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Otorhinolaryngological manifestation in COVID-19

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ABSTRACT

Background: Coronaviruses (CoV) disease caused by the seventh member of enveloped RNA coronavirusdisease. The COVID-19 is presented mainly by lower respiratory tract related symptoms such as fever, cough, dyspnea and chest tightness that could progress rapidly to acute respiratory distress syndrome (ARDS) whereas the different upper respiratory tract related symptoms include nasal congestion, sore throat and smell dysfunction. The aim of this study is to contribute to current knowledge about COVID-19 and to study about the otorhinolaryngological manifestations and its effects in COVID-19 patients.
Methods: This prospective observational study was done on 644 patients who got admitted to COVID suspect ward of a tertiary care centre in middle India. The patients were assessed for the signs and symptoms and the findings were analysed.
Results: Within the included 664 cases, 423 (64%) were males and 241(36%) were females. The maximum number of patients in 50 to 60 years of age ,128(19%). Among which 97% (646) from urban area and 3% (18) from rural area. 564 (85%) were symptomatic with 459 patients had symptoms for 1-4 days,112 patients for 5-10 days,4 patients between 11-15 days. The most common symptoms with which these patients presented were cough (68%), fever (62%), signs of breathlessness (61%). The most common ENT manifestations were sore throat 333 (59%), nasal discharge 120 (12%), anosmia 65 (12%), ear discharge 46 (8%).
Conclusions: Even though the most common manifestations of COVID-19 were cough, fever, breathlessness significant proportions of patients do manifest with ENT symptoms like sorethroat, nasal discharge, anosmia, ear discharge which may go unnoticed. Recognizing the cases and addressing them properly is important for curbing the rapid spread of COVID-19 pandemic.

Keywords: COVID-19, Symptomatology, Observational study

INTRODUCTION

The rapid global spread of the Coronavirus disease led to the declaration of COVID-19 as a pandemic on March 11, 2020 (Organization, 2020). Coronavirus is an enveloped, positive single-strand RNA virus. It belongs to the Orthocoronavirinae subfamily, as the name, with the characteristic "crown-like" spikes on their surfaces.[1] The 2019-nCoV virus may enter the host through respiratory tract or mucosal surfaces (such as conjunctiva). virus has a preferential tropism to human airway epithelial cells and the cellular receptor, like SARS, is ACE 2.[2] Symptoms usually begin with nonspecific syndromes, including fever, dry cough, and fatigue. Multiple systems may be involved, including respiratory (cough, short of breath, sore throat, rhinorrhea, hemoptysis, and chest pain), gastrointestinal (diarrhoea, nausea, and vomiting), musculoskeletal

(muscle ache), and neurologic (headache or confusion). Common symptoms of COVID-19 include fever, fatigue, sorethroat, cough, shortness of breath, and breathing difficulties. Most patients have mild symptoms and uneventful recovery, although severe cases present with pneumonia, severe acute respiratory distress syndrome (ARDS), multi-organ failure, and even death.[3-6] However, COVID-19 causes also different upper respiratory tract related symptoms including nasal congestion, sore throat and smell dysfunction.[7] As such, real-time reverse transcriptase-PCR (RT-PCR) is of great interest today for the detection of SARS-CoV-2 due to its benefits as a specific and simple qualitative assay.[8-10] Confirmatory laboratory diagnosis usually rely on a real-time RT-PCR assay to detect viral RNA by targeting a consensus E region of pan beta-CoV or other more specific regions (such as RdRp or N region).[11] The aim of this study is to contribute to current knowledge about COVID-19 and to study about the otorhinolaryngological manifestations and its effects in COVID-19 patients.

METHODS

Study area and target population

Prospective random sample of 664 patients who attended sampling area for RTPCR in COVID suspect ward of a tertiary care hospital between August 2020 to October 2020 were included in the study (664 patients).

Study design

This is a prospective observational study.

Inclusion criteria

Patients giving consent for the study. Patients in suspect or contact category.

Exclusion criteria

Patients having past history of surgery or radiotherapy in oral or nasal cavities. Patients having history of allergic rhinitis or chronic rhinosinusitis. Patients having history of psychiatric disorders.

