diagnosis of chronic periodontitis of mild and moderate severity. The treatment was carried out according to the following scheme. On the first visit, professional oral hygiene was carried out, medical treatment followed by irradiation of the gingival margin of LILR in the red range of the spectrum (power 5 mW, MRP 16-20 mW/cm², exposure 40 seconds, radiation dose 0.6 J/cm²). During the second visit (after 1-3 days), periodontal pockets were processed with the help of the Vector apparatus and the laser effect was repeated. The course of treatment was individual and was 5-7 days. The comparison group consisted of 30 patients with a similar diagnosis who were treated according to the traditional scheme. The evaluation criteria were complaints, the clinical picture based on the definition of the GI index.

Results. In the main group, in the second visit, 9 people (30%) presented complaints of discomfort and bleeding gums when brushing their teeth. Their GI index values ranged from 1.85 ± 0.18 to 2.1 ± 0.2 points. The remaining patients

(70%) noted a significant improvement. Hyperemia, bleeding and painful sensations accompanying brushing decreased. The average value of the GI index was 1.58 ± 0.16 points. In the comparison group, improvement of the gum condition was noted by 4 people (13%), the average value of the GI index was 1.7 ± 0.17 points. In 87% of cases, patients did not observe significant changes. In the third visit, after using ultrasound with hydroxyapatite, only 2 patients (6.5%) from the main group complained of minor bleeding of the gums when brushing their teeth. In the vast majority of cases, complaints were absent, clinically the symptoms of inflammation were defined as slight hyperemia, and the average GI index was 0.96 ± 0.08, which corresponded to a mild degree of inflammation. In the comparison group, the mean GI index was 1.72 ± 0.17 points (moderate inflammation). In 46% of cases, patients subjectively noted an improvement in the state of the gums, but an objective examination also revealed inflammation of moderate severity.

Findings. The use of the proposed method in patients diagnosed with chronic periodontitis allowed, on the second visit, to reduce the degree of gum inflammation in 70% ± 6.9 cases. By the third visit, a positive result of treatment was registered in 93.5% of patients. The traditional scheme of treatment of this pathology made it possible to somewhat improve the condition of the gums, but an objective assessment of the clinical picture of the disease showed that there was moderate hyperemia, swelling of the gingival margin, and in some cases bleeding when probing.

Thus, the effect of LILR on the mucous membrane of the gums in the early stages of treatment, combined with the use of the Vector-system, can significantly increase the effectiveness of treatment of chronic periodontitis of mild and moderate severity.