The Science of Saliva: Exploring Xerostomia

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Key points

- Introduction
- Signs and symptoms
- Diagnosis
- Treatment
- Conclusion

Introduction

Saliva - a complex and vital biological fluid - plays a crucial role in maintaining oral health and comfort. Beyond its basic role in oral hydration, saliva performs a variety of functions: it protects oral tissues, aids in the breakdown of food, facilitates bolus formation and transport, mediates taste, lubricates the mucosa, and helps maintain a stable oral pH. Xerostomia, commonly known as dry mouth, is a condition that compromises these critical functions of saliva and is particularly prevalent among the elderly. Individuals with xerostomia often report a persistent parched sensation in the mouth, which is generally associated with decreased salivary secretion and alterations in saliva composition. Aging is a key factor in the development of this condition, as it brings about numerous changes in bodily functions, including those within the oral cavity. Xerostomia is not regarded as a distinct ailment but rather a symptom linked to various underlying causes such as autoimmune disorders, medication use, and radiation therapy for cancer treatment.[1]

Signs and symptoms

People suffering from xerostomia face several distressing symptoms, including pain or discomfort during swallowing, changes in or reduced sense of taste, unpleasant breath, difficulty speaking with clarity and a prolonged burning sensation in the mouth. Beyond these immediate discomforts, xerostomia can give rise to long-term complications such as difficulty adjusting to dental prosthetics, recurrent oral ulcerations, and a greater vulnerability to infections, all of which can significantly impact oral function and overall wellbeing.[2]

Diagnosis

In order to diagnose xerostomia, a healthcare professional carefully evaluates the patients' symptoms, taking detailed medical and medication history, and conducting a thorough examination of the oral cavity. In order to better understand what's causing xerostomia, healthcare providers may use extra tests such as salivary flow measurements, blood work, taking scans or images, or, in certain cases, a biopsy. Several clinical indicators can help in identifying xerostomia:

- Swelling of the salivary glands, especially the parotid and submandibular glands, suggest reduced gland function.
- Measuring how much saliva is produced by the minor salivary glands can give information about the severity of the dryness.
- Thick, sticky and foamy saliva collecting on the floor of the mouth.

- The tongue appears dry, red and cracked, sometimes with a bumpy or cobblestone-like surface.[3]

Treatment

Current treatments for xerostomia mainly aim to relieve symptoms either through medications known as sialagogues, which stimulate saliva production, or by using saliva substitutes to ease dryness and improve oral comfort. In addition, several non-pharmacological approaches like acupuncture, electrostimulation, low-level laser therapy, and even gene therapy are being studied as potential treatments. Among these, acupuncture has shown promising results in reducing xerostomia symptoms, particularly for cancer patients undergoing treatment. Some clinical trials have even reported better outcomes compared to standard care.[4]

Conclusion

Xerostomia, though often overlooked, is a significant clinical concern that can greatly reduce a patient's quality of life. As we learn more about the essential roles of saliva—not only in maintaining oral health and comfort but also in balancing the oral microbiome—xerostomia emerges as a condition that demands serious clinical attention. Ultimately, early detection, personalized care, and ongoing research into new treatments are essential steps to improve outcomes and supporting the well-being of those affected.[4]

References

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