Data collection

Detailed history, physical examination and all the necessary investigations were done for the patients. Proper treatment given to all the patients. The data collected was entered in Microsoft excel and analysed. Analyzed data was presented in the form of frequency and percentage shown by pie and bar chart.

Ethical approval

Ethical approval for this was obtained from the institutional ethics committee.

Statistical analysis

The data collected was entered in Microsoft excel and analysed. Analyzed data was presented in the form of frequency and percentage shown by pie and bar chart.

RESULTS

A total of 664 patients were included in the study. The patients ranged in age from 4 days to 102years with maximum number of patients were found in 50 to 60 years of age, 128 (19%), 61-70 (121), 31-40 (120), 41-50 (118), 21-30 (102), 71-80 (48), 11-20 (12), 1-10 (8), 81-90 (8), 102 (1) (Figure 1) including 423 (64%) males and 241 (36%) females (Figure 2).

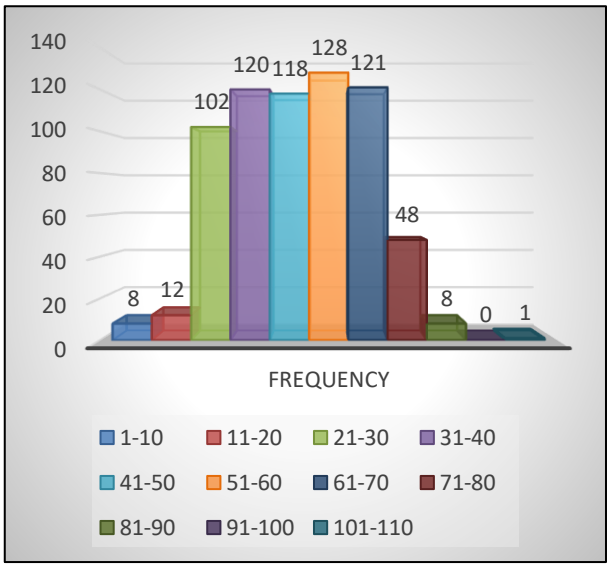

Figure 1: Age distribution of patients.

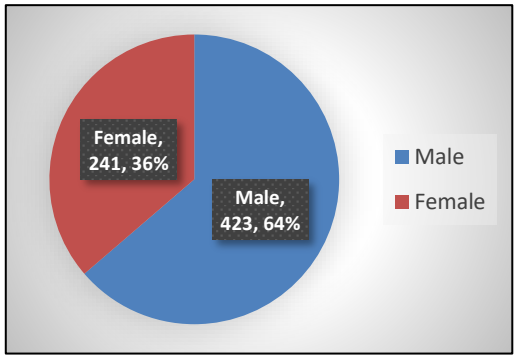

Figure 2: Sex distribution of patients.

In the present study 646 (97%) from urban area and 18 (3%) from rural area (Figure 3).

Out of the total patients admitted in suspect ward 464 (70%) were under suspect category and 200 (30%) under contact category (Figure 5). RTPCR being performed in all cases which came out to be positive in 218 (33%) and negative in 446 (67%) patients (Figure 4).

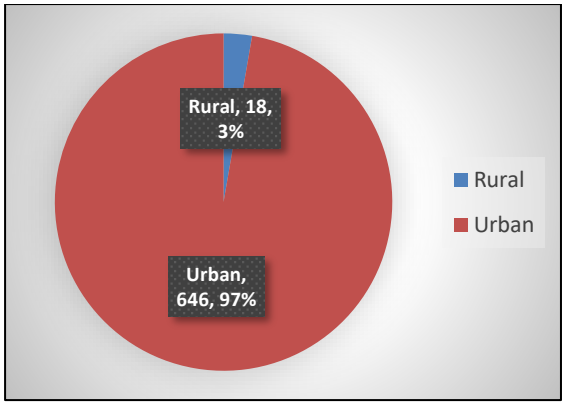

Figure 3: Location of patients.

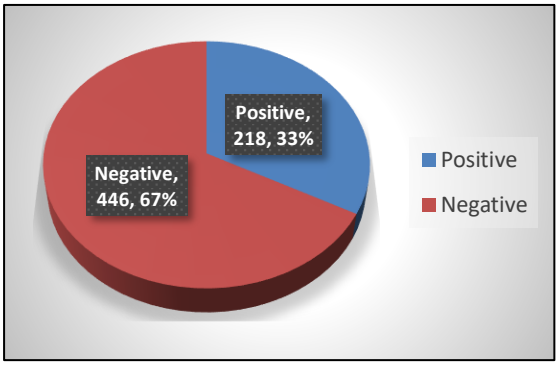

Figure 4: RT-PCR results.

