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Research Article

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Anosmia and Ageusia Among Iraqi covid-19 patients: Cross Sectional Study During First Wave

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Abstract

Objective: *to determine the frequency of acquiring anosmia and ageusia among infected people with COVID-19, and the factors affecting the distribution among Iraqi people.*

Methods: *This cross-sectional study was performed on May 2021 in a medical college in Baghdad by medical student. The study depended on replies from 726 respondents to an open electronic questionnaire. An open electronic questionnaire was used and published on social media to assess people who suffered from ageusia and anosmia due to Covid-19. The questionnaire was taken the demographics and concentrating upon the symptomatology.*

Results: *A total of (726) respondents completed the questionnaires. Male/female ratio was 1/3. According to residency, Baghdad province was about 5.9% and the resent percentage for all other provinces, where the percentage of the loss of both of them together was (63.7%) of the total affected cases, and that the percentage of the loss of the sense of smell alone was more than the loss of the sense of taste, as 15.1% of those who lost the sense of smell only ,those who lost the sense of taste only are 3.1%, while the percentage of those who did not lose either of them is 18.1%. 14.0% of those who lost their sense of smell at a week after the onset of symptoms, and it is also almost the same for those who lost their sense of taste, as the percentage was 14.5%. of their infection have lost it completely.*

Conclusion: *There is a high prevalence of OGDs among patients infected with COVID-19. Routine screening for these conditions could contribute to improved case detection in the ongoing COVID-19 pandemic. However, to better inform population screening measures, further studies are needed to establish causality.*

Keywords: *COVID-19, SARS-cov-2, anosmia, ageusia, olfactory and gustatory disorders (OGDs).*

Introduction

The corona virus disease 2019 (COVID-19) pandemic has caused a sudden significant increase in hospitalizations for pneumonia with multiorgan disease. COVID-19 is caused by the novel severe acute respiratory syndrome coronavirus2 (SARS-cov-2). SARS -cov-2 infection may be asymptomatic or it may cause a wide spectrum of symptoms, such as mild symptoms of upper respiratory tract infection and life threatening sepsis 1]. Loss of smell and taste or olfactory and gustatory disorders (OGDs) are common complaints in patients with the COVID-19 disease. These symptoms may present alone or with other symptoms. It is of utmost importance to know their rates of occurrence for better controlling of the infection [2]. Recently, an association between COVID-19 and OGDs has been raised. In the United Kingdom, a surge in patients seeking medical advice for recent onset of self-diagnosed loss of sense of smell has been reported. Similarly, an outbreak of olfactory dysfunctions in Iran was observed [3]. Interestingly, in COVID-19 patients ageusia and anosmia are not accompanied by nasal obstruction or other rhinitis symptoms. Therefore, this is probably due to the direct damage of the virus on the olfactory and gustatory receptors [4]. The presence of taste and smell alterations seems to be a frequent clinical feature of the coronavirus disease 19 (COVID-19), with a frequency ranging from 19.4% to 88% of patients [5].

The aim of the current study was to determine the frequency of acquiring anosmia and ageusia among infected people with COVID-19, and the factors affecting the distribution among Iraqi people.

Patients and Methods

This cross-sectional study was performed on May 2021 in a medical college in Baghdad by medical student. The study depended on replies from 726 respondents to an open electronic questionnaire. An open electronic questionnaire was used and published on social media to assess people who suffered from ageusia and anosmia due to Covid-19, the questionnaire questions were discussed among a group of medical students to ensure the reliability of questionnaire. The questionnaire was taken the demographics and concentrating upon the symptomatology, e.g. which one of these senses lost more than the other, the time of their loss relative to the beginning of the infection, how long they were lost, the degree of their loss during the infection period and whether they returned completely or partial after recovery from infection. Other comorbidities asked

like sinonasal symptoms or diseases and the use of medications. Limitations of the study were, some cases do not have a phone or internet to fill out the questionnaire, as well as, not all regions of Iraq are connected to the Internet.

