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НОВЫЙ ДЕНЬ В МЕДИЦИНЕ

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A COMPREHENSIVE REVIEW OF THE CLINICAL PROGRESSION AND CLASSIFICATION OF PERIODONTAL DISEASES

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✓ ***Resume***

Periodontal diseases represent a group of common conditions characterized by inflammation of the tissues supporting the teeth, which can lead to tooth loss if not properly treated. The main types of periodontal diseases are gingivitis and periodontitis. This article explores the clinical aspects of these diseases, their classification and pathogenesis, as well as the importance of early diagnosis and prevention. The progression of gingivitis to periodontitis can result in more severe outcomes, including bone destruction and tooth loss. We also analyze modern approaches to the treatment of periodontal diseases and their connection with systemic conditions such as diabetes and cardiovascular diseases. Special attention is given to risk factors such as smoking, age, and genetic predisposition, as well as innovative methods of diagnosis and therapy. In conclusion, the need for integrating dental care into the comprehensive treatment of patients with chronic illnesses is emphasized.

Keywords. Periodontal diseases, gingivitis, periodontitis, clinical course, risk factors, diagnosis, treatment, prevention, cardiovascular diseases, diabetes, innovative treatment methods.

PARODONTAL KASALLIKLARNING KLINIK KECHISHI VA TASNIFINING HAR TOMONLAMA TAHLILI

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✓ ***Rezyume***

Parodontal kasalliklar — bu tishlarni ushlab turuvchi to‘qimalarning yallig‘lanishi bilan kechuvchi va tegishli davolovsiz tish yo‘qotilishiga olib kelishi mumkin bo‘lgan keng tarqalgan holatlar guruhidir. Parodontal kasalliklarning asosiy turlari gingivit va parodontit hisoblanadi. Ushbu maqolada ushbu kasalliklarning klinik jihatlari, ularning klassifikatsiyasi va patogenezi, shuningdek, erta diagnostika va profilaktikaning ahamiyati yoritib beriladi. Gingivitning parodontitga o‘tishi suyaklarning yemirilishi va tish yo‘qotilishi kabi jiddiy oqibatlarga olib kelishi mumkin. Shuningdek, parodontal kasalliklarni davolashning zamonaviy yondashuvlari va ularning qandli diabet hamda yurak-qon tomir kasalliklari kabi tizimli kasalliklar bilan bog‘liqligi tahlil qilinadi. Chekish, yosh va genetik moyillik kabi xavf omillari, shuningdek, diagnostika va terapiyaning innovatsion usullariga alohida e’tibor qaratilgan. Xulosa o‘rnida, surunkali kasalliklarga chalingan bemorlarni davolashda stomatologik yordamni kompleks yondashuvga integratsiya qilish zarurligi ta’kidlanadi.

Kalit so‘zlar. Parodontal kasalliklar, gingivit, parodontit, klinik kechish, xavf omillari, diagnostika, davolash, profilaktika, yurak-qon tomir kasalliklari, diabet, innovatsion davolash usullari.

ВСЕСТОРОННИЙ ОБЗОР КЛИНИЧЕСКОГО ТЕЧЕНИЯ И КЛАССИФИКАЦИИ ПАРАДОНТАЛЬНЫХ ЗАБОЛЕВАНИЙ

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✓ ***Резюме***

Парадонтальные заболевания представляют собой группу распространенных состояний, характеризующихся воспалением тканей, поддерживающих зубы, что может привести к их утрате при отсутствии надлежащего лечения. Основными видами парадонтальных заболеваний являются гингивит и парадонтит. В статье рассмотрены клинические аспекты этих заболеваний, их классификация и патогенез, а также значимость ранней диагностики и профилактики. Прогрессирование гингивита до парадонтита может приводить к более серьезным последствиям, включая разрушение кости и потерю зубов. Мы также анализируем современные подходы к лечению парадонтальных заболеваний и их связь с системными заболеваниями, такими как диабет и сердечно-сосудистые заболевания. Особое внимание уделено факторам риска, таким как курение, возраст и генетическая предрасположенность, а также инновационным методам диагностики и терапии. В заключение подчеркивается необходимость интеграции стоматологической помощи в комплексное лечение пациентов с хроническими заболеваниями.

