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Question

How long do taste changes or loss remain post COVID 19? What is the impact of same?

Short Answer

Research indicates that about 1 in 3 COVID-19 patients will experience taste changes or loss and that for the majority this dysfunction will last 7 to 14 days. It is not yet clear how long it will take those patients with persistent taste dysfunction to recover. Research to date has included only short-term follow-up protocols, following patients for four to eight weeks. As with everything in the COVID-19 era evidence is constantly accruing and more research is needed to determine both the average length of recovery time for persistent taste dysfunction as well as the impact of such a dysfunction overtime on the patient. Existing literature on taste dysfunction (unrelated to COVID-19) has found that loss of taste can be detrimental to both the physical and mental health of a patient. There are currently no treatments recommended by researchers for loss of taste produced by the COVID-19 virus.

Long answer

Loss of taste

Loss of taste can be understood in terms of ageusia: complete loss of taste function; hypogeusia: decreased sensitivity; hyperguesia: enhanced sensitivity; dysgeusia: unpleasant perception of a taste; and phantogeusia: perception of taste that occurs in the absence of taste. In COVID-19 patients' loss of taste refers to ageusia and hypogeusia. These taste disorders are listed as one of seven uncommon symptoms of COVID-19 by the World Health Organization [1]. Many researchers however believe it should be considered a common symptom and used as a screening tool for COVID-19 due to its prevalence and frequency of occurrence before other symptoms present [2-5].

State of the evidence

Three systematic reviews examined the prevalence of loss of smell and taste in COVID-19 but did not examine how long it took the patients to recover [2,4,6]. Two reviews did examine recovery time; one had very little data to draw on for taste disorders and the other was a narrative review [3,5]. A number of prospective and retrospective studies have been conducted to establish recovery time but much more research is needed. The follow-up periods are short (4-8 weeks) and so it is still unknown how long taste dysfunction persists in certain patients. This research will now be discussed.

Prevalence

A systematic review and meta-analysis of smell and taste disorders in COVID-19, published in August, included 24 studies with 8438 patients. Of the included studies in their review 15 reported on loss of taste, including 5649 patients. The pooled data found loss of taste in 38% (95% CI, 24% to 54%) of COVID-19 patients [6]. They found slightly higher prevalence of loss of taste in European studies and no significant difference between sexes in prevalence of loss of taste [6]. A second systematic review and meta-analysis of smell and taste disorders in COVID-19, published in September included 20 studies with 8001 patients with COVID-19. They found an estimated pooled prevalence of 41% (95% CI, 3%-31%) for loss of taste [2]. A third systematic review, published in August, reports much higher rates of taste disorders. The review included eight studies with 11,054 COVID-19 patients and found that 8984 COVID-19 patients or 81% (95% CI, 27%-72%) of their sample had taste dysfunction [4].

Recovery

Two reviews of the literature examined recovery time for taste disorders in COVID-19 patients, but found little evidence. A systematic review, published in June, included 6 studies with 1457 patients [5]. Of these, 822 patients (56%) had a taste dysfunction. The analysis found significant association between loss of taste and smell and the authors concluded that recovery of smell and taste occurred on average in the first two weeks after COVID-19 symptoms had ceased

[5]. However, there was limited data for taste dysfunction with the majority of included studies reporting on recovery time for loss of smell only. A narrative review of the research literature, published in September, included 16 studies. The authors concluded a similar timeframe for recovery of loss of taste and smell; seven to 14 days [3].

In a single-centre study of 172 COVID-19 patients, published in June, 81 people reported a loss of taste [7]. They were assessed when diagnosed with COVID-19 and contacted by telephone again 20 days after their diagnosis for a follow-up. For 11 patients the loss of taste was mild; for 18 patients it was moderate and 52 patients experienced a severe loss of taste [7]. At the 20 day follow-up timepoint 21% of patients had experienced a mild recovery; 33% had a moderate recovery; and 24% had a complete recovery while 22% had not recovered at all. On average it took patients 8 days (± 7) to recover their sense of taste [7]. A multicentre prospective study, published in August, evaluated the smell and taste functions of 138 COVID-19 patients for 60 days [8]. The researchers found that in the first four days of illness 84% of patients had some kind of smell or taste dysfunction. This dysfunction gradually improved over the 60 day observation period, with the most significant disruption for taste occurring in the first 10 days. At the end of the observation period, 60 days after symptom onset, six patients (4.3 per cent) still had a significant taste dysfunction. Analysis showed that patients with significant taste dysfunction 10 days or more after initial symptom onset were at a significantly greater risk of developing a long lasting taste disorder, that is, to still have a loss of taste at the 60 day follow-up [8].

