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Research

Temporal Patterns of Nasal Symptoms in Patients With Mild Severity SARS-CoV-2 Infection

There is growing evidence to suggest smell and taste dysfunction are early symptoms in some COVID-19 patients, particularly those who are otherwise minimally symptomatic or asymptomatic. Spinato et al.[2] found that nearly 65% of discharged COVID-19 patients had alteration in sense of smell or taste, reporting a median Sinonasal Outcome Test (SNOT-22) score of four (out of five) for this symptom domain.

Anecdotal reports of smell and taste loss as a unique presentation for COVID-19 patients first came to light in late February and early March 2020. Growing evidence suggests that loss of smell and taste are part of the constellation of characteristic COVID-19 symptoms, particularly among those with mild disease.[3] [5] However, there has been considerable variability in the estimated prevalence of smell loss, with one report noting 5% among hospitalized patients in China and another reporting more than 85% in Europe.[6] Instead, a clinically-distinct subset of COVID-19 patients who tend to experience few other symptoms and are often managed on an outpatient basis are most likely to experience smell and taste loss. Recognizing smell or taste loss as a sign of infection offers additional opportunities to prevent unintended viral transmission.

A recent study by Rush University Medical Center's ENT rhinology section analyzed the progression of sinonasal symptoms and risk factors for olfactory dysfunction in patients exhibiting symptoms defining mild severity COVID-19. Conducted via a retrospective chart review and a closed internet survey of 521 cases, the study assessed temporal change in sinonasal symptoms among patients with severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection. Changes in rhinologic domain of the SNOT-22 were compared at four time points: two weeks before diagnosis, at diagnosis, two weeks after diagnosis, and four weeks after diagnosis. Rhinologic domain SNOT-22 scores show a statistically significant increase from baseline, as demonstrated from the results:

- Rhinologic domain SNOT-22 scores increased significantly ($p < 0.001$) to 8.94 at the time of diagnosis, remained elevated two weeks post-diagnosis (5.14, $p = 0.004$), and decreased significantly four weeks post-diagnosis (3.14, $p = 0.004$).
- Smell-specific SNOT-22 scores peaked at the time of diagnosis (2.05, $p < 0.001$), remained elevated two weeks after diagnosis (1.19, $p < 0.001$), and returned to baseline four weeks post-diagnosis (0.71, $p > 0.999$).
- 78.3% and 80.8% of patients reported that four weeks post-diagnosis, their sense of smell and taste, respectively, returned to baseline.

COVID-19 and its related studies continue to raise awareness of smell loss as a longer-term health issue that needs to be explored. Rush's Smell Loss Program, headed by Bobby A. Tajudeen, MD, seeks to further explore and aid patients who experience smell loss. Sinonasal disease constitutes the most frequent cause of olfactory dysfunction. True estimates are difficult to assess due to multiple providers treating sinonasal disease, but it is likely more than half of patients. A survey in 1994 found that 1.4% of the US population have experienced smell loss lasting more than three months and this prevalence increased to 40% for persons over 65. A study from 2015 estimated about 10.6% +/- 1% of the US population had experienced a smell disturbance in the previous 12 months. Of these patients, 50.2% reported their problem "always there". Finally, a study in 2016 showed olfactory dysfunction prevalence of 23% over a person's adult life (>25yrs) and prevalence of smell loss increases with age with an odds ratio of 1.15.[7]

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More than 80% of patients will present with mild COVID-19 symptoms alone, often just upper airway manifestations.8 Furthermore, to our knowledge, there has been no comprehensive evaluation of common rhinologic symptoms, which are largely encountered at the health screening and primary care level. This is especially important as widespread testing is not available in most areas, making estimating true disease prevalence difficult, and policies intended for contact tracing to pinpoint at-risk clusters are currently not in place within many countries. Thus, a critically important and highly reasonable substitute for determining the burden of infection within a given population is the presence of characteristic signs and symptoms.

Sources

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