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Loss of smell/taste is a potential indicator of a mild case of COVID-19: a retrospective institutional study

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ABSTRACT

Background: COVID-19, the respiratory disease caused by the new coronavirus. The loss of smell is an atypical symptom and is usually associated with milder form of this disease compared to severe disease. The aim of this study was to compare the severity of disease in patients with and without loss of smell/taste.

Methods: This was a retrospective study of 100 patients who were COVID RT-PCR positive, carried out in the COVID care center of a tertiary hospital during the period of 6 months from October 2020 to April 2021.

Results: 100 cases of RT-PCR positive patients were divided into two groups (50 cases each of patients with and without loss of smell/taste). The mean age was 55-65 years in both the groups. Throat pain/throat irritation and fever were the most common complaints in the patients of both groups, affecting all the 100 (100%) patients. It was followed by cough in 25 (50%) patients and diarrhea in 12 (24%) patients. 2 (4%) patients had breathlessness in group A. While in group B, 50 (100%) patients had cough and breathlessness. The average SpO₂ was >95 in 45 (90%) patients in group A while in group B, <90 in 30 (60%) patient and >95 in 8 (16%) patients. The CT values of HRCT thorax were <8 in 45 (90%) patients in group A while in group B, >15 in 25 (50%) patients.

Conclusions: The treatment outcome was 100% patients being discharged in group A without any complication while in group B, 38 (76%) patients were discharged and 12 (24%) patients expired due to various COVID-19 related complications. From this we conclude that, loss of taste and loss of smell are prognostic indicators of mild type of COVID-19.

Keywords: Anosmia, Loss of taste, COVID-19, SpO2 and CT value

INTRODUCTION

COVID-19, the respiratory disease caused by the new coronavirus, can have a variety of symptoms. Often, the types of symptoms and their severity can vary from person to person. In addition to respiratory symptoms like cough and shortness of breath, Covid-19 can have other varied presentation. One of these is losing your sense of smell or taste. Let's take a closer look at the loss of smell and taste with COVID-19, how common it is and how

long these symptoms may last. The pandemic coronavirus disease-2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). The loss of smell is an atypical symptom of COVID-19 and has been reported with varying prevalence in literature. Further, it has been observed that loss of smell is usually associated with milder form of this disease as compared to the severe cases. The aim of this study was to compare the severity of disease in patients with and without loss of smell/taste.

METHODS

Study design

This was a hospital based, single-centered, cross-sectional study performed at the COVID care center of a tertiary care medical college and hospital.

Study duration

The study was carried out over a period of 6 months from October 2020 to April 2021.

Inclusion and exclusion criteria

Patients were randomly selected from COVID-19 RT-PCR positive cases presenting to this center. Patients with previously diagnosed olfactory and/or gustatory dysfunction were excluded from the study.

Sampling technique

COVID-19 RT-PCR positive patients admitted to this center were randomly selected and divided into two groups.

Data collection

Data was collected on a pre-designed and pre-tested questionnaire containing general information of the study subjects, relevant history, signs and symptoms, comorbidities and the outcome after treatment. Data collected was tabulated on MS excel sheet and tables related to age-wise distribution of patients, presenting symptoms, comparison of HRCT thorax severity scoring between the groups and treatment outcomes were made accordingly. Data was analyzed on MS excelpercentages, numbers and means were compared in both the groups.

Results thus obtained were compared with previously published research and conclusions were drawn.

RESULTS

In our study 100 cases randomly selected from RT PCR positive pool where divided into two groups. The cases were grouped into group A COVID-19 positive with loss of smell and group B COVID-19 positive without loss of smell. The mean age was 55-65 years in both the groups (Table 1).

Throat pain/throat irritation and fever were the most common complaints in the patients of both groups, affecting all the 100 (100%) patients. It was followed by cough in 25 (50%) patients and diarrhea in 12 (24%) patients. 2 (4%) patients had breathlessness in group A. While in group B, cough in 50 (100%) patients and diarrhea in 2 (4%) patients. 50 (100%) patients had breathlessness. 10 patients from group A and 5 patients from group B had presenting symptoms other than throat pain, fever, cough, breathlessness and diarrhea (Table 2).

Table 1: Distribution of patients according to age between two groups.

Age group (in years)		Group A (COVID-19 positive with loss of smell/taste)		Group B (COVID-19 positive without loss of smell/taste)			
	N	%	N	%			
<20	2	4	1	2			
21-35	5	10	4	8			
36-45	8	16	5	10			
46-55	12	24	10	20			
56-65	13	26	18	36			
>65	10	20	12	24			
Total	50	100	50	100			

Table 2: Presenting complaints of the patients between two groups.

Symptoms	Group A (COVID-19 positive with loss of smell/taste)		Group B (COVID-19 positive without loss of smell/taste)			
	N	%	N	%		
Throat irritation/throat pain	50	100	50	100		
Fever	50	100	50	100		
Diarrhea	12	24	2	4		
Cough	25	50	50	100		
Breathlessness	2	4	50	100		
Any other symptoms-common cold, abdominal cramp	10	20	5	10		

Table 3: Average SpO₂ of the patients between two groups.