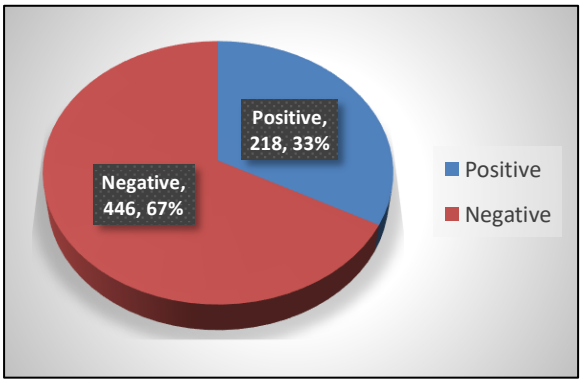

Figure 5: Category of patients.

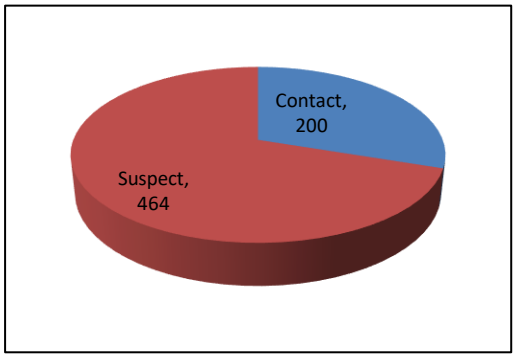

Figure 6: Clinical presentation of patients.

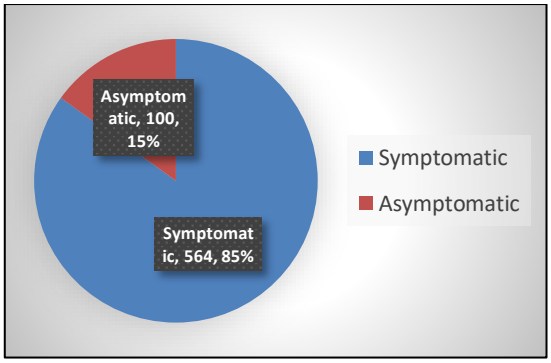

Figure 7: Duration of symptoms.

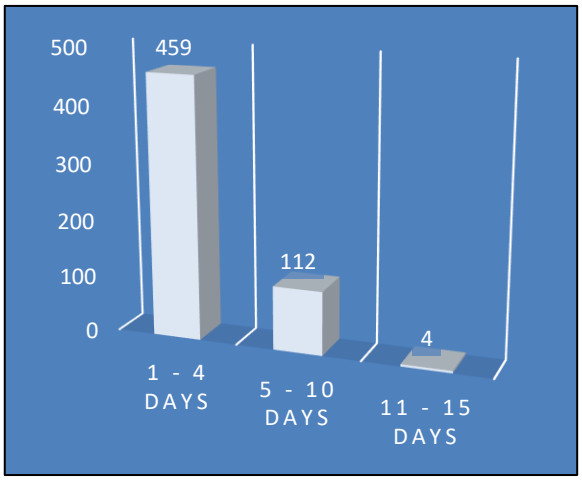

Figure 8: Common manifestations in COVID-19.

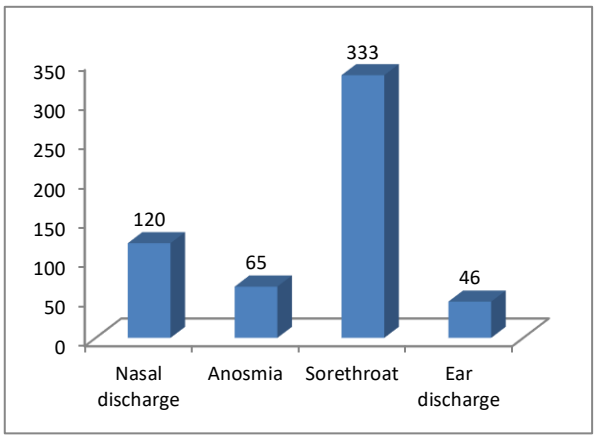

Figure 9: ENT manifestations in COVID-19.

