Assessment of the Prevalence of Symptoms in Patients Under Institutional Isolation in COVID-19 Pandemic in India

Sanjeev Kumar, Puneet Rathore, Nandan Choudhary, Neha Singh, Alice Thankachan, Balbir Kumar, Shweta Bhopale, Anant Mohan[1], Sushma Bhatnagar

Departments of Onco-anaesthesia and Palliative Medicine and [1]Department of Pulmonary Medicine and Sleep Medicine, All India Institute of Medical Sciences, New Delhi, India

Abstract

Objective: To understand the trend of prevalence of symptoms of coronavirus disease 2019 (COVID-19) pandemic, some studies have been conducted outside India, but for Indian patients, there is no such study available. Therefore, this study was designed to analyze the trends of symptoms in Indian patients during COVID-19 pandemic. **Methods:** A retrospective study was conducted on 100 patients (73 males, 24 females, and 3 transgenders) admitted under institutional isolation at a tertiary care center in India using a self-designed survey-based questionnaire. A descriptive analysis of results done based on age and sex. **Results:** COVID incidence recorded is high in male (73%) as compared to female (24%), yet female patients have a higher prevalence of symptoms as compared to male patients. **Conclusion:** Male patients are more as far as COVID incidence is concerned, while female patients show high prevalence of symptoms as compared to male patients. Patients presenting with COVID-positive report suffer a significant burden of symptoms, and timely recognition of symptoms and their management can significantly reduce morbidity and mortality due to COVID-19.

Keywords: Coronavirus disease, symptom prevalence, India

INTRODUCTION

In late December 2019, a new public health crisis emerged as an outbreak of pneumonia-like respiratory infection from Wuhan, China. The World Health Organization (WHO) named this infection as severe acute respiratory syndrome coronavirus 2 (SARS CoV 2) and declared it as coronavirus disease 2019 (COVID 19). Within 2 months, by the end of February 2020, every nation across the globe reported cases of coronavirus infection. Rapid human-to-human transmission led COVID-19 to become a global medical emergency, and therefore, the WHO declared COVID-19 a pandemic on March 11, 2020.[1]

The first four cases of an acute respiratory syndrome of unknown etiology were reported in Wuhan, China, on December 29, 2019, in people associated with the wet market of seafoods. The virus was originated in bats and subsequently transmitted to human through some intermediary animals and considered to be a disease of animal-to-human transmission. Most of the early cases have sort of contact history with the seafood market in a way or another. Soon after this outbreak, the secondary source of infection was noted as human-to-human transmission.[2] Till

April 16, 2020, nearly 2 million cases reported worldwide, of them, 131 thousand have lost their lives.[3] To understand trends and prevalence of symptoms of COVID-19, some studies have been conducted outside India, but for the Indian population, there is no such study available. Therefore, this study was designed to study trends of symptoms in Indian patients during the COVID-19 pandemic.

STUDY DESIGN AND METHODOLOGY

A retrospective study was conducted on 100 test-positive COVID-19 patients admitted under institutional isolation

Access this article online

Quick Response Code:

Website:
www.jpalliativecare.com

DOI:
10.4103/IJPC.IJPC_170_20

How to cite this article: Kumar S, Rathore P, Choudhary N, Singh N, Thankachan A, Kumar B, *et al*. Assessment of the prevalence of symptoms in patients under institutional isolation in COVID-19 pandemic in India. Indian J Palliat Care 2020;26:S86-9.

during March–April 2020 at a tertiary care center in India. Of 100 patients, 73 were male, 24 were female, and 3 were transgender. Convenient sampling is done, and data are extracted from their medical records and telephonic interviews. A self-designed survey-based questionnaire is used to record their symptoms. After extraction of all data by primary investigators a descriptive analysis is done. The result has been analyzed based on age and sex. All patients have been divided into five age groups, i.e., <15 years, 16–30 years, 31–45 years, 46–60 years, and >60 years.

