

Outcome of the COVID-19 Patients in the Northern Part of Bangladesh

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Abstract

Background: First COVID-19 cases were detected in Bangladesh in Dhaka city on the 8th March of 2020. Till then the number of Covid-19 patients is being increased. In several countries, health care services delivery is being compromised due to the surge in the number of infected patients during such pandemic. Day by day this disease is changing its own nature and dimension and forming newer hotspots around the globe. We have very few research-oriented data regarding the final outcomes of COVID-19 patients specially, in the northern part of Bangladesh. The aim of this study was to assess the outcomes of COVID-19 patients in the northern part of Bangladesh.

Methods: This was a retrospective COHORT study that took place from January 2020 to April 2020 at the Department of Cardiology at Rangpur Medical College Hospital in Rangpur, Bangladesh. The study population consisted of 235 laboratory-confirmed COVID-19 individuals from the northern region of Bangladesh who attended the stated hospital with sufficient documentation. Before beginning data collection, all participants provided written consent. In order to acquire patient data, a pre-designed questionnaire was used. In-hospital mortality, ICU admission, use of invasive mechanical ventilation, overall hospital length of stay, complications, and treatment patterns were all noted. MS Office and SPSS versions were used to handle, analyze, and disseminate all data as needed.

Result: In this study, among all the COVID-19 patients of the northern part of Bangladesh, the survival rate was found 97.45%. As per the report of hospital staying of the participants we observed, 11.49% patients did not stay at hospital even for a single day. The mean hospital staying tenure of the participants was 13.41 ± 11.38 days. For only 5.96% COVID-19 patients, ventilation facilities were in needed and the average ventilation time of them was 11 days.

Conclusion: The frequency of hospital admission of COVID-19 patients in our study place hospital indicated that, that was the rising stage of corona pandemic in the northern part of Bangladesh. Ensuring early diagnosis of COVID-19, proper ICU and ventilation may decrease the sufferings and mortality of the COVID-19 patients in this region of Bangladesh.

Key words: COVID-19, Corona symptoms, Outcome, North Bengal.

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I. Introduction

First COVID-19 cases were detected in Bangladesh in Dhaka city on the 8th March of 2020. Until then, the number of Covid-19 patients is growing. The spike in the number of infected individuals during a pandemic has hampered health-care delivery in various countries. This disease's nature and dimensions are evolving all the time, and new hotspots are emerging all over the world. We have very few research-oriented data on the end outcomes of COVID-19 patients, particularly in northern Bangladesh. Covid-19 mortality rates vary depending

on age and location. In Bangladesh, there is a scarcity of research-based data on the survival rate of Covid 19 positive patients. Several papers on arthroscopically aided surgery have been published. Since the relatively less serious 2003 epidemic of severe acute respiratory syndrome, the new coronavirus disease (COVID-19) has been by far the most worrying outbreak of atypical pneumonia (SARS)¹. The World Health Organization (WHO) has designated the COVID-19 pandemic an international public health emergency². As of July 1st, 2020, the COVID-19 pandemic had infected over 10 million people worldwide, resulting in over 500,000 deaths³. Experts are still unsure about the COVID-19 pandemic's track, the estimated number of cases and deaths, and the extent to which quarantine measures may disrupt normal life⁵. The unpredictable nature of this circumstance, as well as the uncertainty surrounding COVID-19, can frequently result in psychological suffering and mental illness, such as depression, anxiety, and traumatic stress⁴. The Covid situation in Bangladesh is deteriorating by the day. According to the World Health Organization, 75 percent of the 122 countries questioned experienced disruptions in NCD care during the pandemic⁵. Furthermore, the public's increased fear of contracting COVID-19 or being diagnosed with COVID-19 has had a major impact on their medical-seeking behavior and anxiety. Such views were observed in slums and low socioeconomic status communities in Bangladesh, Kenya, Nigeria, and Pakistan⁶. Many authors planned for increased mortality during the COVID-19 pandemic. Wu et al.⁷ found 35% excess deaths in the UK. Furthermore, at the peak of the pandemic, excess mortality was seven-fold higher than baseline in New York City, USA, which reported 20% excess mortality in all US cities⁸. Increased age and other comorbidities such as hypertension (HTN) and diabetes mellitus (DM) were found to be linked with the severity of COVID-19 in a study conducted in Wuhan, China. However, tobacco use and chronic obstructive pulmonary disease (COPD) were not identified as risk factors for COVID-19 in the study. Another study in China discovered that over half of the patients had comorbidity, with HTN (hypertension) being the most frequent, followed by diabetes and coronary heart disease⁹. The study also found a link between increased age and death in COVID-19 patients¹⁰. Another study showed that severe patients were older and had comorbidities including HTN (30.0%), DM (12.1%) and cardiovascular diseases. The median age was 64 years in severe cases and 51.5 years in non-severe cases⁹. Comorbidity was more common in severe patients than in mild or moderate disease patients (38.7 percent vs. 21.0 percent) with a similar exposure history between the two groups of disease severity¹¹. One of the most prominent studies, conducted in the Chinese city of Wuhan, discovered larger percentages of current and previous tobacco users among patients who required ICU assistance, mechanical breathing, or died, as well as a higher prevalence of smoking among the severe cases¹². A study conducted on outcomes of the COVID-19 patients found that non-survivors were more often older and men, and they had a higher prevalence of DM, hyperlipidemia and CHDs. The history of current tobacco uses and having COPD was more among the non-survivors¹³. The main objective of this study was to assess the outcome of COVID-19 patients in the northern part of Bangladesh.

