

Original Research Paper

ANALYSIS OF SMELL AND TASTE SYMPTOMS IN COVID 19 PATIENTS

Authors:

¹Jude Anselm Shyras D, ²Subramonia Biju, ³Shereena Sainudeen, ⁴Senthil Kanitha M

¹Associate Professor, MS(ENT), DLO, ²Assistant Professor, DNB(ENT), DLO, ³Junior Resident, MS (ENT), ⁴Professor, MS(ENT).

^{1,2,3,4}Department of Otolaryngology, Kanyakumari Government Medical College and Hospital, Asaripallam, Nagercoil- 629201, Tamilnadu, India.

*Corresponding Author: Dr. Subramonia Biju C, Department of Otolaryngology, Kanyakumari Government Medical College and Hospital, Asaripallam, Nagercoil- 629201, Tamilnadu, India, E-mail: research@entkgmch.org

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ABSTRACT:

OBJECTIVE: (1). To analyze the smell and taste symptoms and to find out its significant association with age, sex, comorbidities, smoking who were admitted and laboratory proven to be infected with SARS Co-V-2. (2). Study of alterations in sense of smell and taste symptoms and their recovery if any, in the above patients. **MATERIALS AND METHODS:** Data were collected from the case records of the RT-PCR positive COVID 19 patients. These include age, sex, date of symptoms, smoking history, concomitant diseases, and about sense of smell and taste. The progress of the symptoms along with the improvement were also documented. **RESULT:** The study population consisted of 300 patients in the age group of 18-65 years old (37.8+/-12.5 years). 50% males, 50% females, 35 % smokers, 65% nonsmokers. Recovery time for sense of smell is 4 to 12 weeks. Recovery time for sense of taste is 4 to 12 weeks. **CONCLUSION:** The study focusses on loss of sense of smell and taste the most common symptoms in the symptomatic confirmed COVID 19 patients. Loss of sense of taste and smell is some of the common symptoms in COVID 19 and may be the first symptom of this disease. There is significant positive association between loss of sense of smell and taste in COVID 19 patients. There is significant positive association between loss of sense of smell and taste and sex.

KEY WORDS: SARS Co-V-2, Loss Of Sense Of Smell, Loss Of Sense Of Taste, COVID 19

INTRODUCTION:

The virus responsible for COVID 19 disease, SARS-CoV-2, is a novel member of the corona virus family that appeared in the HUBAI region of CHINA in late 2019 and rapidly became a pandemic affecting the world. This virus mostly causes mild or no symptoms in majority of cases. The most effective method for preventing the spread of the virus is the early detection and isolation of the infected individuals^{1, 2}. The COVID 19 usually presents with lower respiratory tract related symptoms such as fever, cough, dyspnea and chest tightness that could rapidly progress to acute respiratory distress syndrome. This disease also causes upper respiratory tract related symptoms such as loss of sense of smell and taste, nasal congestion, sore throat, throat pain, rhinorrhea, sneezing^{3, 4}

OBJECTIVE:

The aim of the present study is to analyze the sense of smell and taste in laboratory proven SARS –CoV-2 infected patients and the recovery of sense of taste and smell symptoms.

MATERIAL AND METHODS:

Patients symptoms were analyzed focusing on loss of sense of taste and smell with confirmed RT-PCR positive testing for the SARS- CoV-2 viral genome which was conducted during the COVID-19 outbreak at Tamilnadu between November 2020 and December 2020. Patients admitted in the isolation ward of tertiary care center were selected for the study. The exclusion criteria were as follows: age <18 years old, no confirmed positive RT-PCR test result, a history of chronic nasal problems, and recent head injury and brain and nasal surgeries, severe respiratory failure or treated in the intensive care unit. Case records of the patients in the isolation ward with SARS –CoV-2 infections were analyzed and the data were collected including age, sex, duration of symptoms, smoking history and concomitant diseases, and smell and taste symptoms. Then the symptoms were analyzed from the proforma. All the patients were followed up at 4 weeks, 8 weeks and 12 weeks after diagnosis, through telephone and enquired

about their general condition, persistence or improvement of smell and taste symptoms.

Descriptive statistics presented as mean and standard deviation.

