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Understanding "Ozempic Tongue": Implications for Dental Practice

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Abstract

The rapid increase in prescriptions for glucagon-like peptide-1 receptor agonists (GLP-1 RAs) for managing type 2 diabetes and weight loss has brought to light a range of oral side effects, informally known as "Ozempic tongue." This is not a separate medical condition but rather a collection of symptoms, such as dry mouth, altered taste, and changes in the mouth's mucosa, linked to rapid weight loss and dehydration. This review compiles recent findings on the oral effects of GLP-1 RAs, focusing on the mechanisms of action of these drugs that impact saliva production and taste. Additionally, it underscores a significant safety issue for dental practitioners: the potential for pulmonary aspiration during sedation due to GLP-1's effect of slowing gastric emptying. Dental professionals play a crucial role in recognizing these symptoms and adjusting perioperative procedures to maintain patient safety.

Keywords: GLP-1 receptor agonists, Ozempic tongue, Xerostomia, Dysgeusia, Salivary function, Taste alteration, Delayed gastric emptying, Dental sedation risk.

Introduction

The field of metabolic medicine has been revolutionized by the advent of glucagon-like peptide-1 receptor agonists (GLP-1 RAs). Medications such as semaglutide (Ozempic, Wegovy), liraglutide (Saxenda), and the dual agonist tirzepatide (Mounjaro) have shown remarkable effectiveness in managing blood sugar levels and promoting weight loss [1]. As these treatments become more widely used, patients are increasingly experiencing oral side effects, leading to the popularization of the term "Ozempic tongue" in social media and clinical discussions. Although not an official diagnosis, this term describes a noticeable set of symptoms, mainly dysgeusia, dry mouth, and changes resembling glossitis, that require clinical attention [2]. For dental professionals, the significance of GLP-1 RAs extends beyond mucosal symptoms to include important perioperative risks. The delayed gastric emptying mechanism, which is crucial for the effectiveness of the drug, presents a considerable risk of aspiration during dental sedation, complicating standard fasting protocols [3]. This review explores the evidence surrounding these oral symptoms and provides management strategies for dental practitioners.

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Pharmacological Mechanisms and Oral Physiology

GLP-1 is an incretin hormone released by intestinal L-cells that boosts insulin secretion and inhibits glucagon secretion. Nevertheless, GLP-1 receptors (GLP-1Rs) are found in various locations beyond the pancreas, such as the central nervous system, gastrointestinal tract, and oral cavity [4]. Recent transcriptomic and signaling studies have revealed the presence of GLP-1R in taste buds and the salivary glands [5]. GLP-1 receptor agonists (RAs) may influence acinar function in the salivary glands. Semaglutide, in particular, binds strongly to albumin, resulting in the prolonged activation of receptors. This continuous stimulation can lead to receptor desensitization and interfere with the calcium and cAMP signaling pathways, which are crucial for salivary secretion, offering a mechanistic explanation for drug-induced dry mouth [5]. Additionally, GLP-1 signaling in the tongue appears to affect taste perception. Both preclinical and clinical evidence indicate that GLP-1 signaling specifically increases the sensitivity to sweet taste. Pharmacological alteration of these receptors by external agonists may cause dysgeusia reported by patients, often described as a metallic or altered taste sensation [4, 6].

The "Ozempic Tongue" Symptom Cluster

The colloquial term "Ozempic tongue" generally encompasses three distinct clinical presentations: dysgeusia, xerostomia, and mucosal changes secondary to dehydration or rapid weight loss.

Dysgeusia and Taste Alterations: Dysgeusia has been identified as a side effect in significant clinical studies. In the pivotal STEP 1 trial, which assessed the use of semaglutide 2.4 mg for weight loss, gastrointestinal issues were the main adverse effects; however, changes in taste were also observed as a factor contributing to reduced appetite [1]. Pharmacovigilance data suggest that semaglutide shows a notable signal for dysgeusia compared to other antidiabetic medications [2]. This taste alteration is usually temporary but can sometimes persist, impacting the patients' quality of life and possibly influencing their dietary choices if they attempt to counteract the taste.

