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DISCUSSION

TASTE DISORDERS AND XEROSTOMIA ARE HIGHLY PREVALENT IN PATIENTS WITH COVID-19



What is the prevalence of taste disorders in patients tested positive for COVID-19?

REVIEWER

SATHEESH ELANGO VAN

Article Title and Bibliographic Information

J. Amorim dos Santos, A.G.C. Normando, R.L. Carvalho da Silva, A.C. Acevedo G. De Luca Canto, N. Sugaya, A.R. Santos-Silva, E.N.S. Guerra (2021). "Oral Manifestations in Patients with COVID-19: A Living Systematic Review." *J Dent Res* 100(2): 141-154.

SUMMARY

Subjects or Study Selection

Observational studies that assessed the prevalence of oral disorders in Coronavirus Disease 2019 (COVID-19) patients were included. To assess the prevalence of taste disorders, authors included only cross-sectional studies, while case reports were included to assess oral mucosal lesions. No language restrictions were applied during the search and articles published until June 6, 2020, were considered.

Key Study Factor

This is a living systematic review (LSR) of human observational studies that assessed the prevalence of oral signs and symptoms of COVID-19, including taste disorders and oral mucosal lesions.

Main Outcome Measures

The primary outcome measure was the prevalence of oral signs and symptoms of COVID-19. Associations between taste disorders and: gender, COVID-19 positivity, and severity were assessed as secondary outcomes.

Main Results

Based on thirty-three cross-sectional studies included in this LSR, the authors reported an overall prevalence of 45% (95% CI: 34%-55%) for taste disorders in COVID-19 patients. When split into different categories of taste disorders, dysgeusia (altered taste) was prevalent in 38% (95% CI: 22%-56%) of COVID-19 patients, while the prevalence of hypogeusia (decreased taste sensation) and ageusia (absence of taste sensation) were found to be 35% (95% CI: 21%-51%) and 24% (95% CI, 15%-35%), respectively. Taste disorders were found to be more prevalent in females and non-hospitalized (mild-moderate) COVID-19 patients. Reported clinical manifestations of oral mucosal lesions in COVID-19 patients ranged from white/erythematous plaque, ulcers, blisters, petechiae to desquamative gingivitis.

SORT SCORE

A	B	C	N/A
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SORT, Strength of Recommendation Taxonomy.

LEVEL OF EVIDENCE

1	2	3
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See article 101482 for complete details regarding SORT and LEVEL OF EVIDENCE grading system.

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TYPE OF STUDY/DESIGN

Systematic review with meta-analysis of data.

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KEYWORDS

COVID-19, Dysgeusia, Ageusia and ulcer

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Conclusion

Of the oral signs and symptoms, taste disorders are the most prevalent condition (45%) reported in COVID-19 patients.

COMMENTARY AND ANALYSIS

A living systematic review (LSR) as the name suggests, is an ongoing systematic review that is updated periodically.¹ LSR is ideal for Coronavirus Disease 2019 (COVID-19) related topics that are rapidly evolving with an increasing body of evidence being added to daily. In this LSR, the authors analyzed and reported the prevalence of oral signs and symptoms of COVID-19, caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV-2). The review met the criteria for a well-conducted and reported systematic review. It employed a search of multiple databases (including for gray literature) and the search and data extraction done by at least 2 authors. The risk of bias (RoB) in the included studies indicated that 6 out of 7 case reports and 29 of the 33 cross-sectional studies had low RoB, indicating an overall high quality of evidence.

With a total of 40 studies encompassing 10,228 patients, the authors concluded the most common (45%) oral manifestation of COVID-19 to be taste disorders. They also showed statistically significant associations between taste disorders and COVID-19 positivity, female gender, and lower severity of COVID-19 disease. A trend was observed of patients with mild to moderate disease experiencing taste disorder more commonly than those who were hospitalized. When reporting population-based differences, the authors cited a higher prevalence of COVID-19 related taste disorders in western countries, compared to Asia.

Due to the proximity and connections between the olfactory (smell) and gustatory (taste) systems, it is feasible that olfactory dysfunction noted in COVID-19 patients could also adversely affect taste perception. Other pathogenic mechanisms proposed included, direct viral damage of taste buds and salivary glands, local inflammatory response, or binding of viruses to sialic acid receptors.² A recent study reported a correlation between the viral burden (levels) in saliva and taste alteration, increasing the possibility of SARS-CoV-2 potentially directly infecting the taste buds.³ Regarding oral mucosal lesions reported in COVID-19 patients, there is no definitive evidence to suggest that they are caused directly by the virus. Oral manifestations secondary to existing comorbidities like diabetes in COVID-19 patients or COVID-19 treatment itself are being hypothesized as other potential causative mechanisms.⁴

The recently published 6-month update of this LSR included a total of 183 studies and reported the overall prevalence of taste disorders to be 38% (95% CI: 22%-56%) and the prevalence of hypogeusia, dysgeusia, and ageusia to be 34%,

33%, and 26%, respectively.⁵ The updated LSR identified xerostomia as another highly prevalent (43%) oral manifestation of COVID-19. Among oral mucosal lesions, the updated report identified aphthous-like or herpes-like lesions to be the most common manifestations and tongue to be the most frequently affected intraoral site.

As the authors rightly acknowledged, the lack of clarity on how COVID-19 severity was defined in some studies and the use of subjective questionnaires to assess taste function are notable limitations. Despite these limitations, this LSR and other recent studies, including the 6-month update, all conclude that taste disorders are highly prevalent in COVID-19 patients and that more research is needed to uncover the etiological mechanisms underlying the reported oral manifestations. Meanwhile, oral findings such as taste disorders and xerostomia could be effectively utilized as a public health screening tool to identify, test, and quarantine patients (especially milder cases). Dental practitioners should be cognizant of the oral manifestations of COVID-19 and stay abreast of the accumulating evidence, to help guide patients to seek appropriate medical care and help prevent transmission of disease in the dental setting.

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