Bangladesh J Microbiol, Volume 37, Number 2, December 2020, pp 42-46

Original Article

Clinical Characteristics of Noncritical Patients with Coronavirus Disease 2019 (COVID-19): Lessons from Bangladesh

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The scientific literatures on clinical manifestations of coronavirus disease 2019 (COVID-19) patients from South Asian countries including Bangladesh are limited. Documentation of clinical spectrum from various geographic locations is vital for future scientific studies and clinical management. This study is aimed to report the sociodemographic and clinical characteristics of noncritical patients with COVID-19 in Bangladesh. We conducted a cross-sectional study at three dedicated COVID-19 hospitals of Bangladesh. The severity of the COVID-19 cases was assessed based on the WHO interim guidance. Data were collected only from non-critical COVID-19 patients as critical patients required immediate management. A total of 103 real-time polymerase chain reaction (RT-PCR) confirmed noncritical COVID-19 patients were included. Most of the patients (71.8%) were male. Mild, moderate and severe illness were assessed in 74.76%, 9.71% and 15.53% of patients respectively. Nearly 52.4% patients had a co-morbidity, with hypertension being the most common (34%), followed by diabetes mellitus (21.4%) and ischemic heart disease (9.7%). Fever (78.6%), weakness (68%) and cough (44.7%) were the most common clinical manifestations. Other common symptoms included loss of appetite (37.9%), difficulty in breathing (37.9%), loss of taste or smell (35.0%), headache (32%) and body ache (32%). The median time from onset of the first symptom to attending hospitals was 7 days (interquartile range: 4 - 10). This study will help both the clinicians and epidemiologists to understand the magnitude and clinical spectrum of COVID-19 patients in South Asian perspective including Bangladesh.

Key words: COVID-19, clinical characteristics, pandemic, Bangladesh, South Asia

Introduction

South Asian countries, a home of over one billion people, have been struggling to prevent the spread of the coronavirus disease 2019 (COVID-19) pandemic. As of 14 September 2020, more than 5 million people have been infected with over 90,000 deaths in last six months. Despite various public health efforts, epidemiologic growth curve has not yet been flattened in most south Asian countries except Pakistan[1]. Severe acute respiratory syndrome coronavirus 2 (SARS-COV-2) infection predominantly results in an acute respiratory illness including a myriad of extrapulmonary symptoms. The clinical spectrum ranges from asymptomatic or mildly symptomatic flu-like illness to potentially life-threatening critical conditions[2]. Studies have shown that the clinical spectrum of COVID-19 can vary among different ethnicities and geographical locations across the world[3]. There is not much information on the clinical manifestations of COVID-19 in South Asian context. Documentation of clinical profile from various geographic locations is essential for future scientific studies and clinical management. South countries including Bangladesh are similar in terms of socio-demographic and lifestyle related factors and therefore clinical symptoms are expected to be similar as well.

Owing to a population of over 160 million, inadequate healthcare system, and poor personal hygiene among the general population, Bangladesh is considered one of the high-risk countries for coronavirus spread. The first official case of COVID-19 was reported on 8 March 2020, and the epidemic still appears to be in a growing phase. As of 14 September 2020, a total of 339,332 cases and 4,759 deaths have been reported from Bangladesh[1]. However, the information on clinical manifestations from Bangladesh is scarce in the literature. Therefore, this study is aimed to document the clinical spectrum of COVID-19 patients attending fever clinics in Bangladesh.

Materials and Methods

This was a cross-sectional study conducted among real-time polymerase chain reaction (RT-PCR) confirmed COVID-19 patients attending the fever clinic of a dedicated COVID-19 hospital (Kurmitola general hospital) in Dhaka city of Bangladesh and two Upazila health complexes from different districts (Jessore and Jhenaidah) from 5 July to 18 July 2020. Diagnosis of SARS-COV-2 infection and assessment of severity were done based on the WHO interim guidance. Clinical features including respiratory rate, oxygen saturation and chest imaging were used to categorize the severity of the disease. Mild, moderate and severe diseases were considered as non-critical disease. The mild disease was defined by any RT-PCR positive patient of COVID-19 without radiological features of pneumonia or hypoxia (SpO_2 e"90% on room air). Moderate disease (pneumonia) was defined by clinical signs (fever, cough, dyspnea, fast breathing) and radiological features of pneumonia but no signs of severe pneumonia, including SpO_2 ≥90% on room air in adolescents and adults.

