



NEW METHODS OF TREATMENT AND PREVENTION OF PERIODONTITIS

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Abstract. Periodontitis is one of the most common periodontal diseases characterized by inflammation and destruction of the supporting tissues of the tooth. The article discusses modern methods of treatment and prevention of periodontitis, including innovative approaches. The main causes of the pathology are bacterial infection, plaque and tartar deposits, immune disorders, as well as systemic diseases (diabetes mellitus, osteoporosis). The disease can be chronic, leading to progressive bone resorption, mobility, and tooth loss. Treatment of periodontitis requires an integrated approach, including professional oral hygiene, antibacterial therapy, surgical intervention (flap surgery, bone grafting) and correction of systemic factors. Prevention plays a key role in preventing the progression of the disease.

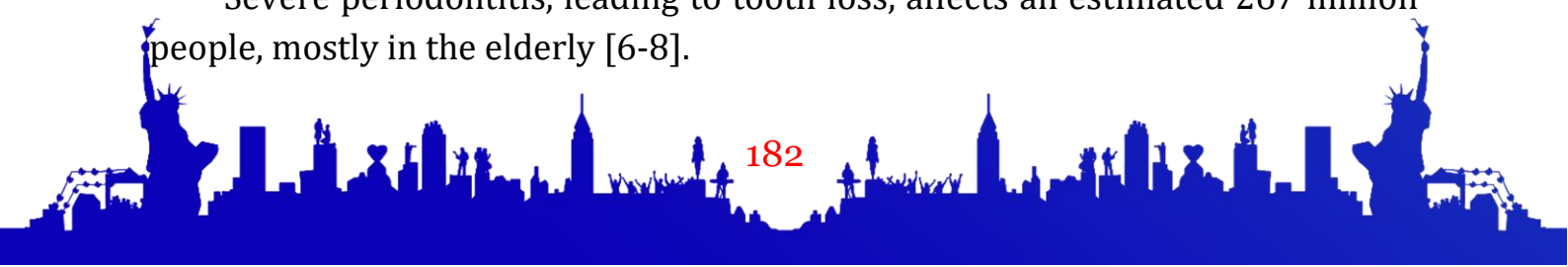
Keywords: periodontitis, bacterial infection, plaque, tartar, tooth loss, treatment, prevention.

Relevance. Periodontitis is an inflammatory disease of the periodontal tissues, which leads to the destruction of the ligamentous apparatus of the teeth and the bone tissue of the alveolar process.

The high prevalence of periodontitis among the adult population, reaching 70-80%, makes the problem of its effective treatment and prevention extremely urgent. Untimely or inadequate treatment can lead to tooth loss and deterioration in the quality of life of patients. Therefore, the development and implementation of new methods of therapy and prevention of periodontitis are priority tasks of modern dentistry [1-5].

In terms of overall prevalence, periodontitis is the second most common dental disease after dental caries. Chronic periodontitis affects about 750 million people, representing approximately 10.8% of the world population as of 2010.

Severe periodontitis, leading to tooth loss, affects an estimated 267 million people, mostly in the elderly [6-8].





According to many studies, the occurrence of periodontitis is also facilitated by geographical and socioeconomic factors. In economically disadvantaged regions, periodontitis is more common in regions with a low standard of living and limited access to dental care. Its prevalence decreases with an increase in the standard of living [9, 10].

Ethnic differences also influence periodontitis statistics. In some populations, such as Israel, people of Yemeni, North African, South Asian, or Mediterranean descent have a higher prevalence of periodontitis compared to people of European descent [11, 12].

According to the WHO, periodontitis can also cause economic damage. For example, severe periodontitis causes lost productivity each year, costing the global economy approximately USA \$54 billion. [13-15].

These data highlight the need to strengthen preventive measures, improve access to dental care and raise awareness of periodontitis to reduce its prevalence and negative health consequences for the population.

The aim of our study is to analyze modern methods of treatment and prevention of periodontitis, with an emphasis on innovative approaches.