RESULTS

The highest symptom prevalence is noted for fever. Fever is prevalent in patients of age group 16–30 years and 31–45 years, showing a 16% prevalence in each. Shortness of breath is prevalent in 13% of the patients 16–30 years' age, 12% in 31–45 years' age group, and 13% in 46–60 years' age group. Sore throat prevalence in 16–30 years is 14%, 31–45 years is 14%, and 46–60 years is 9%. The highest prevalence of shortness of breath, fever, and sore throat is among the patients of 16–30 years and 31–45 years. The least prevalent symptom noted is urticaria which is prevalent in 4% of the patients of 31–45 years' age group. The prevalence of cough is 17% in >60 years' age group patients, while expectoration in >60 years' age group is 2%. About 32% of the patients report fatigue, with a maximum of 13% being in 31–45 years' age group. Myalgia has a maximum of 13% prevalence in 31–45 years' age group patients. The highest prevalence of headache is 9% in patients of age group 31–45 years. Diarrhea, urticaria, and anosmia are the least reported symptoms [Table 1 and Figure 1].

Sex-wise prevalence of symptoms shows a maximum of 35% of the females, 11% of the males, and 2% of the transgenders with fever and a minimum prevalence of 4% of the females with urticaria. About 28% of the males, 14% of the females, and 1% of the transgenders have shortness of breath. Nearly 20% of the males, 18% of the females, and 3% of the transgenders have a sore throat. Cough is prevalent in 28% of the females, 10% of the males, and 3% of the transgenders. Expectoration is seen in 15% of the females and 7% of males. Fatigue is seen in 23% of the females, 8% of the males, and 1% of the transgenders. Myalgia is seen in 18% of the females, 5% of the males, and 1% of the transgenders. Diarrhea and anosmia are seen in 5% of the females, 1% and 3% males, respectively. Although the number of male patients was more as compared to female patients, fever has shown a 35% prevalence in females as compared to 11% in males. Cough has a 28% prevalence in females as compared to 10% in males. Similarly, myalgia, fatigue, headache, diarrhea, anosmia, and urticarial are more prevalent in females as compared to males [Table 2 and Figure 2].

DISCUSSION

Clinical manifestation ranges from mild-to-severe respiratory symptoms with some even resulting in death.[4] Most common symptoms include fever, cough, myalgia, fatigue, pneumonia, and complicated dyspnea, while the least common symptoms are headache, diarrhea, hemoptysis, running nose, and phlegm producing cough.[4,5] Recovery of mild symptomatic patients occurs within a week, while severe cases experience progressive respiratory failure due to alveolar damage, leading to death.[6] Laboratory values and radiological investigations describe it as low lymphocytes and white blood cell count and new pulmonary infiltrate.[7] The diagnosis of coronavirus disease is made by reverse transcription–polymerase chain reaction , detecting positive nucleic acid of SARS CoV-2 in sputum, throat swab, and secretion of the respiratory tract.[6,8,9]

Adhikari *et al*. conducted a study on COVID-19 patients and reported that most common symptoms include fever, cough, myalgia, fatigue, pneumonia, and complicated dyspnea, while the least common symptoms are headache, diarrhea, hemoptysis, running nose, and phlegm producing cough.[2] Lu *et al*. conducted a study to look for nonrespiratory symptoms in COVID-19 patients and described that out of 72,314 COVID-19 patients, 889 had no symptoms at all. Some patients had mild urticarial.[10]

Rasmussen *et al*. conducted a study and reported that frequent manifestations include fever, cough, myalgia headache, and diarrhea. About 17%–29% of hospitalized patients develop respiratory distress syndrome.[11]

