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## Detection of gustatory and olfactory disorders as a screening criterion for the identification of patients in the early stages of COVID-19 reinfection

### Abstract:

**Introduction:** Variants of SARS-COV-2 have been detected and presented new capacities of infection and transmissibility, compromising the pandemic trajectory. Furthermore, chemosensory dysfunction are common symptoms of COVID-19. **Objective:** We aimed to provide a brief information of the current knowledge regarding chemosensory manifestations are common symptoms of COVID-19. **Material and Methods:** Due to the possibility of a higher incidence of the new covid-19 variants, we evaluated some studies published in the literature considering the analysis of smell and taste disorders as a criteria for the early diagnosis of positive patients and their immediate isolation. **Results:** Considering the economic limitations of many countries for the acquisition of results promptly by RT-PCR and immunization coverage, the evaluation of olfactory and gustatory disorders during COVID-19 outbreak can be useful tool to guide immediate isolation of the patient until the result of the laboratory test, contributing for the prevention of the virus spreading. **Conclusion:** As gustatory disorders are strong predictors of infection by COVID-19, health professionals should be alert for these symptoms having an important role as a screening criterion and early diagnosis.

**Keywords:** COVID-19; Sensation disorders; Neurologic manifestations; Oral health

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Article received on March 3, 2021.  
Article accepted on March 5, 2021.

DOI: 10.5935/2525-5711.20210004



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*Dear Editor,*

In the battle against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the world still faces an important health crisis. The disease is characterized by a variety of main clinical manifestations such as fever, cough, dyspnoea, and myalgia.<sup>1</sup> Recently, different variants of the virus with the potential to increase the pandemic trajectory have been identified in Europe, Brazil and South Africa. Therefore, the COVID-19 infection constantly may involve new prognostic factors and a broad variety of oral signs and symptoms.<sup>2</sup>

Neurologic manifestations in patients with COVID-19 include alterations in the peripheral nervous system. While olfactory disorders have also been noted in other respiratory syndromes, taste perception impairment is related to the current pandemic infection<sup>1</sup>. Despite the role of COVID-19 in gustatory and olfactory dysfunctions remains unclear, the entry of the virus into the host cell is orchestrated by the spike glycoprotein (S), that interact with ACE2 receptor of the host cells.<sup>2</sup> Therefore, the normal functioning of sensory cells responsible for recognizing the taste and smell by expressing ACE2 in tongue mucosa and respiratory tract tissues may be affected due to the direct damage of the virus on the receptors.<sup>2,3</sup>

A systematic review including 10,228 patients from America, Europe and Asia revealed that 45% of the patients with COVID-19 presented a prevalence for taste disorders (dysgeusia, hypogeusia and ageusia), and an association was observed with this manifestation and mild/moderate cases of the disease.<sup>1</sup> In an observational case series of 214 patients with SARS-CoV-2 infection, Mao et al. identified 36.4% with neurological symptoms, which involved taste perception disorders, and 19% had gustatory or olfactory alterations before any other symptom.<sup>4</sup> In paucisymptomatic patients, anosmia or ageusia has been described as the only symptomatology manifestation.<sup>5</sup> A multicenter study of 394 COVID-19 patients from China, Germany, and French, showed that 41% presented olfactory and/or gustatory disorders, of whom approximately half were mildly symptomatic.<sup>3</sup>

Recently, lineages such as B.1.1.7, B.1.351 and B.1.1.28 (renamed “P1”) characterized by mutations in spike protein (S) have been recognized as SARS-CoV-2 variants, promoting new manifestations and complications of the disease due to their new capacity of infection and transmissibility.<sup>2</sup> Considering the increased transmissibility of SARS-CoV-2 variants, the economic limitations of many countries for strategic testing and the acquisition of results promptly by RT-PCR, the evaluation of gustatory disorders during the COVID-19 outbreak can be a useful tool to guide immediate isolation of the patient until the result of the laboratory test and vaccination coverage, contributing to limit the ongoing spread and prevent the collapse of the health system.

Since chemosensory impairment in COVID-19 patients are easily detectable symptoms and implies directly in the clinical management of health care professionals, this may represent a useful additional screening criterion for the identification of patients both in early and mild-moderate stages of COVID-19 infection.<sup>3,5</sup>

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