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## REVIEW ANALYSIS & EVALUATION // ETIOLOGY/OTHER

# ACUTE LOSS OF SMELL OR TASTE WITHOUT NASAL BLOCKAGE SHOULD RAISE SUSPICION FOR COVID-19 INFECTION

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Can loss of smell (anosmia) and loss of taste (ageusia) be considered common symptoms in patients with coronavirus disease 2019 (COVID-19)?

REVIEWER SATHEESH ELANGOVAN

## ARTICLE TITLE AND BIBLIOGRAPHIC INFORMATION

Taste and smell as chemosensory dysfunctions in COVID-19 infection. Passarelli PC, Lopez MA, Mastandrea Bonaviri GN, Garcia-Godoy F, D'Addona A. Am J Dent 2020;33(3):135-137.

#### **SUMMARY**

## Subjects or Study Selection

This systematic review included studies that assessed the number or percentage of patients with COVID-19 presenting with loss of smell (anosmia) and/or loss of taste (ageusia). Only human studies published in English were included and authors excluded letters, review articles, and unpublished abstracts.

#### **Key Study Factor**

The systematic review included cross-sectional studies that reported the prevalence of anosmia and/or ageusia in patients with COVID-19.

#### Main Outcome Measure

The main outcome measure was the number or percentage of patients with COVID-19 presenting with anosmia and/or ageusia.

## Main Results

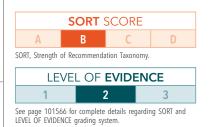
Five cross-sectional studies that came from different parts of the world were included in this systematic review. Of the 10,818 patients with COVID-19 included in this systematic review, 74.8% (range: 5.1% to 85.6%) of the patients presented with olfactory disturbances (anosmia), whereas 81.6% (range: 5.6% to 88%) presented with taste disturbances (ageusia). One study reported that 18.6% of the patients with COVID-19 presented with both anosmia and ageusia.

### Conclusions

Anosmia and ageusia are common symptoms that manifest early in COVID-19 infection.

## **COMMENTARY AND ANALYSIS**

Loss of smell and/or taste are common clinical manifestations that have long been associated with a spectrum of medical conditions, including neurodegenerative



SOURCE OF FUNDING Information not available.

TYPE OF STUDY/DESIGN Systematic review.

#### **KFYWORDS**

Anosmia, Ageusia, Coronavirus, COVID-19, Loss of smell, Loss of taste

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© 2020 Elsevier Inc. All rights reserved. doi: https://doi.org/10.1016/ j.jebdp.2020.101525 diseases such as Alzheimer's, in which olfaction is affected.<sup>1</sup> The evidence associating these clinical symptoms to COVID-19 has led to their inclusion on the list of COVID-19 symptoms by the Unites States Centers for Disease Control in April 2020 and brought these symptoms to the spotlight. The olfactory disturbances (anosmia) typically observed in upper respiratory infections are associated with inflammation and irritation of nasal mucosa or nasal blockage (rhinitis). By contrast, the olfactory disturbances observed in COVID-19 are not associated with nasal blockage. Hence, acute loss of smell or taste in the presence of a patent nasal airway should warrant investigation to rule out COVID-19.2 Emerging yet inconclusive evidence also points to association of the increased presence of olfactory/taste disturbances with (1) younger patients and/ or (2) patients with lesser severity of COVID-19.3-5

Certain methodological aspects of the systematic review in question are unclear. There is lack of information on whether more than one investigator was involved in the study selection and data extraction processes. It is also important to note that this review included studies only until April of 2020, and that 93% of the total patients included in this review came from a single study.<sup>6</sup> In spite of these limitations, the results of this systematic review are consistent with other publications, all confirming the existence of olfactory and taste disturbances in patients with COVID-19, in various populations.<sup>7-9</sup> A recent wellconducted living systematic review that included 10,228 patients with COVID-19 from 19 countries reported the prevalence of taste impairment in these patients to be 45% (95% CI: 34%-55%). 10 The differences in the prevalence of these clinical manifestations between studies could be due to the lack of a standardized method of testing for loss of taste or smell, under-reporting of symptoms, or variations in sample size, disease severity, and study conduction settings.

Adding a specific screening question on the acute loss of smell or taste without nasal blockage will aid in the identification of otherwise asymptomatic patients with COVID-19. In addition to smell and taste disturbances, case reports indicate that patients with COVID-19 could present with a range of oral manifestations, including white and erythematous plaques, blisters, ulcers, petechiae, and desquamative gingivitis. Dentists should be cognizant of the nasopharyngeal and oral manifestations of COVID-19, to help guide patients to seek appropriate medical care and

help prevent transmission of disease in the dental setting. It is equally important for clinicians to stay updated on the evolving scientific evidence related to COVID-19 to serve their patients better.

#### REFERENCES

- Rebholz H, Braun RJ, Ladage D, Knoll W, Kleber C, Hassel AW. Loss of olfactory function-early indicator for Covid-19, other viral infections and neurodegenerative disorders. Front Neurol 2020:11:569333.
- 2. Xydakis MS, Dehgani-Mobaraki P, Holbrook EH, et al. Smell and taste dysfunction in patients with COVID-19. Lancet Infect Dis 2020;20(9):1015-6.
- 3. Beltrán-Corbellini Á, Chico-García JL, Martínez-Poles J, et al. Acute-onset smell and taste disorders in the context of COVID-19: a pilot multicentre polymerase chain reaction based case-control study. Eur J Neurol 2020;27(9):1738-41.
- 4. Vabret N, Britton GJ, Gruber C, et al. Immunology of COVID-19: current state of the science. Immunity 2020;52:910-41.
- Lechien JR, Cabaraux P, Chiesa-Estomba CM, et al. Objective olfactory evaluation of self-reported loss of smell in a case series of 86 COVID-19 patients. Head Neck 2020;42:1583-90.
- Bagheri SH, Asghari A, Farhadi M, et al. Coincidence of COVID-19 epidemic and olfactory dysfunction outbreak in Iran. Med J Islam Repub Iran 2020;34:62.
- Mercante G, Ferreli F, De Virgilio A. Prevalence of taste and smell dysfunction in coronavirus disease 2019. JAMA Otolaryngol Head Neck Surg 2020;146:723-8.
- 8. Melley LE, Bress E, Polan E. Hypogeusia as the initial presenting symptom of COVID-19. BMJ Case Rep 2020;13:e236080.
- Hopkins C, Surda P, Whitehead E, Kumar BN. Early recovery following new onset anosmia during the COVID-19 pandemic – an observational cohort study. J Otolaryngol Head Neck Surg 2020;49:26.
- Amorim Dos Santos J, Normando AGC, Carvalho da Silva RL, et al. Oral manifestations in patients with COVID-19: a living systematic review. J Dent Res 2020;. https://doi.org/10.1177/ 0022034520957289. Epub ahead of print.

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