Theoretical foundations. Periodontitis is a common gum disease characterized by inflammation and destruction of the supporting tissues of the teeth. Its prevalence and severity vary by region, age, and socioeconomic factors.

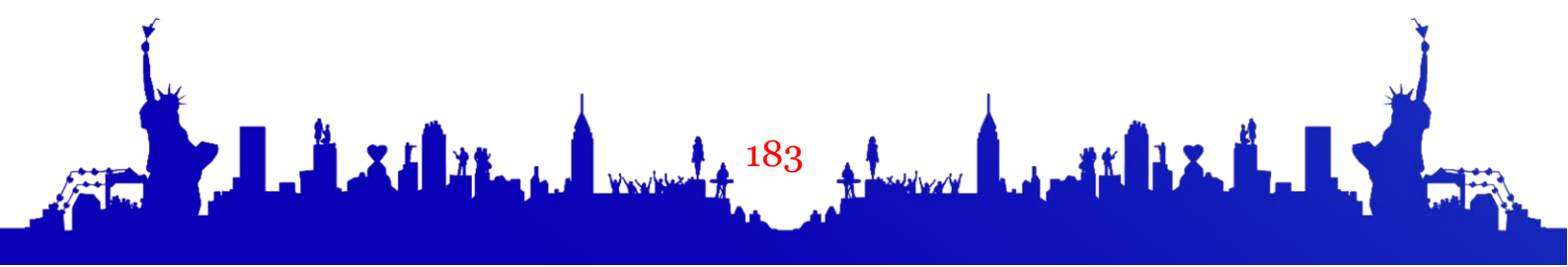
The data obtained as a result of the literature analysis confirm the existing trend of deterioration of the periodontal condition with age, which requires the development of more effective and comprehensive treatment methods.

Modern methods of treating periodontitis, including traditional approaches and innovative technologies, include:

Mechanical treatment: Removal of dental plaque using ultrasonic scalers remains the mainstay of periodontitis therapy. This method allows for the effective removal of plaque and calculus, reducing the bacterial load on periodontal tissues.

Antibacterial therapy: The use of local and systemic antibiotics is aimed at suppressing pathogenic microflora. However, due to the risk of bacterial resistance, careful and justified use of antibiotics is recommended.

Laser therapy: The use of diode lasers has been shown to be effective in reducing inflammation and stimulating tissue regeneration. Laser therapy can be an adjunct to mechanical treatment, improving clinical outcomes.





Photodynamic therapy (PDT): The method is based on the use of photosensitizers and light radiation to destroy pathogenic microorganisms. PDT has an antibacterial effect and promotes tissue healing.

Stem cell applications: Research shows promise in using mesenchymal stem cells to regenerate damaged periodontal tissue. In experimental models, the introduction of stem cells helped restore the structure of the gum and bone tissue.

Phytotherapy: The use of preparations based on plant extracts with anti-inflammatory and antimicrobial properties is an additional method in the complex therapy of periodontitis.

The use of various therapeutic approaches made it possible to evaluate their effectiveness. Mechanical treatment and antibacterial therapy remain the basic methods, but they do not always provide a long-term effect and may be accompanied by relapses. Modern methods, such as laser therapy and photodynamic therapy (PDT), have demonstrated a more pronounced anti-inflammatory and antimicrobial effect, which has allowed for better tissue regeneration and reduction of the inflammatory process.

Of particular interest is the use of stem cells, which opens up new prospects for the treatment of severe forms of periodontitis. This method is aimed at restoring the destroyed bone and soft tissue structure, which is especially important for patients with severe periodontal tissue loss. However, further research is needed to assess the long-term results and safety of this approach.

In addition, herbal medicine has been used as an adjunctive method and has shown potential in reducing inflammation and improving overall gum health. However, its effectiveness as a primary method remains limited and should be used in combination with other therapeutic strategies.

