

Research Article

Assessment of Long Term Effects of COVID-19 in the Southern Part of Bangladesh – A Retrospective Observational Study

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Abstract

Background

Post-COVID-19 syndrome is characterized by a number of new, recurring, or persistent symptoms that individuals suffer for more than four weeks after contracting COVID-19. In some individuals, the post-COVID-19 condition might linger for months or years or result in impairment.

Objective

To assess long-term effects of COVID-19 in patients who were affected with COVID -19 (RT-PCR +ve) from 1st July to 30th December, 2020 recorded in PCR Lab of Sher-E-Bangla Medical College Hospital, Barishal i.e. six months or more before the initiation of study and recovered fully.

Materials and Methods

This was a retrospective observational study done between July 1 and December 30, 2020 at the PCR Lab of Sher-e-Bangla Medical College Hospital in Barishal.

Results

Total 519 patients have been selected for this study. The average age of the patient was 39 years. Among them, 28% were female and 72% were male. Among all of these patients, 16.18% (84) had comorbidity. Only 60 patients (11.57%) had different symptoms after six months of COVID-19 infection. Those patients who had both diabetes and hypertension, had more these symptoms ($p < 0.05$) after six months of the COVID-19 infection.

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Conclusion

Some patients experienced different symptoms even after they had fully recovered from COVID-19. People over 65 and those with numerous chronic health issues (such as diabetes, COPD, heart disease, kidney disease, etc.) are more likely to develop long-term conditions.

Keywords: COVID-19; Comorbidity; Long-term effects

Introduction

On December 31, 2019, Hubei province, Wuhan, China, reported the discovery of an outbreak of the novel coronavirus nCoV-19 (SARS-CoV-2), which is the cause of the coronavirus disease-19 (COVID-19). Up till May 7th, 2021, there were 3,278,510 fatalities and about 157,343,044 confirmed cases worldwide [1]. On March 11, 2020, the World Health Organization (WHO) proclaimed COVID-19 a pandemic.

The second wave of the Coronavirus Disease 2019 (COVID-19) pandemic, which was the greatest problematic threat to public health, affected the entire planet. It posed a serious problem for the fields of science, medicine, and public health [2].

The World Health Organization estimated that 80% of infections were minor or asymptomatic, 15% had moderate to severe symptoms (requiring oxygen), and 5% had critical infections that needed ICU care. In Bangladesh, COVID-19 cases were confirmed 2,031,797 cases between 3 January 2020 and 14 October 2022, and 29,393 deaths were reported to the WHO [3].

Numerous clinical investigations have shown that a significant fraction of COVID-19 hospital patients still experience one or more health issues months after leaving the hospital [4,5]. The name “Post COVID-19 condition” has just been recommended by a working group under the WHO as a preliminary clinical case definition. This criterion is predicated on the presence of a structured consensus process three months from the onset of symptoms or the date of the SARS-CoV2 infection, which lasts for at least two months [6,7]. Numerous studies have shown that between 50 and 87% of hospitalized patients around the world experienced at least one post-COVID-19 symptom for a few weeks after convalescence or hospital discharge, and that 20% of COVID-19 patients continued to experience symptoms for longer than three months despite a lessened severity [8].

Following COVID-19, such enduring and incapacitating symptoms suggest that the outbreak’s negative effects did not end with recovery from the acute phase of the illness and that the pandemic is likely to continue to have an effect on people, families, and social groupings [9]. Less than 20% of COVID-19 patients require hospital admission, but more than 80% of them require therapy ranging from oxygen to ventilator support [10,11].

Objective

To assess long-term effects of COVID-19 in patients who were affected with COVID -19 (RT-PCR +ve) from 1st July to 30th December 2020 recorded in PCR Lab of Sher-E-Bangla Medical College Hospital.

Materials and Methods

Study Design

An observational retrospective study.

Study Population

COVID -19 (RT-PCR +ve) patients from 1st July to 30th December, 2020 recorded in PCR Lab of Sher-E-Bangla Medical College Hospital, Barishal.