II. Objectives

General Objective:

- To assess the outcomes of COVID-19 patients in the northern part of Bangladesh.

Specific Objective:

- To collect information regarding the socio-demographic status of COVID-19 patients.
- To collect information regarding the clinical status of COVID-19 patients.
- To determine the final outcome of participants

III. Methodology & Materials

This was a retrospective COHORT study that took place from January 2020 to April 2020 at the Department of Cardiology at Rangpur Medical College Hospital in Rangpur, Bangladesh. In total 235 laboratory-confirmed COVID-19 cases attended the mentioned hospital with proper documents were enrolled as the study population. Proper written consents were taken from all the participants before starting data collection. In order to acquire patient data, a pre-designed questionnaire was used. According to the study's inclusion criteria, only COVID-19 patients who live in northern Bangladesh and have had treatment at the aforementioned hospital were included as study participants. In-hospital mortality, ICU admission, use of invasive mechanical ventilation, overall hospital length of stay, complications, and treatment patterns were all noted. Fever was defined as a fever of 38 degrees Celsius or higher, a high respiratory rate as more than 24 breaths per minute, and low oxygen saturation as less than 94%¹⁴. COVID-19 was diagnosed by quantitative RT-PCR testing from nasopharyngeal samples, in accordance with World Health Organization (WHO) protocols¹⁵. We recorded any comorbidity, one or more comorbidities, and two or more comorbidities¹⁶. A lymphocyte count of less than 1500 per cubic centimeter was described as lymphocytopenia¹⁷. Patients with ICU hospitalization or death were considered critical cases. In accordance with the MoH coronavirus illness guidelines, non-critical cases were classified as recovered patients who were discharged from the hospital without ICU admission¹⁸. To describe

categorical variables reported as counts and percentages, descriptive statistics were utilized. Continuous variables, on the other hand, were based on the median and interquartile range (IQR) because the normality test was significant using the Kolmogorov-Smirnov and Shapiro-Wilk tests. To compare two numerical groups, the non-parametric Mann Whitney U-test was utilized. When the number of cases was minimal, categorical variables were tested for association using the Chi-square test or the Fisher exact test. MS Office and SPSS versions were used to handle, analyze, and disseminate all data as needed.