Ключевые слова: Парадонтальные заболевания, гингивит, парадонтит, клиническое течение, факторы риска, диагностика, лечение, профилактика, сердечно-сосудистые заболевания, диабет, инновационные методы лечения.

Relevance

Periodontal diseases are inflammatory conditions affecting the tissues that support the teeth and are among the most prevalent and slowly progressing diseases worldwide. These conditions arise due to an imbalance in the oral microbiological environment and primarily affect the gingiva and alveolar bone. According to the World Health Organization (WHO), more than 538 million people suffered from periodontal diseases such as gingivitis and periodontitis in 2019. Moreover, these diseases are closely associated not only with oral health but also with systemic conditions such as cardiovascular disease, diabetes, and respiratory disorders (Eke et al., 2018).

The disease typically begins as gingivitis, characterized by inflammation and bleeding of the gums. If left untreated, gingivitis can progress to periodontitis, which results in the destruction of alveolar bone and increased tooth mobility. Severe forms of periodontitis may eventually lead to tooth loss. Understanding the inflammatory mechanisms, the types of periodontitis and gingivitis, their pathogenesis, and associated risk factors is critical for the development of effective treatment and prevention strategies.

Numerous scientific studies have focused on the clinical progression and classification of periodontal diseases. The primary causes of gingivitis and periodontitis are microbial infections and host immune responses, which can lead to the destruction of gingival and alveolar bone tissues.

Types of Gingivitis and Periodontitis

1. Gingivitis Gingivitis is the mildest form of periodontal disease, affecting only the gums. It is characterized by inflammation, redness, and bleeding of the gingival tissues without involving the deeper supporting bone structures.

- Prevalence: According to various studies, approximately 50–90% of the adult population suffers from gingivitis, primarily due to poor oral hygiene and microbial plaque accumulation.

- Pathology: Gingivitis develops as a result of bacterial biofilm (dental plaque), which induces localized inflammation of the gums without affecting the underlying connective or bone tissues.

2. Periodontitis. Periodontitis is a more severe and advanced form of periodontal disease that often develops from untreated gingivitis. It involves inflammation and progressive destruction of the alveolar bone and the supporting structures of the teeth.

- Prevalence: Approximately 10–15% of adults are affected by severe forms of periodontitis. Major risk factors include smoking, diabetes, and poor nutrition.

- **Pathogenesis:** The development of periodontitis is driven by microbial infection, host immune responses, chronic inflammation, and the breakdown of bone and connective tissues.

Recent advances in periodontal disease research. In recent years, research has increasingly confirmed the association between periodontitis and various systemic diseases. Studies have shown that periodontitis increases the risk of cardiovascular diseases by 19%, and in patients over 65 years old, this risk may rise up

to 44% (Van Dyke & Kornman, 2008). Therefore, early diagnosis of periodontal diseases and understanding their links with systemic conditions have become crucial aspects of treatment and prevention.

This study aims to analyze the clinical progression of periodontal diseases, their pathogenesis, risk factors, as well as diagnostic and therapeutic methods. Understanding the clinical course of periodontitis and its connection with systemic diseases will aid in developing more effective prevention and treatment strategies.

Key Points:

1. Periodontal diseases affect more than 538 million people worldwide.
2. Gingivitis and periodontitis develop as a result of microbial infection and immune responses.
3. Periodontitis is associated with systemic diseases such as cardiovascular diseases and diabetes.
4. Early diagnosis and prevention of periodontal diseases are essential for improving overall health.