Out of 664 cases, 564 (85%) were symptomatic and 100 (15%) were asymptomatic (Figure 6) with 459 patients (80%) had symptoms for duration of 1-4 days, 112 (19.5%) for 5-10 days and 4 (0.5%) for 11-15 days (Figure 7).

The most common symptoms with which these patients presented were cough (68%), fever (62%), signs of breathlessness (61%) and the least common symptoms were reduced appetite (26%) and bodyache (18%)

(Figure 8). The most common ENT manifestations with which the patients presented were sore throat 333 (59%), nasal discharge 120 (12%), anosmia 65 (12%), ear discharge 46 (8%) (Figure 9).

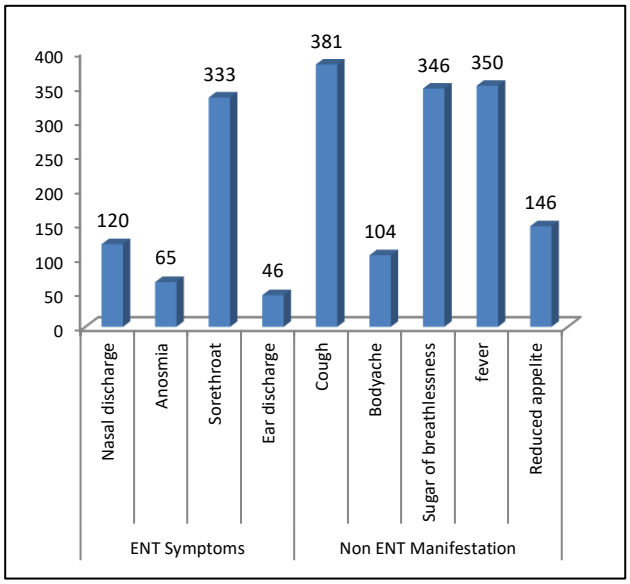

Figure 9: Comparing ENT and non-ENT manifestations.

DISCUSSION

The populations of all ages are vulnerable to COVID-19, an older age and complications caused by other underlying disease may increase the risk associated with the condition and affect the prognosis.[12] According to the study conducted by Melodie and Alexandra adults aged 20 to 34 and 35 to 49 are the only groups that have sustained SARS COV 2 transmission with reproduction number consistently above one.[13] The high reproduction numbers from adults are linked both to rebounding mobility and elevated transmission risk per venue visit among adults aged 20 to 49. In the present observational study the maximum patients were in the age group 50 to 60 years, 128, (19%). While men and women have the same susceptibility to both SARS-CoV-2, men may be more prone to have higher severity and mortality independent of age and susceptibility which supports the present study too.[14] The transmission of COVID-19 in India confirmed its initial urban-centric character. Later, there was a gradual shift of infections from urban to rural areas; however, cases kept increasing in the former. In our study too 646 (97%) from urban area and only 18 (3%) from rural area. According to the National centre for disease control, suspect is a patient with acute respiratory illness {fever and at least one sign/symptom of respiratory disease (example- cough, shortness of breath)}, AND a history of travel to or residence in a country/area or territory reporting local transmission of COVID-19 disease during the 14 days prior to symptom onset or A case for whom testing for COVID-19 is inconclusive. A contact is a person that is involved in any of the following: providing direct care without proper personal protective equipment (PPE) for COVID-19 or staying in the same close environment of a COVID-19 patient (including workplace, classroom, household, gatherings) or traveling together in close proximity (1 m) with a symptomatic person who later tested positive for COVID-19. In the present study, 464 (70%) were under suspect category and 200 (30%) under contact category. COVID-19 diagnosis is based on the RT-PCR test that is not fully sensitive and inadequate sample collection may decrease test sensitivity.[15] This supports the present study were RTPCR being performed in all cases but it came out to be positive in 218 (33%) only and negative in 446 (67%) patients. It is reported that many 'suspected' cases with typical clinical characteristics of COVID-19 and identical specific computed tomography (CT) images were not diagnosed with RT-PCR. Thus, a negative result does not exclude the possibility of COVID-19 infection and should not be used as the only criterion for treatment or patient management decisions. COVID-19 manifests with a wide clinical spectrum ranging from no symptoms to septic shock and multi-organs dysfunctions.[16] It is estimated that non-severe patients with no symptoms or mild symptoms could represent ~30–60% of all infections (Mizumoto et al, 2020; Nishiura et al, 2020; Qiu 2020; Wang et al, 2020a).[17] Compared to severe cases, asymptomatic infection and mildly symptomatic infection often go unrecognized since the majority of affected individuals are not sick enough to seek medical help and cannot be identified by screening methods, such as temperature check. A few studies have shown that high viral loads can be detected in some patients with COVID-19 early in their illness, when their symptoms were mild (Woelfel et al, 2020; Zou et al, 2020).[18] Moreover, another asymptomatic patient was found to shed a similar amount of virus as that shed by symptomatic patients (Zou et al, 2020).[19] Therefore, asymptomatic infection may be highly contagious and potentially lead to viral spread. Some transmission models also suggested that a substantial number of undocumented infections leading to mild, limited, or no symptoms may facilitate the rapid dissemination of SARS-CoV-2 (Gostic et al, 2020; Li et al, 2020).[20] In the current study, out of 664 cases, 564 (85%) were symptomatic and 100 (15%) were asymptomatic with 459 patients (80%) had symptoms for duration of 1-4 days, 112 (19.5%) for 5-10 days and 4 (0.5%) for 11-15 days. The incubation time for COVID-19 since the exposure to SARS-CoV-2 is believed to reach 14 days, nevertheless, the majority of patients develop COVID-19 disease after 4–5 days (range between 2 and 7 days) after being infected.[21,22] COVID-19 remains contagious even during the latency period, thus patients before clinical COVID-19 presentation can transfer the virus to others. Despite its rapid spread worldwide, the clinical characteristics of COVID-19 remain to a large extends vague. In the systematic review conducted by El Anwar M et al. they observed that fever (reported in 73.5% of the included patients), and cough (reported in 61%) are the dominant symptoms of COVID-19.[23] The findings of our study were similar with