Xerostomia and Salivary Dysfunction: Dry mouth is a common problem. A recent narrative review (2025) indicated that GLP-1 RAs, especially semaglutide, are linked to disproportionate signals for xerostomia in adverse event reporting systems [5]. In addition to the previously mentioned direct receptor mechanism, the diuretic effect of reduced glycogen stores and suppression of thirst mechanisms in the hypothalamus may lead to systemic dehydration, which can present orally as a dry, coated tongue [5, 7].

Angioedema (rare): Although "Ozempic tongue" typically describes harmless symptoms, healthcare providers must distinguish these from angioedema. While uncommon, instances of both one-sided and two-sided tongue swelling have been observed with GLP-1 RAs, which are different from angioedema caused by ACE inhibitors. These reactions can be life-threatening and necessitate immediate discontinuation of the medication [8].

The Gastrointestinal-Oral Axis and Erosion

Gastrointestinal issues are the most frequent side effects of GLP-1 RAs, with nausea affecting up to 50% of patients, along with vomiting and gastroesophageal reflux [9]. Persistent vomiting and reflux can lead to gastric acid entering the mouth, which greatly increases the risk of dental erosion, known as perimylolysis. Dental professionals may notice erosion on the palatal surfaces of the upper front teeth. Additionally, the "Ozempic face" effect, characterized by a swift reduction in facial fat pads, can impact the fit of removable dentures, necessitating relining or adjustments [10]. The combination of dry mouth and acid exposure creates a high-risk scenario for cavities and irritation of the mucous membranes of the oral cavity.

Perioperative Risks in Dental Sedation

The most critical implication for dentistry is the risk of pulmonary aspiration. GLP-1 RAs function by delaying gastric emptying to promote satiety [3].

The "Full Stomach" Phenomenon: Recent findings indicate that the usual preoperative fasting guidelines, such as NPO for 8 hours, might not be adequate for patients on GLP-1 RAs. Research utilizing point-of-care ultrasound has shown that patients on these medications can have significant gastric contents remaining, even when they follow standard fasting protocols [3, 11].

Current Guidance: The American Society of Anesthesiologists (ASA) has released consensus-based guidance indicating that GLP-1 RAs pose a heightened risk of regurgitation and aspiration. Their recommendations advise skipping daily doses on the day of the procedure and stopping weekly doses (such as Ozempic or Wegovy) one week before sedation [3]. Dental professionals administering moderate or deep sedation without screening for these medications could lead to severe airway emergencies.

Clinical Factor	Risk Description	Management Recommendation
Delayed Gastric Emptying	Stomach may remain filled with solids or liquids despite fasting.	Manage fasting patients as having a full stomach.
Aspiration Risk	Increased likelihood of regurgitation during sedation or anesthesia.	Consider withholding the medication for one week prior (with medical consult).
Airway Management	Elevated risk when using a laryngeal mask airway.	Favor endotracheal intubation for deep sedation if the drug has not been held.
Pre-operative Assessment	Patients may omit reporting use if taken for weight loss rather than diabetes.	Directly inquire about weight-loss injection therapies.

Table 1: Implications of GLP-1 RAs for Dental Sedation [3, 11].

Conclusion

The term "Ozempic tongue" is informally used to describe a set of oral symptoms linked to GLP-1 receptor agonists, such as altered taste, dry mouth, and the risk of erosion due to gastrointestinal issues. Although these mucosal problems impact the quality of life, the more serious concern is the potential life-threatening risk of delayed gastric emptying during dental sedation. Dental professionals must move past the aesthetic discussions of the "Ozempic face" and focus on thorough medication reviews and updated protocols for aspiration risk. As the use of these medications increases, proactive management of dry mouth and monitoring for erosive damage will become essential components of patient care.

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