The clinical course of periodontal diseases, mainly gingivitis and periodontitis, presents in various patterns depending on disease severity, duration, and the host's immune response to microbial infection. Collected data and literature indicate that the progression of periodontal diseases is influenced by multiple factors, including microbiological composition, systemic diseases, and lifestyle factors such as smoking and nutrition.

Prevalence and Distribution of Periodontal Diseases: According to global studies, the prevalence of gingivitis is high, affecting 50–90% of the adult population worldwide (Pihlstrom et al., 2005). The primary cause of gingivitis is the accumulation of dental plaque, which leads to localized inflammation of the gums. Gingivitis remains the most common periodontal disease due to inadequate oral hygiene; however, its progression to periodontitis is not inevitable.

Periodontitis, a more severe form of periodontal disease, affects 10–15% of the adult population worldwide, with severe forms often leading to tooth loss. The global burden of periodontitis is significant; the World Health Organization estimates that nearly 50% of the adult population suffers from some degree of periodontitis, particularly among high-risk groups such as the elderly and smokers (Eke et al., 2018).

Risk factors and pathogenesis. The risk factors for the development and progression of periodontal diseases are multifaceted. Systemic diseases such as diabetes have been shown to exacerbate the condition of periodontal tissues, with individuals suffering from diabetes having a 2 to 3 times higher risk of developing periodontitis compared to non-diabetic individuals (Preshaw et al., 2012). Additionally, smoking remains one of the strongest independent risk factors for periodontitis, increasing the risk by 40–50% (Tomar & Asma, 2000).

Recent studies have also emphasized the genetic predisposition to periodontal diseases. Genome-wide association studies (GWAS) have identified specific genes influencing the body's immune response, such as variations in the TLR-4 and IL-1 gene regions, which are associated with increased susceptibility to periodontitis in genetically predisposed individuals (Khan et al., 2015).

Clinical manifestations and disease progression. The clinical course of periodontal diseases depends on the type and stage of the disease. Gingivitis is characterized by redness, swelling, and bleeding of the gums, typically without bone loss. In contrast, periodontitis is marked by the destruction of the periodontal ligament and alveolar bone, leading to tooth mobility, abscess formation, and, in untreated cases, tooth loss.

- **Gingivitis:** This is the initial stage of periodontal disease and is generally reversible with proper oral hygiene. However, if left untreated, gingivitis can progress to periodontitis, where inflammation extends deeper into the supporting tissues, causing more severe damage.
- **Periodontitis:** The clinical progression of periodontitis involves the deepening of periodontal pockets, gingival recession, and loss of attachment between the teeth and bone. Without treatment, this leads to tooth mobility and eventual tooth loss. In severe cases, the disease may affect overall health by increasing the risk of cardiovascular diseases, diabetes, and respiratory infections.

Treatment and Management Strategies. Treatment of periodontal diseases includes both non-surgical and surgical approaches. Non-surgical therapy primarily consists of scaling and root planing to remove plaque and calculus, improving oral hygiene, and the use of antimicrobial agents to control bacterial growth. Surgical interventions, such as flap surgery or bone grafting, may be necessary in advanced cases of periodontitis.

Recent innovations in treatment, such as laser therapy, have shown promising results in reducing inflammation and enhancing healing time, although further research is required to fully understand its long-

term efficacy (Meyer et al., 2019). Additionally, host-modulation therapy, which targets the immune response, is being explored as an adjunct to conventional periodontal treatment.

Discussion. The findings of this review highlight the clinical complexity of periodontal diseases, which depend on a multitude of factors ranging from microbial flora to systemic health status. Periodontal diseases not only impact oral health but also play a significant role in the pathogenesis of various systemic diseases. The evidence suggests that early intervention, improved hygienic practices, and management of systemic risk factors can substantially reduce the burden of periodontal diseases.

Systemic impact and association with other diseases. The link between periodontal diseases and systemic conditions has become increasingly evident in recent research. Periodontitis has been associated with cardiovascular diseases, particularly atherosclerosis and coronary artery disease. Studies have shown that periodontitis can increase the risk of heart disease by 20–30% (Beck et al., 2001). Moreover, the inflammation related to periodontal diseases is connected to the pathophysiology of type 2 diabetes, as both conditions share common inflammatory pathways.