Results

A total of (726) respondents completed the questionnaires. Male/female ratio was 1/3, the female participation rate was 65.4%, and the male participation rate was 34.6% of the total infected persons. According to residency, Baghdad province was about 5.9% and the resent percentage for all other provinces. affected persons, where the percentage of the loss of both of them together was (63.7%) of the total affected cases, and that the percentage of the loss of the sense of smell alone was more than the loss of the sense of taste, as 15.1% of those who lost the sense of smell only ,those who lost the sense of taste only are 3.1%, while the percentage of those who did not lose either of them is 18.1% .

The loss of both senses was one of the first symptoms of infection with the Corona virus in 61.0% of the infected, as the percentage of those who lost the sense of smell at the beginning of the infection was 34.2% and those who lost the sense of taste were 26.8%. 44.4%of the infected persons had lost their sense of smell after 3-5 days from the onset of symptoms of infection (fig.7), which is a percentage close to the people who lost their sense of taste during the same period where the percentage was 40.4%. That 14.0% of those who lost their sense of smell At a week after the onset of symptoms, and it is also almost the same for those who lost their sense of taste, as the percentage was 14.5%. of their infection have lost it completely, as the percentage was 64.9%, while those who lost it partially were the percentage of 35.1%. It is a similar percentage for people who have lost their sense of taste 57.0% completely and 43.0% partially. After recovery from infection, we found that 63.9% of the people who lost their sense of smell during the infection had their sense restored completely and about 36.1% partially, as well as 69.6% of the people who lost their sense of taste during the infection the sense has returned to them completely, and 30.4% of them partially.

As for the duration of the loss of both senses, we found that approximately a third or more of the infected lost them for a week, as the percentages were as follows: 37.2% for the sense of smell and 33.2% for the sense of taste. We found that a quarter of the infected have lost them for two weeks, as the percentages were 25.4% for the sense of smell and 24.8% for the sense of taste. However, we found a difference in their percentage of loss for more than a month, as the percentage of loss of the sense of taste is 16.5% and the rate of loss of the sense of smell is 22.7%.

Discussion

The exact mechanisms underlying OGDs among patients with COVID-19 infection remain unclear. However, olfactory impairment after upper respiratory tract infection is a common occurrence in clinical settings. In particular, postviral olfactory dysfunction has been implicated in 40% of cases of anosmia in adults, [11] with coronaviruses accounting for 10% to 15% of cases. [12] Olfactory dysfunction in COVID-19 infection could be related to the involvement of the olfactory bulb or to peripheral damage of the olfactory receptor cells in the nasal neuroepithelium. [13] This assertion is based on the potential neurotrophic features of SARS-CoV-2. Inparticular, it has been demonstrated in transgenic mice that after intranasal administration of SARS-CoV (which shares similarities with SARS-CoV2), the virus could penetrate into the brain through the olfactory bulb, leading to rapid transneuronal spread. [14] It is also well recognized that alterations in the volume and composition of saliva can disturb taste sensation. [15] Previously, epithelial cells lining salivary gland ducts were found to be early target cells of SARS coronavirus infection in the upper respiratory tracts of rhesus macaques. [16] Phylogenetic similarities between SARS-CoV and SARS-CoV-2 mean that the latter could also alter gustatory sensation in affected patients. The few studies that have evaluated the clinical utility of OGDs in COVID-19 diagnosis have suggested their low sensitivity (23%-43%) and high specificity (93%-99%). [17] Regardless, in one study, the sensitivity and specifcity of OGDs were reported to be comparable to the sensitivity and specifcity of a history of close contact with a confrmed COVID-19 case. [17] An analysis of 237 entries from the AAO-HNS COVID-19 Anosmia Reporting Tool suggested that anosmia was noted in 73% of patients before the COVID-19 diagnosis and was the initial symptom in 26.6%. [18] Yan et al [19] have also suggested that OGDs may be associated with a milder course of COVID-19 infection. This may also potentially explain the lower prevalence of OGDs with increasing mean age because older people are more likely to experience severe COVID-19 infection compared with younger individuals. [20] Consequently, the potential higher burden of OGDs in patients with milder COVID-19 disease is concerning because such patients may be less likely to be tested but could continue to spread the virus. Thus, public education about symptoms of OGDs may be necessary, and patients experiencing such symptoms should be advised to self-isolate pending confirmatory testing [21].