The Kolmogorow –Smirnow test was used to measure the distribution of variables. To analyse quantitative independent data Mann-Whitney U test was performed. The chi-square test was performed for the analysis of independent qualitative variables. Statistical analysis was performed using SPSS version. In all analysis <0.05 was taken to indicate statistical significance.

Table: 1 (Sex Differentiation)

MALES	FEMALES
N=150	N=150
%=50	%=50

Table: 2 (smoking habits)

SMOKERS	NON SMOKERS
N=105	N=195
%=35	%=65

Prevalent comorbidities in these COVID 19 patients found to be diabetes > hypertension > bronchial asthma > thyroid disorder > cardiac disorder > renal disorder (figure 1).

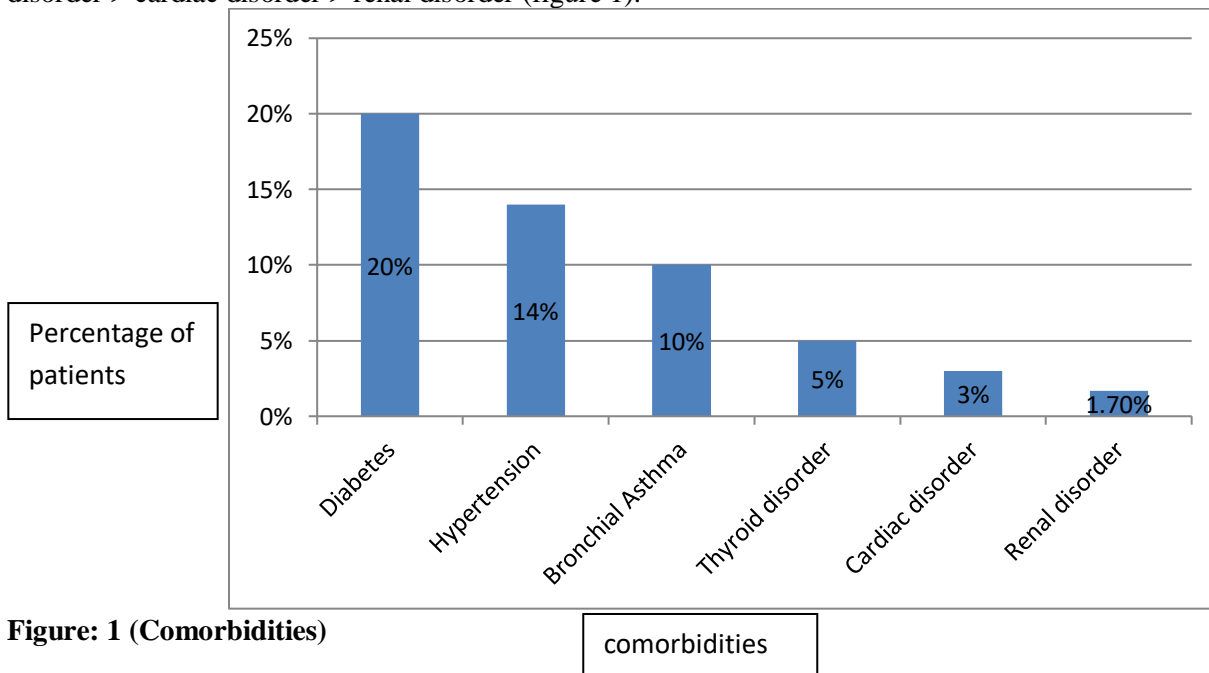


Figure: 1 (Comorbidities)

Loss of sense of smell found in 120 patients. Among that, only 60 patients found to be smokers. Only 20 patients found to be recovered within 4 weeks, 80 patients within 8 weeks and 12 patients within 12 weeks. 8 patients do not recovered even after 12 weeks. (Table 3).

Table: 3 (smell)

Loss of sense of taste found in 100 patients. Among them only 40 patients found to be smokers. Only 12 patients recovered from loss of sense of taste within 4 weeks, 42 patients within 8 weeks and 30 patients within 12 weeks. 16 patients do not recovered even after 12 weeks.