Li *et al*. conducted a study on the neuroinvasive potential of SARS CoV2 and described that the most characteristic symptom of COVID-19 is respiratory distress, but in some cases, neurological symptoms such as headache, nausea, and vomiting have also been reported. They reported that some coronaviruses are able to spread via synapse-connected route to the medullary cardiorespiratory center, and therefore, it can cause respiratory distress and failure.[12]
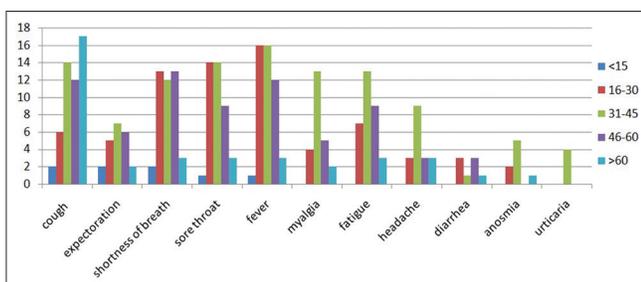

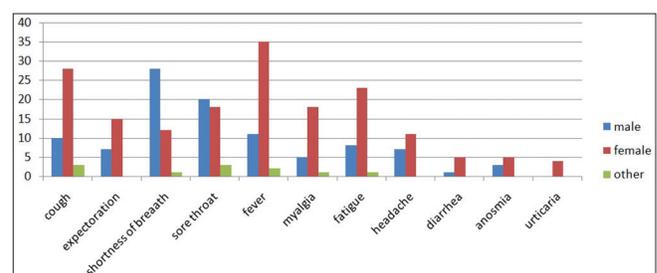**Figure 1:** Symptom prevalence according to the age

Figure 2: Symptom prevalence according to the sex

Table 1: Prevalence of symptoms according to the age group

Age (years)	Prevalence of symptoms (%)										
	Cough	Expectoration	Shortness of breath	Sore throat	Fever	Myalgia	Fatigue	Headache	Diarrhea	Anosmia	Urticaria
<15	2	2	2	1	1	0	0	0	0	0	0
16-30	6	5	13	14	16	4	7	3	3	2	0
31-45	14	7	12	14	16	13	13	9	1	5	4
46-60	12	6	13	9	12	5	9	3	3	0	0
>60	17	2	3	3	3	2	3	3	1	1	0

Table 2: Prevalence of symptom according to the sex

Sex	Prevalence of symptoms (%)										
	Cough	Expectoration	Shortness of breath	Sore throat	Fever	Myalgia	Fatigue	Headache	Diarrhea	Anosmia	Urticaria
Male	10	7	28	20	11	5	8	7	1	3	0
Female	28	15	14	18	35	18	23	11	5	5	4
Other	3	0	1	3	2	1	1	0	0	0	0

Kotfis and Skonieczna-Żydecka conducted a study on gastrointestinal symptoms in COVID-19 patients and found to have a less common prevalence of gastrointestinal symptoms which include nausea, vomiting, abdominal discomfort, and diarrhea.[13] Wu *et al.* conducted a study on ocular manifestations of COVID-19 patients and reported that 31.6% of the patients with 95% confidential interval had ocular manifestations consistent with conjunctivitis, including conjunctival hyperemia, chemosis, epiphora, or increased secretions.[14]

Sun *et al.* conducted a study on the pediatric population of Wuhan aged between 2 months and 15 years and described that the most common symptom in this population is polypnea, followed by fever and cough.[15]

Several public health measures can be adopted to prevent transmission of infection. Case isolation, identification and follow-up of contacts, environmental disinfection, and use of personal protective equipment are considered to be protective and effective in the prevention of disease transmission.[16]

To date, there is no specific antiviral treatment available for coronavirus disease. Recommended treatment is symptomatic and supportive.[4,5] Apart from it, reducing hospital-acquired infections and prior psychological intervention is also effective in the treatment of COVID-19.[17,18] Since there is no vaccine available till date, the best prevention of the disease is to avoid exposure to the virus.[19]

CONCLUSION

Male patients are more as far as COVID incidence is concerned, while female patients show a high prevalence of symptoms as compared to male patients. Patients presenting with COVID-positive report suffer a significant burden of symptoms, and timely recognition of symptoms and their management can significantly reduce morbidity and mortality due to COVID-19.

Limitation of the study

It is a study conducted at a tertiary care isolation center. Therefore, it may not estimate the exact prevalence of symptoms for the population.

Conflicts of interest

There are no conflicts of interest.

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