A cross-sectional study, with a 4 week follow-up period, included 418 COVID-19 patients from three groups: home-quarantined, hospitalized, and intensive care patients [9]. The study, published in November, assessed the patients smell and taste functions before their COVID-19 diagnosis, during the course of their illness and four weeks after they had recovered [9]. They found a statistically significant change in both smell and taste during the illness. Analysis showed that 47% of home quarantine patients, 32% of hospitalised patients and 31% of intensive care patients experienced loss of taste [9]. Recovery from loss of taste in this study was high: 97% of home quarantine patients; 91% of hospitalized patients; and 100% of ICU

patients recovered by the four-week data collection point [9]. A single-centre study, published in December, with a sample size of 79 patients also had a four-week follow-up. Patients recorded their symptoms before, during and four weeks after their COVID-19 diagnosis [10]. The researchers found that 28% of patients reported a loss of taste and described two types of recovery pathways [10]. They observed a rapid and complete recovery in 2/3 of participants while the remaining participants demonstrated a slower and partial recovery at the four-week time point [10]. For taste dysfunction 19 patients (63%) reported a complete or almost complete recovery while 11 patients (36%) reported partial or no improvement at the 4-week follow-up.

A survey was conducted with 102 patients who had fully recovered from COVID-19 [11]. The data was collected from participants an average of 83 days (range 5 – 132 days, SD 19.21) after their initial COVID-19 diagnosis. The survey asked participants to rate their smell and taste sensation before, during and after their illness, on a scale from 0 (no sense of smell or taste) to 10 (excellent sense of smell or taste) [11]. During their illness 63% of patients experienced a reduced taste sensation with 16% experiencing no taste at all. After their recovery from COVID-19 no participants had continued ageusia but 28% of participants reported a continued reduced taste sensation [11]. The study reports that 19% of participants reported a 6 point reduction in their ability to taste; rating it as 10/10 before COVID-19 and 4 or less after their illness [11]. However, the authors state that data was collected between 5 and 132 days after patients were diagnosed and so it is possible that some, or all, of the 19% of participants who reported taste dysfunction as still occurring 'after' their illness were within the timeframe that other studies have suggested as normal for recovery.

Treatment and impact

Taste acts as a warning system for the body for potentially toxic substances and loss of taste can be psychologically distressing and can lead to nutritional deficits or excesses [12, 13]. These can result in an increased risk for additional health problems, such as hypertension, heart disease, or diabetes although the evidence for this is limited [12, 13]. Research has shown that although a taste dysfunction may result in loss of appetite individuals can still maintain adequate dietary intake, others however will increase or decrease food intake as a consequence resulting in changes to their weight [13]. There is no scientific evidence for effective treatments for loss of taste in COVID-19 patients [5, 7]. One systematic review reported 1.4% of 822 patients with loss of taste were treated with L-carnitine or trace elements associated with vitamins but there were no corresponding results for the effectiveness of such treatments [5].

Conclusion

Research indicates that about 1 in 3 COVID-19 patients will experience taste changes or loss and that for the majority this dysfunction will last 7 to 14 days. It is not yet clear how long it will take those patients with persistent taste dysfunction to recover. Research to date has included only short-term follow-up protocols, following patients for four to eight weeks. As with everything in the COVID-19 era evidence is constantly accruing and more research is needed to determine both the average length of recovery time for persistent taste dysfunction as well as the impact of such a dysfunction overtime on the patient. Existing literature on taste dysfunction (unrelated to COVID-19) has found that loss of taste can be detrimental to both the physical and mental health of a patient. There are currently no treatments recommended by researchers for loss of taste produced by the COVID-19 virus.

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Rapid Evidence Search & Summary (RESS)

Our team of multidisciplinary researchers and clinicians in conjunction with the University of Limerick Library and Information Services have developed a detailed protocol for conducting a Rapid Evidence Search & Summary (RESS) to answer questions submitted to RapidInfo4U. Our RESS protocol uses PICO or PEO methods to refine your question and follows a detailed search procedure capturing guidance documents from governments, institutions and professional bodies; searching clinical and COVID specific repositories; and identifying the most recent reviews and RCTs in the scientific literature using established databases.

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