	No. of patients	Average SpO ₂ of patients						
Groups		<90	90-95		95	>95		
		N	%	N	%	N	%	
Group A (COVID-19 positive with loss of smell/taste)	50	0	0	5	10	45	90	
Group B (COVID-19 positive without loss of smell/taste)	50	30	60	12	24	08	16	

Table 4: CT value as per HRCT thorax of the patients between two groups.

	No. of patients	HRCT Of Thorax (CT-score)						
Groups		<8	<8 9-15		>15			
		N	%	N	%	N	%	
Group A (COVID-19 positive with loss of smell/taste)	50	45	90	5	10	0	0	
Group B (COVID-19 positive without loss of smell/taste)	50	10	20	15	30	25	50	

Table 5: Treatment outcome of the patients between two groups.

		Treatment outcome					
Groups	No. of patients	Recovered		Expired	l		
		N	%	N %			
Group A (COVID-19 positive with loss of smell/taste)	50	50	100	0 0			
Group B (COVID-19 positive without loss of smell/taste)	50	38	76	12 24			

The average SpO_2 was <90 in zero (0%) patient, 90-95 in 5 (10%) patients and >95 in 45 (90%) patients in group A while in group B, <90 in 30 (60%) patient, 90-95 in 12 (24%) patients and >95 in 8 (16%) patients (Table 3).

The CT Values of HRCT thorax were <8 in 45 (90%) patients, 9-15 in 5 (10%) patients and >15 in zero (0%) patient in group A while in group B, <8 in 10 (20%) patients, 9-15 in 15 (30%) patients and >15 in 25 (50%) patients (Table 4).

The treatment outcome was 100% patients discharged in group A without any complication while in group B, 38 (76%) patients were discharged and 12 (24%) patients expired due to various COVID-19 related complications. (Table 5).

DISCUSSION

The mean age was 55-65 years in both the groups. Throat pain/throat irritation and fever were the most common complaint in the patients of both groups, affecting all the 100 patients. It was followed by cough in 25 patients and diarrhea in 12 patients. 2 patients had breathlessness in group A. While in group B, cough in 50 patients and diarrhea in 2 patients. 50 patients had breathlessness. Guan et al stated that the median age of the patients was 47 years; 41.9% of the patients were female. The most common symptoms were fever (43.8% on admission and 88.7% during hospitalization) and cough (67.8%). Diarrhea was uncommon (3.8%).

We summarized the overall prevalence of loss of smell for COVID-19 patients and compared with control patients, those without laboratory confirmation of COVID-19 from the same study period. The overall prevalence of loss of smell was significantly higher for the COVID-19 group compared to control group. In addition, loss of smell had a lower association with severe COVID-19 compared to COVID-19 patients without loss of smell.

Olfactory and gustatory changes were one of the most underreported symptoms in COVID-19 and can sometimes be only presenting symptoms in these patients. As demonstrated in our study, loss of smell was associated with somewhat favorable prognosis of the disease and hence careful screening should be undertaken to identify potential patients with COVID-19. These patients should undergo testing to rule out COVID-19. This will help in preventing the spread of the virus

We noted significant variations in the reporting of symptoms (dysosmia/anosmia/hyposmia/microsmia) in the studies. Mao et al noted loss of smell in 5.1% of their COHORT, while Moein et al noted that roughly 98% of patients had loss of smell.^{2,5} Earlier studies such as by Mao et al relied on the retrospective data collection and questionnaire based survey. As the olfactory symptoms became well-recognized, the newer studies might have assessed these patients specifically for these symptoms, resulting in a higher prevalence of olfactory symptoms. Further, only few studies objectively evaluated the loss of smell using validated tools. Likes Vaira et al showed 73.6% of the patients reported having or having had chemo sensitive disorders. Olfactory assessment showed variable degree hyposmia in 60 cases and anosmia in two patients. Gustatory assessment revealed hypogeusia in 33 cases and complete ageusia in one patient, Altin et al shows that fifty (61.7%) COVID-19 positive patients had

complaints related to olfaction.^{6,7} Lechien et al studied that total loss of smell was self-reported by 61.4% of patients. Objective olfactory testings identified 41 anosmic (47.7%), 12 hyposmic (14.0%) and 33 normosmic (38.3%) patients.⁸ The findings of our pilot study highlighted that moderate olfactory dysfunction was identified in approximately three-quarters of hospitalized COVID-19 patients using an objective smelling identification test and Vaira et al studied that chemosensitive disorders self-reported by 256 patients (74.2%) but the 30.1% of the 89 patients who did not report dysfunctions proved objectively hyposmic.⁹ Twenty-five percentage of patients were seen serious long-lasting complaints. All asymptomatic patients had a slight lowering of the olfactory threshold. No significant correlations were found between the presence and severity of chemosensitive disorders and the severity of the clinical course.¹⁰

CONCLUSION

From this we conclude that loss of taste and loss of smell are prognostic indicators of mild type of COVID-19. But more data and further study is still required to established correlation in the severity of disease in patients with and without loss of smell/taste.

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 $Institutional\ Ethics\ Committee$

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