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Periodontitis: Modern Approaches to Treatment and Prevention. Clinical Results

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Abstract:
Periodontitis is one of the most common chronic inflammatory diseases of the periodontal tissues and is a leading cause of premature tooth loss in adults. The disease is characterized by a progressive course, a tendency to recur , and a close relationship with systemic pathology. This article presents modern approaches to the treatment and prevention of periodontitis and analyzes the clinical effectiveness of combination therapy. A clinical observation of patients with chronic periodontitis was conducted. In a study of patients with generalized periodontitis, the dynamics of clinical indicators and the sustainability of remission were assessed using preventive programs. The results demonstrate the high effectiveness of comprehensive treatment combined with systemic prevention and follow-up.
Key words: Periodontitis, inflammatory periodontal diseases, treatment, prevention, clinical results, remission.

Relevance. Periodontitis is one of the most significant inflammatory diseases of the oral cavity and represents a serious medical and social problem in modern dentistry. According to epidemiological studies, signs of periodontitis are detected in more than 60–70% of the adult population, with severe forms of the disease leading to tooth loss, impaired chewing function, and a reduced quality of life. Chronic periodontitis is caused by prolonged persistence of inflammation in the periodontal tissues, accompanied by destruction of the periodontal ligament and alveolar bone resorption.

The etiology of periodontitis is multifactorial. A leading role is played by the microbial biofilm, which contains periodontopathogenic microorganisms with pronounced virulent properties. Bacterial toxins and enzymes activate an inflammatory response, accompanied by the release of proinflammatory cytokines, impaired microcirculation, and increased osteoclastic activity. Local factors, such as poor oral hygiene, traumatic occlusion, and malocclusion, as well as general risk factors, including diabetes, smoking, and immune disorders, significantly influence the development and progression of the disease.

Periodontitis treatment should be comprehensive and aimed at eliminating the inflammatory process, reducing the microbial load, restoring periodontal tissue, and preventing recurrence. Conservative therapy includes professional oral hygiene, removal of subgingival and subgingival plaque , antiseptic treatment of periodontal pockets, and the use of anti-inflammatory medications. The use of topical antiseptics and antibacterial agents can reduce the activity of microflora and alleviate the severity of clinical symptoms.

In more severe cases, surgical treatment is used to eliminate pockets and stabilize periodontal tissue. Orthopedic correction and splinting of loose teeth are also important, helping to redistribute chewing forces and prevent further tissue destruction. An integral component of therapy is teaching patients personal hygiene and motivating them to engage in long-term preventative care.

Purpose of the study

The aim of this study was to evaluate the clinical effectiveness of complex treatment and preventive measures in patients with chronic generalized periodontitis, as well as an analysis of the dynamics of the main clinical and periodontal indicators during the observation process.

Materials and methods of research

The study was conducted at the dental department between 2022 and 2024. Ninety-eight patients aged 30 to 55 years with a diagnosis of mild to moderate chronic generalized periodontitis were observed. The average age of the subjects was 43.2 ± 5.6 years. There were 44 men (44.9%) and 54 women (55.1%).

Inclusion criteria for the study included clinically confirmed chronic generalized periodontitis, the absence of severe somatic diseases in the decompensation stage, and informed patient consent. Exclusion criteria included severe periodontitis, acute inflammatory diseases of the oral cavity, pregnancy, and refusal of follow-up.

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Patients were divided into two groups based on the scope of treatment and preventive measures. The study group consisted of 52 patients who received comprehensive treatment with a mandatory preventive program, including training in individual oral hygiene, professional oral hygiene every three months, and regular follow-up. The control group consisted of 46 patients who received standard treatment without systematic preventive support.

The complex treatment included professional oral hygiene, removal of subgingival and subgingival dental plaque, and closed curettage. Periodontal pockets, local antiseptic therapy, and the use of anti-inflammatory drugs. Treatment effectiveness was assessed before therapy, 3 months later, and 6 months later.

Research results

Before treatment, all patients examined showed signs of active periodontal inflammation. The average periodontal pocket depth in the study group was 4.6 ± 0.4 mm, the bleeding index was 2.3 ± 0.2, and the oral hygiene index was 2.8 ± 0.3. In the control group, these parameters did not differ statistically significantly and were 4.5 ± 0.5 mm, 2.2 ± 0.2 mm, and 2.7 ± 0.3 mm, respectively.

Three months after the comprehensive treatment, the study group showed significant improvement in all clinical parameters studied. The average periodontal pocket depth decreased to 3.1 ± 0.3 mm, the bleeding index to 1.2 ± 0.1, and the hygiene index to 1.4 ± 0.2. Clinical signs of inflammation were minimal or absent in most patients.

After six months of observation, stable clinical remission was maintained in 84.6% of patients in the study group. Signs of recurrent inflammation were observed in 15.4% of patients and were moderate in nature, without significant periodontal tissue destruction.

The control group also showed positive dynamics after 3 months, although these were less pronounced. The average periodontal pocket depth was 3.8 ± 0.4 mm, the bleeding index was 1.7 ± 0.2, and the hygiene index was 1.9 ± 0.3. After 6 months, 28.3% of patients in the control group showed signs of recurrent inflammation, accompanied by increased periodontal pocket depth and increased gum bleeding.

The obtained results demonstrate the high effectiveness of comprehensive periodontitis treatment combined with systemic prevention, which significantly reduces inflammatory activity, improves clinical outcomes, and ensures more sustained disease remission. Periodontitis prevention is a key element of dental care and includes primary and secondary measures. Primary prevention is aimed at preventing the progression of the disease and includes regular personal and professional oral hygiene, risk factor elimination, and health education. Secondary prevention involves early detection of inflammatory changes and timely treatment. Monitoring patients with chronic forms of periodontitis is particularly important.

Thus, comprehensive periodontitis treatment combined with systemic prevention can significantly improve clinical outcomes, reduce the frequency of relapses, and maintain the functional integrity of the dental system. These results support the feasibility of implementing individualized treatment and preventive programs into dental care.

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