

# Smell Disorder Could Warn Head and Neck Surgeons for Diagnosis of COVID-19

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Recently, many studies from all over the world reported smell and taste disorder as a characteristic clinical feature for coronavirus disease 2019 (COVID-19). In China, where the disease started, anosmia and ageusia were detected in 5.1% and 5.6% of infected patients, respectively.<sup>1</sup> In France, anosmia was reported in 47%, and dysgeusia in 85% of confirmed COVID-19 patients.<sup>2</sup> In the USA, anosmia was found in 68% and ageusia in 71% of COVID-19-positive patients.<sup>3</sup> In Italy, the olfactory and gustatory impairment was detected in 83.3% and 45.8%, respectively.<sup>4</sup> The incidence of this disorder was detected to be higher in a large multicenter study that was carried out on population from four European countries, the study showed smell and taste disorder in 85.6% and 88.0% of patients, respectively.<sup>5</sup> However, a case control study was conducted on 60 COVID-19 Iranian patients showed that 98% of them exhibited smell disorder of varying severity.<sup>6</sup>

Most studies suggested that patients with smell disorder may be unaware of the problem.<sup>7</sup> Moein et al<sup>6</sup> found that only 35% of COVID-19 patients who had smell dysfunction were aware of their olfactory deficit before formal testing, also, they reported that nearly everyone who contacted COVID-19 patients could exhibit some loss of smell which is independent of the degree of nasal congestion or inflammation. The exact mechanism of this disorder is still unknown. Angiotensin converting enzyme 2 (ACE2) has been detected as the cellular receptor for the causative virus (SARS-CoV-2). ACE2 receptors are expressed on the mucosa of the nose. These receptors contribute in the inflammatory response by regulating the levels of inflammatory mediators. However, nasal inflammatory changes such as rhinitis are not common in COVID-19. The literature stated that the olfactory affection was a temporary symptom, this may assume that the SARS-CoV-2 affects the olfactory epithelium rather than the olfactory neurons, as the epithelium can rapidly regenerate and recover after viral clearance.<sup>3,8</sup>

The olfactory and gustatory dysfunction usually starts at the beginning of the disease and even with mild clinical symptoms.<sup>4,5,7,9</sup> So, we recommend using smell/taste disorder as a warning symptom for COVID-19 infection in order to decrease the risk of disease spread from mildly symptomatic and/or asymptomatic persons. A rapid office-based screening of smell disorder can be done easily, using a subjective olfaction score. The patient is asked “How would you estimate your sense of smell?” and he

marks his answer on a 10-point scale bar with 0: anosmia, 10: normal smell, and scores from 1 to 9 mean progressive increase in the degree of smell towards normal.<sup>3</sup> However, simple assessment of the degree of smell by a questionnaire is subjective and may be not reliable, but it is a quick method for screening before patients' examination. Psychophysical tests for evaluation of smell such as the Sniffin' Sticks test (Burghart; Wedel, Germany) and the University of Pennsylvania Smell Identification test (Sensonics Inc, Haddon Heights, NJ) are more reliable in the evaluation of olfaction, but they are not usually available during general health examination, besides being time consuming and costly.<sup>10</sup> As, olfactory affection is a pertinent feature of COVID-19, head and neck surgeons should pay attention to this particular disorder during patients' examination. The use of subjective olfaction score for rapid screening of patients may be beneficial to early diagnose the disease and prevent its spread.

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