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DIABETES AND ORAL HEALTH

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Abstract
This article discusses the impact of diabetes on oral health, the main dental complications, and measures for their early detection and prevention. It also discusses the importance of cooperation between dentists and endocrinologists.

Keywords: Diabetes, oral health, periodontitis, dry mouth, candidiasis, dental complications, salivation, gingivitis, dental hygiene, immune system.

Introduction

People with diabetes are at a significantly higher risk of developing oral health problems, particularly periodontal disease — an infection of the gums and the bone that supports the teeth. This condition can cause gum pain, persistent bad breath, difficulty in chewing, and in severe cases, tooth loss. Diabetes also slows down the healing process, making the treatment of gum diseases more difficult.

Another common issue for individuals with diabetes is dry mouth (xerostomia), which occurs when the body does not produce enough saliva. Saliva is essential for keeping the mouth moist and protecting it from infection. When saliva levels drop, the mouth becomes dry and sore, which can lead to ulcers, fungal infections (like oral thrush), and tooth decay. Oral thrush appears as painful white patches in the mouth and is caused by an overgrowth of fungi, particularly *Candida* species.

Additionally, people with diabetes often have increased levels of sugar (glucose) in their saliva, which creates an ideal environment for bacteria to grow, contributing to infections and inflammation. Smoking worsens these problems significantly and should be avoided.

In case of periodontal disease, it is crucial to visit a dentist or periodontist for appropriate treatment, which may include deep cleaning procedures, gum surgery, or special antibacterial mouth rinses. For fungal infections, a doctor or dentist may prescribe antifungal medications. If you wear dentures, you may need a special cleaning solution to maintain proper hygiene.

Effective blood glucose control is the key to preventing and managing oral health issues. People with poorly controlled diabetes are more likely to suffer from severe gum disease than those whose condition is well-managed.

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Recommendations for individuals with diabetes:

- Monitor and manage your blood glucose levels consistently.
- Brush your teeth at least twice a day and floss regularly.
- Visit your dentist for routine checkups and cleanings.
- Inform your dentist that you have diabetes.
- Notify your dentist if your dentures do not fit properly or if you experience gum pain.
- Quit smoking — it greatly worsens oral diseases. Your doctor or dentist can help you with quitting.

At the Volgograd State Medical University clinic, a screening test for blood glucose levels was conducted on 28 patients aged 30 to 60 who presented with various dental pathologies. After obtaining informed consent, gingival sulcus probing was gently performed using a non-invasive technique with a sterile button probe to collect a drop of blood. The glucose level was measured with the One Touch Select device, and results were immediately shared with the patients.

The examination revealed that **all participants had some stage of chronic periodontitis.** Among them**, 32.1% exhibited elevated fasting blood glucose levels (7.3–11.9 mmol/L).** Notably, **17.8% were previously diagnosed with diabetes but were not actively monitoring their blood sugar**, while **14.3% were newly suspected of having diabetes,** which was later confirmed by an endocrinologist.

Patients found the gingival blood glucose testing method to be **comfortable, painless, and useful**. This technique could serve as a valuable screening tool for dentists in identifying undiagnosed or poorly controlled diabetes among their patients.

Given the well-established bidirectional relationship between diabetes and periodontal disease, treatment should involve an **interdisciplinary approach,** requiring close cooperation between dentists, endocrinologists, and other healthcare professionals. However, such collaboration can only be effective if all involved parties — including patients — are adequately informed about the link between these conditions.

Study findings revealed significant knowledge gaps: **36% of periodontal patients did not believe diabetes could affect dental health, 56% acknowledged the impact,** but only **8% understood that oral diseases could worsen diabetes progression**. Moreover**, 52% did not realize that periodontal health is influenced by blood glucose levels.** Only **16% visited their dentist regularly,** while the rest did so sporadically. Merely **24% expressed willingness to consult an endocrinologist upon a dentist's recommendation.**

These results highlight the **need for increased awareness** among both patients and practitioners. Enhancing knowledge about the connection between diabetes and oral health is crucial for improving prevention and management strategies.

Using gingival blood for glucose screening is a **simple, non-invasive, and practical tool** that can help in the early detection of diabetes, particularly among patients with periodontitis. This approach not only supports better glycemic control but also contributes to improved dental health outcomes, ultimately reducing complications associated with diabetes.

Recent scientific findings, particularly those supported by the Cochrane Collaboration's meta-analyses, have confirmed that periodontal treatment can significantly reduce HbA1c levels in patients with diabetes. The data show that individuals with diabetes and chronic periodontitis who

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undergo modern non-surgical periodontal therapy (such as VZPR – vectorized comprehensive root planing) experience improved glycemic control.

While the exact mechanisms behind this improvement are not yet fully understood, it is believed that the reduction of systemic inflammation, especially levels of pro-inflammatory cytokines such as tumor necrosis factor-alpha (TNF-α) and interleukin-6 (IL-6), plays a crucial role. Lowering these markers can improve insulin sensitivity and promote better glucose uptake by tissues.

Importantly, even a 1% decrease in HbA1c is clinically significant, as it is associated with a 35% reduction in diabetes-related complications, including nephropathy, retinopathy, and cardiovascular events.

However, the long-term sustainability of HbA1c reduction after periodontal therapy remains uncertain, as more long-term, controlled studies are needed to determine how long the benefits last.

Therefore, a more integrated approach is needed in clinical practice, involving cooperation between dental and medical professionals. Increasing awareness, education, and cross-specialty communication can help ensure that patients with diabetes receive comprehensive care that includes effective periodontal therapy as part of their overall treatment plan.[1]

In conclusion, diabetes mellitus directly affects not only general health, but also the condition of the oral cavity. Therefore, close cooperation between the dentist and the endocrinologist is of great importance in the management of this disease. Strengthening oral hygiene in patients and early detection of dental problems can be effective in reducing the complications of diabetes.

References

1. Nazirov Sh.T. (2020). Endokrin kasalliklar va stomatologik asoratlar. Toshkent: Tibbiyot nashriyoti.

2. Loë H. (1993). Periodontal disease in diabetes mellitus. Journal of Clinical Periodontology, 20(1), 1–6.

3. Mealey B.L. & Oates T.W. (2006). Diabetes mellitus and periodontal diseases. Journal of Periodontology, 77(8), 1289–1303.

[1] Mealey B.L. & Oates T.W. (2006). Diabetes mellitus and periodontal diseases. Journal of Periodontology, 77(8), 1289–1303.

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