Thus, the obtained data confirm the need for a combined approach to the treatment of periodontitis, which includes not only traditional methods, but also innovative technologies. Therefore, these studies allow us to determine optimal treatment regimens that take into account the age characteristics of patients and the severity of the disease.

Conclusions. Modern periodontology offers a wide range of methods for the treatment and prevention of periodontitis. The combination of traditional approaches with innovative technologies, such as laser and photodynamic therapy, the use of stem cells and herbal preparations, allows for increased treatment efficiency and improved prognosis for patients. Further research and





clinical trials are needed to optimize these methods and their widespread implementation in dental practice.

The most effective method for combating periodontitis is prevention, aimed at eliminating the factors that contribute to the development of periodontal tissue inflammation, and includes several key aspects:

1. Individual oral hygiene:

- Regular brushing of teeth at least 2 times a day using a soft or medium-hard toothbrush.

- Use of toothpaste with antibacterial components (for example, with chlorhexidine, triclosan, herbal extracts).

- Use of dental floss or an irrigator to remove plaque from between teeth.

- Use of mouthwashes with an antiseptic effect.

2. Professional oral hygiene:

- Regular visits to the dentist every 6 months for examination and prevention.

- Removal of tartar using ultrasound or the Air Flow method.

- Polishing and remineralization of enamel after professional cleaning.

3. Lifestyle and nutrition correction

- Limiting the consumption of sugar and simple carbohydrates, which promote the growth of pathogenic microflora.

- Enriching the diet with foods rich in calcium, fluorine, vitamins C and D (dairy products, fish, fresh vegetables and fruits).

- Quitting smoking and reducing alcohol consumption, as these factors weaken periodontal tissues and reduce their resistance to infection.

4. Treatment and control of systemic diseases

- Control of blood sugar levels in patients with diabetes, as hyperglycemia worsens the condition of the periodontium.

- Treatment of hormonal disorders, gastrointestinal diseases and cardiovascular system, which can contribute to the development of periodontitis.

5. Use of special dental products

- Use of medicinal gels and ointments for gums (for example, with metronidazole, chlorhexidine, propolis).

- Carrying out gum massages and physiotherapeutic procedures (laser therapy, darsonvalization) to improve blood circulation.

6. Genetic and microbiological monitoring





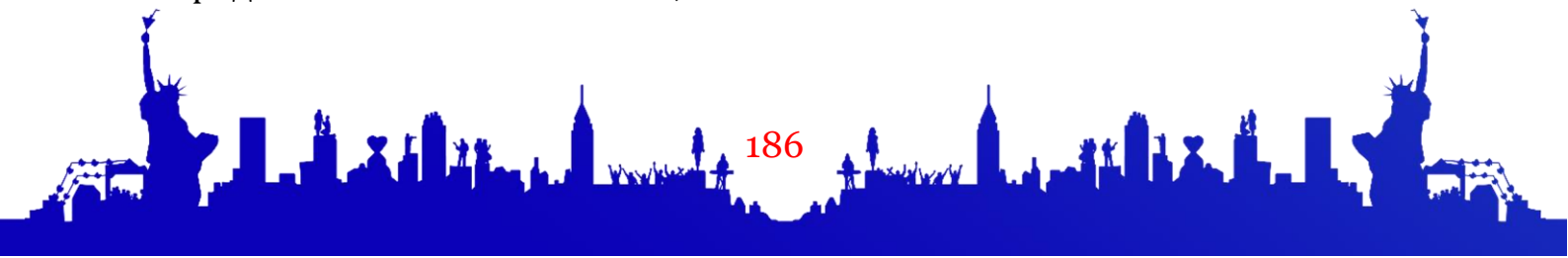
- Patients with a hereditary predisposition to periodontitis are recommended to undergo regular examinations and visit the dentist more frequently.

- In some cases, a microbiological study of the oral microflora is prescribed to determine the risk of inflammation.

A comprehensive approach to the prevention of periodontitis can significantly reduce the risk of its development and progression. It is important not only to maintain oral hygiene, but also to monitor your overall health, nutrition and lifestyle.

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