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Severe disease (severe pneumonia) was defined by clinical signs of pneumonia (fever, cough, dyspnea, fast breathing) plus one of the followings: respiratory rate >30 breaths/minute; severe respiratory distress; or SpO_2<90% on room air in adolescents and adults. Finally, the patients who presented with acute respiratory distress syndrome (ARDS), sepsis or septic shock as defined by WHO, were labeled as critical patients[4].

Data were collected only from noncritical COVID-19 patients as critical patients required immediate intensive care admission making them unable to respond to the questions. Socio-demographic and clinical data were evaluated and collected by experienced clinicians using a pretested case record form. After collection, another clinician rechecked the documents on the spot for missing or incomplete information and made necessary corrections. Verbal consent was taken from all participants. The participants' written consents were waived due to personal safety of clinicians and this was also described by other study[5]. The institutional review board of Biomedical Research Foundation, Bangladesh approved the study protocol (Ref. no: BRF/ERB/2020/003).

Data were analyzed by SPSS Statistics software 22.0 (Armonk, NY: IBM Corp). Data were expressed in number (percentages, %) and median (interquartile range, IQR) as appropriate. We used Pearson's chi-square test, Fisher's exact test and Kruskal Wallis test to compare differences among mild, moderate and severe patients where appropriate. P <0.05 was set as statistically significant.

Results

The total number of attending patients in the fever clinics were 106 during the study period. Of them, about 73% (77) of cases presented with mild symptoms, followed by nearly 15% (16) severe, 9% (10) moderate cases and 3% (3) critical cases. After excluding 3 critical cases, 103 laboratory confirmed noncritical COVID-19 patients were analyzed. Among noncritical patients, about 75% (77) of cases presented with mild symptoms, followed by nearly 15% (16) severe, and 10% (10) moderate symptoms; of them around one third (36; 33.96%) of cases required hospital admission.

The median age of the noncritical participants was 37 years (IQR: 31-53); more than 80% of these patients were under 60 years. Most of the patients were male (71.8%). More than half of the patients (52.4%) had at least one co-morbidity, including hypertension in 35 (34%), diabetes mellitus in 22 (21.4%) and ischemic heart disease in 10 (9.7%) patients. Notably, around 80% of moderate and severe cases had comorbidities. The median time from onset of symptom to attending fever clinic was 7 days (IQR 4-10) (Table 1). Overall, the most common symptoms

Table 1. *Characteristics of noncritical patients with COVID-19 (N= 103)*

Variables	Severity of patients with COVID-19				p
	Total	Mild	Moderate	Severe	
	number (%) or median (IQR) as appropriate				
Patients' number	103 (100)	77 (74.76)	10 (9.71)	16 (15.53)	
Age (years)	37.0(31.0, 53.0)	35.0 (29.0, 45.0)	52.5 (38.0, 63.25)	62.5 (42.5, 65.0)	**<0.001***
Age group					
≤60 years	84 (81.6)	70 (90.9)	7 (70.0)	7 (43.8)	**<0.001**
>60 years	19 (18.4)	7 (9.1)	3 (30.0)	9 (56.3)	
Gender					
Male	74 (71.8)	55 (71.4)	9 (90.0)	10 (62.5)	0.38
Female	29 (28.2)	22 (28.6)	1 (10.0)	6 (37.5)	
Area of residence					
Urban	69 (67)	51 (66.2)	6 (60.0)	12 (75.0)	0.73
Rural	34 (33.0)	26 (33.8)	4 (40.0)	4 (25.0)	
Smoking habit (6)					
Smokers (current/past)	32 (31.1)	25 (32.5)	3 (30.0)	4 (25.0)	0.94
Nonsmokers	71 (68.9)	52 (67.5)	7 (70.0)	12 (75.0)	
Comorbidities					
At least one comorbidity	54 (52.4)	33 (42.9)	8 (80.0)	13 (81.3)	**0.003**
Hypertension	35 (34.0)	22 (28.6)	4 (40.0)	9 (56.3)	0.09
Diabetes mellitus	22 (21.4)	10 (13.0)	4 (40.0)	8 (50.0)	**0.002**
Ischemic heart disease	10 (9.7)	4 (5.2)	2 (20.0)	4 (25.0)	**0.02**
Chronic kidney disease	8 (7.8)	3 (3.9)	1 (10.0)	4 (25.0)	**0.02**
Bronchial asthma	6 (5.8)	5 (6.5)	0 (0.0)	1 (6.3)	1.00
Chronic obstructive pulmonary disease	3 (2.9)	1 (1.3)	1 (10.0)	1 (6.3)	0.16
Others	16 (15.5)	11 (14.3)	1 (10.0)	4 (25.0)	0.53