fever being seen in 62% of the patients and cough being seen in 68% of the patients, signs of breathlessness (61%), reduced appetite (26%) and bodyache (18%). However, in the study by Salepci et al, the most common general symptom was fatigue (71.3%) followed by cough (54.3%), and fever (50.7%).[24] In the review by Anwar et al, the most common ENT manifestations for COVID-19 were sore throat (11.3%) and headache (10.7%).They concluded that their incidence is much less than the incidence of fever and cough in COVID-19 patients.[25] In the study conducted by Sakalli et al the most frequent ENT-related symptoms of the patients were nasal obstruction (53.5%), loss of sense of smell (51.2%), sore throat (50.2%), loss of sense of taste (47.1%), and rhinorrhea (38.5%).[24] In our study the most common otorhinolaryngological manifestation was sore throat seen in 333 (59%) patients. The other symptoms were nasal discharge 120 (12%), anosmia 65 (12%), ear discharge 46 (8%). In the review by El Anwar et al, no emergency ENT symptoms as bleeding per nose or throat or stridor were seen.[27] Sakalli et al, in their study concluded that loss of sense of smell/ taste is a common symptom in COVID-19 and may be the first and/or only symptom of this disease. In our study, 12% of the patients presented with olfactory disturbance. Auditory manifestation due to coronavirus is little mentioned in the literature. In our study 8% (46) patients had ear discharge. They advocated that Otorhinolaryngologist should be alert not only for general symptoms but also for otorhinolaryngologic symptoms that can be associated with COVID-19. Otolaryngological examinations generate high risk of aerosol generation, so one should be alert about the nonspecific ENT symptoms that can be associated with COVID-19. However since it's a short span of study, the long term morbid effects of COVID-19 infection was not able to be evaluated in the present study.

CONCLUSION

Even though the most common manifestations of COVID-19 were cough, fever, breathlessness significant proportions of patients do manifest with ENT symptoms like sorethroat, nasal discharge, anosmia, ear discharge which may go unnoticed. So, the patients with ENT symptoms should be screened for COVID-19 so that better quality care can be ensured to the patients. Recognizing the cases and addressing them properly is important for curbing the rapid spread of COVID-19 pandemic.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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