Conclusion

There is a high prevalence of OGDs among patients infected with COVID-19. Routine screening for these conditions could contribute to improved case detection in the ongoing COVID-19 pandemic. However, to better inform population screening measures, further studies are needed to establish causality.

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Conflicts of interest:
The authors declare having no conflicts of interest for this article.

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Author contributions:
Ahmad Al-juboori: Corresponding author
Harith AlGburi: writing the paper
Mohammed Jamil: study concept
Sadoon Al Ani: correction of the paper

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Appendix

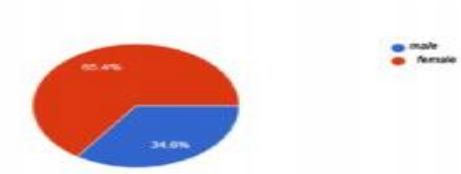
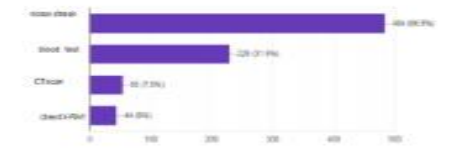


Figure (1) represents the percentage of Positive cases by gender

Figure (2) represent the Distribution of cases by residency



1Figure (4) represent the type of test to confirm the infection

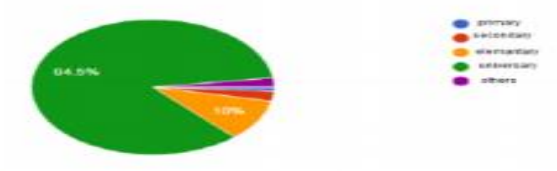


Figure (3) represent the percentage of positive cases according to the educational attainment

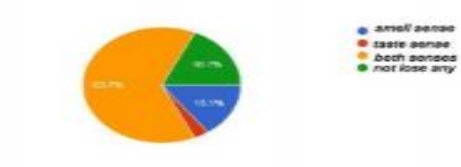


Figure (5) Describe if the patients had lost the sense of smell or taste

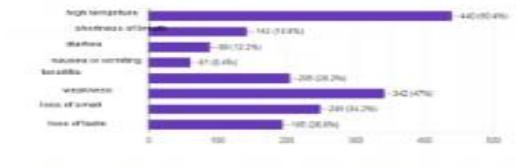


Figure (6) represent the first symptom that appeared on the infected patients

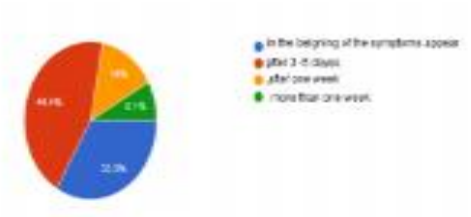


Figure (7) represent when the patients lost the sense of smell

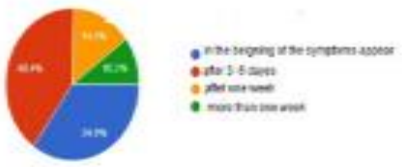


Figure (8) represent when the patients lost the sense of taste

Figure (10) represent the degree of taste sense loss

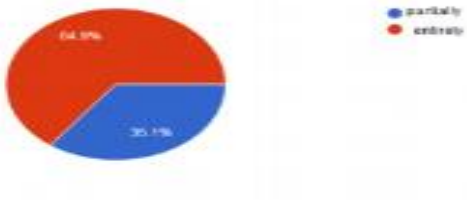


Figure (9) represent the degree of smell sense loss

Figure (11) Describe the duration of taste sense loss

Figure (12) describe the duration of smell sense loss