Within parentheses are percentages over column total of respective variable

Pearson's chi square test/Fisher's exact test was done as appropriate *Kruskal Wallis test was done

** Other comorbidities: Cerebrovascular disease 3 (2.9%), dyslipidemia 3 (2.9%), acute kidney injury 2 (1.9%), chronic liver disease 2 (1.9%), malignancy 1 (1.0%), Graves' thyrotoxicosis 1 (1.0%), nonalcoholic fatty liver disease 1 (1.0%), benign enlargement of prostate 1 (1.0%), allergic rhinitis 1 (1.0%), schizophrenia 1 (1.0%)

Table 2. *Clinical features of noncritical patients with COVID-19 at presentation (N= 103)*

Variables	Severity of COVID-19				p
	Total	Mild	Moderate	Severe	
	number (%) or median (IQR) as appropriate				
Onset of symptom to consultation (days)	7.0 (4.0, 10.0)	7.0 (3.0, 10.0)	10.0 (6.75, 12.0)	9.5 (6.25, 10.0)	0.09*
Symptoms					
Fever	81 (78.6)	57 (74.0)	10 (100.0)	14 (87.5)	0.13
Weakness/ fatigue	70 (68.0)	52 (67.5)	6 (60.0)	12 (75.0)	0.73
Cough	46 (44.7)	34 (44.2)	5 (50.0)	7 (43.8)	0.95
Loss of appetite	39 (37.9)	26 (33.8)	7 (70.0)	6 (37.5)	0.10
Difficulty in breathing	39 (37.9)	21 (27.3)	8 (80.0)	10 (62.5)	**<0.001**
Loss of smell/ taste	36 (35.0)	30 (39.0)	4 (40.0)	2 (12.5)	0.10
Headache	33 (32.0)	25 (32.5)	3 (30.0)	5 (31.3)	1.00
Bodyache	33 (32.0)	23 (29.9)	5 (50.0)	5 (31.3)	0.43
Sore throat	29 (28.2)	27 (35.1)	0 (0.0)	2 (12.5)	**0.02**
Diarrhea	23 (22.3)	18 (23.4)	1 (10.0)	4 (25.0)	0.73
Chest pain	15 (14.6)	13 (16.9)	2 (20.0)	0 (0.0)	0.14
Runny nose	12 (11.7)	9 (11.7)	1 (10.0)	2 (12.5)	1.00
Chill	11 (10.7)	8 (10.4)	0 (0.0)	3 (18.8)	0.35
Others	23 (22.3)	17 (22.1)	1 (10.0)	5 (31.3)	0.43
Signs at presentation					
Tachycardia (pulse >100 beats/ minute)	37 (35.9)	26 (33.8)	2 (20.0)	9 (56.3)	0.13
Fever (Temperature >38ºC)	16 (15.5)	12 (15.6)	1 (10.0)	3 (18.8)	0.90
Tachypnea (respiratory rate >24 breaths/ minute)	11 (10.7)	0 (0.0)	2 (20.0)	9 (56.3)	**<0.001**
Systolic blood pressure (mm-Hg)	120 (110, 136)	120 (110, 130)	125 (113.5, 140)	138 (120, 148.8)	**0.02***
Oxygen saturation (%)	96.0 (93.0, 98.0)	97.0 (95.0, 98.0)	93.0 (91.75, 98.0)	87.5 (77.25, 89.0)	**<0.001***

Within parentheses are percentages over column total of respective variable
Pearson's chi square test/ Fisher's exact test was done as appropriate *Kruskal Wallis test was done
Other symptoms:
Vomiting 8 (7.8%), abdominal pain 6 (5.8%), dizziness 5 (4.9%), red eye 4 (3.9%)

reported were fever (78.6%), weakness (68%) and cough (44.7%) followed by loss of appetite (37.9%), difficulty in breathing (37.9%), loss of taste or smell (35.0%), headache (32%) and body ache (32%). Less common symptoms included sore throat (28.2%), diarrhea (22.3%) and chest pain (14.6%). Fever was the most prevalent symptom in all groups of patients. Interestingly, 80% of moderate patients experienced difficulty in breathing compared to 62.5% severe patients. More than half of the severe cases had tachycardia (56.3%) and tachypnea (56.3%) at presentation; their median oxygen saturation was 87.5% (IQR 77.25-89.0) (Table *2*).