Inclusion Criteria

COVID-19 (RT-PCR +ve) patients age 2 years and above.

Those patients whose mobile numbers are recorded in the register.

Those patients who/their attendants are available on mobile phone.

Exclusion Criteria

Persons below 2 years of age.

Those patients whose mobile numbers are not recorded in the register.

Those patients who/their attendants are not available on mobile phone.

Those who died by this time from causes unrelated to COVID-19.

Sample Size (n)

To determine the sample size the following formula was followed

$$n = \frac{z^2 pq}{d^2}$$

n= the desired sample size

z= Standard normal deviate usually set at 1.96

p= Proportion in the population; if not known, it is regarded as 0.5 (50.0%), here p is 0.27

q= 1-p

d= Degree of accuracy which is considered as 0.05

According to this formula the targeted sample was 302.

But attempt will be taken to take more sample population as far as possible.

According to this formula our final sample size for this study was 519.

Sampling Technique

Simple random sampling.

Place of Study

Sher-E-Bangla Medical College, Barishal, Bangladesh.

Duration of the Study

The duration of the study was 6 months, from 1st July to 30th December 2021.

Statistical Analysis

Statistical analyses carried out by using the Statistical Package for Social Sciences version 23 for Windows (SPSS Inc., Chicago, Illinois, USA). The mean and Standard deviation values calculated for continuous variables and t- test employed for continuous data. P values <0.05 was considered as statistically significant.

Results

Table 1 shows the age distribution of the patients. Age of the patients in our study ranged from 2 to >75 years. Minimum age was 2 years and highest age was 82 years. The mean age was 39 years. Most of the patients were in 31 to 45 years age group, which was 194 (37.4%) of the studied patients

Age range in years	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
2 to 15 years	22	4.2	4.2	4.2
16 to 30 years	138	26.6	26.6	30.8
31 to 45 years	194	37.4	37.4	68.2
46 to 60 years	123	23.7	23.7	91.9
61 to >75 years	42	8.1	8.1	100.0
Total	519	100.0	100.0	

Table 1: Age distribution of the patients

Figure 1 shows that majority of the patients in our study was male. Among our study population, 72% were male and 28% were female.

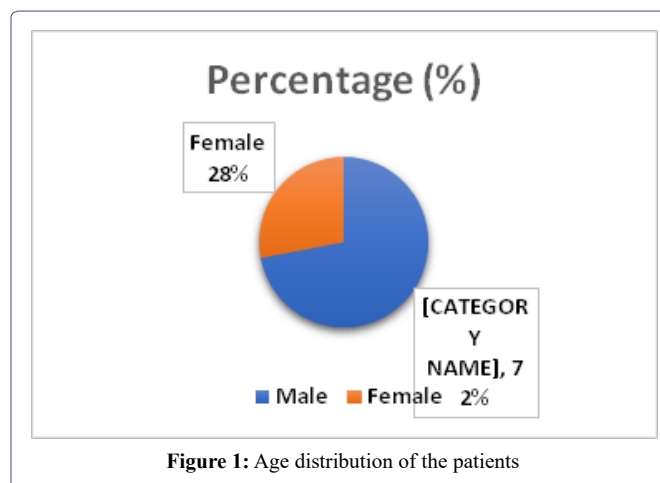


Figure 1: Age distribution of the patients

Sex distribution

Among the 519 patients only 84 (16.18%) had Co-morbidities. Majority of the patients were suffering from hypertension (78.44%) and diabetes (50.22%). Significant number of patients were also suffering from heart disease (33%). Common co-morbidities of the patients are shown in Table 2.

Only 60(11.57%) patients had post-COVID symptoms after six months of COVID-19 infection. Most common complications among the patients after six months were weakness 30 (5.78%), shortness

of breath 21 (4.04%), cough 6 (1.16%), memory loss 4 (0.77%) and swelling of legs 3 (0.58%) etc. (Table 3). Those patients who had comorbidities of both diabetes and hypertension had a significant correlation ($p < 0.05$) with weakness six months after the COVID-19 infection.