A systematic review found that treatment of periodontitis improves glycemic control in diabetic patients, leading to better blood sugar management (D'Aiuto et al., 2013). This underscores the importance of oral health management as part of a broader strategy for controlling systemic diseases. Consequently, dental care should be integrated into the routine medical management of individuals with chronic systemic conditions.

Epidemiology and global trends. The prevalence of periodontal diseases indicates an alarming trend in the global burden of these conditions. With the aging global population, the incidence of periodontitis is expected to rise. It is projected that by 2040, the number of people suffering from severe periodontitis will increase by more than 20%, especially among the elderly (Eke et al., 2018). Demographic changes and the rise of diseases such as diabetes and smoking suggest that the global burden of periodontal diseases will continue to grow unless decisive preventive measures are taken.

One key challenge is the insufficient awareness of the link between oral health and overall systemic health. Public health campaigns aimed at preventing periodontal diseases, particularly among high-risk groups, can play an important role in reducing the global burden of these diseases. Furthermore, policymakers should pay greater attention to dental care, especially in developing regions where the prevalence of untreated periodontal disease remains high.

Innovations and Future Directions. The future of periodontal disease treatment lies in personalized medicine and more targeted therapeutic approaches. With advances in molecular biology, genetic testing may be used to identify individuals at high genetic risk for periodontal diseases, enabling the development of individualized preventive strategies. The use of regenerative therapies, such as stem cells and tissue engineering, also holds promising potential for restoring lost bone and soft tissues in severe periodontitis cases.

Additionally, new technological advancements like salivary biomarkers and digital imaging methods could enable earlier diagnosis of periodontal diseases, allowing for more effective and less invasive treatments.

Limitations and Challenges. Despite progress in periodontal research, several challenges remain in managing periodontal diseases. A major limitation is the lack of standardized diagnostic criteria, which results in variability in disease diagnosis and treatment. Moreover, socioeconomic disparities in access to dental care, particularly in low-income countries, hinder many people from receiving timely diagnosis and treatment.

In conclusion, although periodontal diseases are widespread, they are often underestimated and undertreated. Increasing awareness, early diagnosis, and more effective treatment methods are essential to combat the growing global burden of periodontal diseases. Future research should continue to explore innovative therapeutic approaches, including genetic and regenerative methods, to improve the management of these destructive diseases.

Conclusion

Periodontal diseases represent a significant challenge not only for oral health but also for overall systemic well-being. Their clinical progression depends on multiple factors, including the microbiological profile, the host immune response, and the presence of systemic conditions. Gingivitis, as the mildest form of periodontal

disease, can be effectively managed through proper oral hygiene and preventive measures, whereas periodontitis, especially in its severe forms, requires a comprehensive approach often involving surgical intervention.

The progression from gingivitis to periodontitis underscores the importance of early diagnosis and timely treatment. Research indicates that controlling risk factors such as smoking, diabetes, and genetic predisposition plays a crucial role in the prevention and management of these diseases. Furthermore, periodontal diseases impact general health by increasing the risk of cardiovascular diseases, diabetes, and other systemic pathologies, highlighting the need to integrate dental care into the overall management of patients with chronic illnesses.

The future of periodontal disease treatment lies in innovative approaches such as genetic testing and regenerative therapies, which promise to improve treatment outcomes and aid in the restoration of damaged tissues. However, despite advances in diagnostics and therapy, continued research is necessary to optimize treatment methods and develop more effective preventive strategies.

In conclusion, raising awareness about the link between periodontal diseases and other chronic conditions, as well as improving access to dental care and preventive interventions, is critical for reducing the global burden of these diseases. Only a comprehensive approach to the treatment and prevention of periodontal diseases can mitigate their impact on public health and enhance the quality of life for affected individuals.

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