Discussion

Our study illustrated and compared the clinico-demographic features of 103 RT-PCR confirmed noncritical (mild, moderate and severe) COVID-19 cases attending fever clinics of three government hospitals of Bangladesh. We found that around 15% patients with COVID-19 presented with severe disease. They had significantly higher age and comorbidities than the mild-moderate disease groups. They also presented more frequently with difficulty in breathing, tachypnea and higher systolic blood pressure but lower frequency of sore throat and lower percentages of oxygen saturation. Loss of smell/taste was found in 35% of total patients.

The most prevalent symptoms of noncritical COVID-19 patients in Bangladesh consisted of fever (78.6%), fatigue (68%) and cough (44.7%). Similarly, in a meta-analysis from China, most prevalent symptoms were fever (80.4%), cough (63.1%) and fatigue (46%). However, studies from China included both critical and non-critical patients[7]. In contrast, one study from Europe on mild to moderate patients reported that headache (70.3%), loss of smell (70.2%), nasal obstruction (67.8%) were the most common symptoms; fever was reported by only 45.4% of patients[8]. Another early study from United States (included both inpatients and outpatients) also found a different order of symptoms. Depending on the frequency, the top five symptoms were fatigue (69%), cough (63%), bodyache (58%), fever (57%) and loss of smell/taste (56%)[9]. Interestingly, 39% of mild cases,

40% of moderate cases and 12.5% of severe cases reported a loss of taste or smell in this study. While olfactory and gustatory dysfunctions were prevalent symptoms in European and American patients, they were only rarely reported in Chinese patients[7-10]. About 80% of moderate cases reported respiratory distress in contrast to 62.5% severe and 27.3% mild cases. However, only 20% of these moderate cases had tachycardia, and median oxygen saturation was 93% at presentation. This subjective over reporting of respiratory distress could be explained by the panic developed among the general public.

Early report from three South Asian countries (India, Nepal and Sri Lanka) found almost similar age and sex distribution of patients (young male) with COVID-19. However, symptoms and comorbidities were reported at a lower frequency among patients from India and Sri Lanka. On the other hand, data from Pakistan showed a similar but different order of clinical features and higher rate of comorbidities. These may be due to higher age of the study population. Another characteristic feature of our patients was loss of smell or taste. But this was only reported from Sri Lanka with a lower rate[11-14].

In this study, about 15% of cases were presented with severe symptoms. This is consistent with a summary report of 72,314 cases from China[15]. The severity of COVID-19 at presentation was not clearly mentioned in the early reports from the South Asian countries[11-14]. Most of the literature described the severity of illness among hospitalized patients. Therefore, they do not represent the spectrum of illness at presentation.

Collecting data directly from the patients at fever clinics is the strength of this study since there is less chance of missing any data, especially on atypical symptoms (e.g., red eye). Besides, while mild to moderate symptoms represent more than in 80% of COVID-19 patients, studies addressing atypical symptoms are not widespread (10). Our study has also some limitations. First, the sample size of this study was small. Second, we could not include critical patients due to the requirement of emergency management. Therefore, our findings could not be generalized in the context of Bangladesh.

Conclusions

Our study reports the presenting symptoms of non-critical SARS-COV-2 infections among the Bangladeshi population. Although there are certain similarities in the range of symptoms with the Chinese population (where the pandemic was originated) and other South Asian countries, there are some unique findings like the high prevalence of olfactory and gustatory dysfunctions in Bangladesh. This study will help both the clinicians and epidemiologists to understand the magnitude and clinical spectrum of COVID-19 patients in South Asian perspective.

Declarations

Acknowledgements

We are grateful to Brigadier General Jamil Ahmad, director, Kurmitola General Hospital (KGH); Dr. Tania Easmin, medical officer, KGH; Dr. Md. Rashed Al Mamun, upazilla health and family planning officer (UHFPO), Shailkupa, Jhenaidah and Dr. Md. Alamgir, UHFPO, Keshabpur, Jessore for their generous support in data collection.

Competing interest

None of the authors have any conflict of interest to declare

Ethics approval and consent to participate and publish

The institutional review board of Biomedical Research Foundation, Bangladesh approved the study protocol (Ref. no: BRF/ERB/2020/003). Verbal consent was taken from all participants to participate and publish the study.

Funding

Not applicable

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