Co-morbid conditions	Frequency	Percentage (%)
Diabetes mellitus	42	50.22%
Hypertension	67	78.44%
Ischemic heart disease	28	33.00%
Cancer	9	10.33%
Chronic kidney disease	9	10.89%
Bronchial asthma	20	23.78%
Hypothyroidism	8	9.78%
Leukemia	4	5.12%

Table 2: Co-morbidities of the patients (n=84)

Symptoms	Frequency (%)
Weakness	30 (5.78%)
Breathless	21 (4.04%)
Cough	6 (1.16%)
Memory loss	4 (0.77%)
Swelling of legs	3 (0.58%)
Alopecia	2 (0.39%)
Chest pain	1 (0.20%)
Anorexia	1 (0.20%)
Constipation	1 (0.20%)
Excessive Sweating	1 (0.20%)
Allergy	1 (0.20%)
Others	2 (0.39%)

Table 3: Post-COVID symptoms after six months of COVID-19 infection

Discussion

The 2019nCoV is the seventh known coronavirus that can infect humans, and the remaining 6 are human coronavirus (HCoV)-229E, HCoV-OC43, HCoV-NL63, HCoV-HKU1, severe acute respiratory syndrome-related coronavirus (SARS-CoV), and Middle East respiratory syndrome-related coronavirus (MERS-CoV). The 2 highly pathogenic viruses, SARSCoV and MERSCoV, cause severe respiratory syndrome in humans and the other 4 human coronaviruses induce mild upper respiratory disease. Similar to SARS-CoV and MERS-CoV, the outbreak of COVID-19 has been declared by the WHO as a global public health emergency [12].

SARS-CoV-2 is one of the most virulent pathogens causing severe acute respiratory illness along with MERS and swine flu in humans. Initial case studies from China demonstrated COVID-19 to be a respiratory illness with a spectrum ranging from mild illness (81%), severe respiratory distress (14%) and critical illness in five per cent with a case fatality rate of around 2.4 per cent [13]. Considerable disparities in demographic and clinical patterns have been observed between countries across different continents.

In our retrospective study, a total of 519 patients were selected. Age of the patients in our study ranged from 2 to >75 years and the mean age was 39 years. In another study [14] from our country showed mean age was 42.59 years. Data from the Institute of Epidemiology, Disease Control, and Research (IEDCR) [15] revealed that 42% of the Bangladeshi COVID-19 cases were aged between 21 and 50 years. 72% of our study population were male and 28% were female. Similar male preponderance was found in other studies, 73% of the first reported study of China [16] or 63% of a study in DMCH, Bangladesh [17]. It has been found that more males were infected by SARS-CoV[18].

Among the patients with co-morbidities, majority of the patients were suffering from hypertension (78.44%) and diabetes (50.22%). Only 11.57% patients developed comorbid symptoms after six months of COVID-19 infection. Most common symptoms after six months were weakness (51.1%) and shortness of breath (34.8%) Most common post-covid symptoms found in this study were weakness 30 (5.78%), shortness of breath 21 (4.04%), cough 6 (1.16%), memory loss 4 (0.77%) and swelling of legs 3 (0.58%) etc. Other symptoms were alopecia 2 (0.39%), chest pain 1 (0.20%), anorexia 1 (0.20%), constipation 1 (0.20%), excessive Sweating 1 (0.20%), allergy 1 (0.20%) and others. These findings coincide with findings of other several studies [19-22].

Conclusion

In most cases, people who contract COVID-19 make a full recovery in a matter of weeks. Yet, even after a full recovery, some people continue to have symptoms from their illness. Those over the age of 65 and those with many chronic health problems (such as diabetes, HTN, COPD, heart disease, renal illness, etc.) are at greater risk of developing long-term COVID-19 symptoms.

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