LOSS OF SENSE OF SMELL	
N=120	
MALES =	75
FEMALES=25	
SMOKERS	N=60
NON SMOKERS	N=60
Patients recovered within 4weeks	N=20
8weeks	N=80
12weeks	N=12
RECOVERY TIME	4-12 weeks
Not recovered beyond 12 weeks	N=8

LOSS OF SENSE OF TASTE
N=100

Table:4 (Taste)

Among 18 patients loss of sense of smell was found to be the only symptom.
 Among 8 patients loss of sense of taste was found to be the only symptom.

SMOKERS	N=40
NON SMOKERS	N=60
MALES=55	FEMALES=45
Patients recovered within	
4 weeks	N=12
8 weeks	N=42
12 weeks	N=30
RECOVERY TIME	4-12 Weeks
NOT RECOVERED BEYOND 12 WEEKS	16

No significant association seen between comorbidities and loss of sense of taste and smell. There is significant association seen between smoking and loss of sense of smell and taste (p<5%). There is significant association seen between loss of sense of smell and taste and sex of patients(p<5%) where significant loss is seen among males more than females.

DISCUSSION:

Patients those who are infected with SARS Co-V- 2 presents with a wide range of ENT related and general symptoms. Management of COVID 19 disease requires early detection, appropriate medical monitoring and treatment. And also isolation of infected patients during

the infective period is necessary to prevent the spread of the disease.^{1, 2} In a meta-analysis involving five studies evaluating general and upper respiratory tract symptoms of patients hospitalized due to COVID 19 disease in Asian countries, it was reported 85.6% had fever, 68.7% had cough, 39.4% had fatigue as main symptoms, while 12.4% patients had throat pain, 3.7% had nasal congestion . But loss of sense of taste and smell are not found in these patients and rhinorrhea and sore throat are found to be rare⁵. In a prospective study conducted in 465 symptomatic patients admitted in isolation wards for Covid, of Sushila Tiwari hospital Haldwani, it has been found that the most common general symptoms to be fever > cough > weakness/fatigue > difficulty in

breathing > muscle aches > headache and diarrhea. Among ENT manifestations throat symptoms were found most common including loss of taste in 74 patients. Loss of sense of taste found to be reversible after 2-3 weeks. Among nasal symptoms, patients commonly presented with nasal congestion > loss of sense of smell > nasal blockage > rhinorrhea. Loss of sense of smell also found to be reversible after 2-3 weeks. Ear symptoms are not commonly found⁶. The first report including information about loss of sense of taste and smell caused by SARS-CoV-2 was reported in a study conducted in China by *Mao et al* emphasizing the neurological symptoms of the disease. In this study they stated that the most common symptoms at onset of illness were fever>cough>anorexia. In patients with peripheral nervous system symptoms, most common reported symptoms to be taste impairment (5.6%) and smell impairment (5.1%)⁷. In our study, most common general and ENT symptoms were analyzed with focus on loss of sense of smell and taste. Among 300 patients, smell disturbances were found in 120 patients (Table 3). Among 120 patients 102 patients were associated with general and other ENT symptoms. 18 patients had only loss of sense of smell as complaint. Loss of sense of taste was found in 100 patients out of 300 patients (Table 4). Among 100 patients 92 patients were associated with other general and ENT symptoms. Only 8 patients had loss of sense of taste as the only complaint. In a literature review to uncover differential defects of sex on sequelae from coronavirus disease 2019(COVID 19) and on long COVID syndrome determined by odds ratio 95% confidence interval showed, likelihood of having long COVID syndrome was significantly more likely among females in case of ear, nose, throat symptoms. COVID 19 sequelae in relation to ear nose, throat symptoms were significantly higher among females more than males(8). The pathogenesis of loss of sense of taste and smell caused by SARS-CoV-2 is not yet clear. In our study there are few limitations. Patients admitted in intensive care unit were not included in the study. Patients were followed up only for 12 weeks, long term follow up results are not available for patients who didn't have recovery within 12weeks.

CONCLUSION:

From this study it has been found that there is significant association seen between sex of the patient and smell and taste symptoms where significant loss seen among males more than females.

Recovery time for loss of sense of smell - 4 to 12 weeks

Recovery time for loss of sense of taste - 4 to 12 weeks

There is significant positive association between loss of sense of smell and taste.

Significant association seen between smoking and loss of sense of smell and taste.

DECLARATION OF COMPETING INTEREST

None

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Conflict of interest statement: There are no financial and personal relationships with other people or organizations. Also there is no funding source.

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