IV. Result

In this study, the total number of participants was 235. Among them 31 were critical in condition and the rest 204 were in non-critical condition. Among the critical COVID 19 patients, 58% were male and 42% were female whereas among the non-critical COVID 19 patient, 53% were male and the rest 47% were female. Among critical patients 9.68%, 48.39%, 29.03% and 12.9% were from 1-20, 21-40, 41-60 and >60 years' age groups respectively. On the other hand, among non-critical patients 9.8%, 55.88%, 27.94% and 6.37% were from 1-20, 21-40, 41-60 and >60 years' age groups respectively. According to the occupational status of the participants of both the groups we observed, the highest number of them were farmer and/or household worker which were 71% in critical and 77% in non-critical patient's groups. In critical patient's group, 29% and in non-critical patient's group 22% were smoker in this study. Diabetes Mellitus was found in 6 (19.35%) critical and 22 (10.78%) non-critical patients, hypertension was found in 5 (16.13) critical and 30 (14.71) non-critical patients, chronic kidney disease was found in 1 (3.23%) critical and 7 (3.43%) non critical patients, chronic respiratory diseases were found in 4 (12.9%) critical and 26 (12.75%) non critical patients, cancer/Immunodeficiency was found in 2 (6.45%) critical and 9 (4.41%) non critical patients and cardiac diseases were found in 3 (9.68%) critical and 11 (5.39%) non critical patients. Besides these, no co morbidity was found among 58% critical and 37% non-critical patients and two or more co-morbidities were found 26% critical and 12% non-critical patients. As symptoms fever, cough, sore throat, runny nose, headache, GI Symptoms and myalgia were found among 29.03%, 83.87%, 74.19%, 67.74%, 32.26%, 12.9% and 22.58% critical patients respectively. On the other hand, those symptoms were found among 77.45%, 79.9%, 64.22%, 56.86%, 27.94%, 13.73% and 26.47% non-critical patients respectively. In this study we observed the heart rate was ≥ 100 among 42% critical and 45% non-critical patients. Besides these, the respiratory rate, >24 breath/min was found among 3.4% critical and 11% non-critical patients. In this study, among all the COVID-19 patients of the northern part of Bangladesh, the survival rate was found 97.45%. As per the report of hospital staying of the participants we observed, 11.49% patients did not stay at hospital even for a single day. The mean hospital staying tenure of the participants was 13.41 ± 11.38 days. For only 5.96% COVID-19 patients, ventilation facilities were in needed and the average ventilation time of them was 11 days.

Table I: Socio-demographic status of participants (N=235)

Characteristic	Critical (31)		Non-critical (204)		P-value
	n	%	n	%	
Gender distribution					
Male	18	58.06	108	52.94	
Female	13	41.94	96	47.06	
Age distribution					
1-20	3	9.68	20	9.8	0.029
21-40	15	48.39	114	55.88	
41-60	9	29.03	57	27.94	
>60	4	12.9	13	6.37	
Occupational status					
Service holder	7	22.58	32	15.69	0.033
Business	2	6.45	15	7.35	
Farmer & Household	22	70.97	157	76.96	

Table II: Clinical status of participants (N=235)

Characteristic	Critical (31)		Non-critical (204)	
	n	%	n	%
Smoking status				
Yes	9	29.03	45	22.06
No	22	70.97	159	77.94
Distribution of comorbidities				
Diabetes Mellitus	6	19.35	22	10.78

Hypertension	5	16.13	30	14.71
Chronic kidney disease	1	3.23	7	3.43
Chronic respiratory diseases	4	12.9	26	12.75
Cancer/Immunodeficiency	2	6.45	9	4.41
Cardiac diseases	3	9.68	11	5.39
No comorbidity	18	58.06	75	36.76
2 or more Comorbidity	8	25.81	25	12.25
Symptoms distribution				
Fever	9	29.03	158	77.45
Cough	26	83.87	163	79.9
Sore throat	23	74.19	131	64.22
Runny nose	21	67.74	116	56.86
Headache	10	32.26	57	27.94
GI Symptoms	4	12.9	28	13.73
Myalgia	7	22.58	54	26.47
Heart rate (Beats/min)				
<100	18	58.06	113	55.39
≥100	13	41.94	91	44.61
Respiratory rate (Breaths/min) distribution				
≤24	24	11.8	181	88.73
>24	7	3.4	23	11.28

Table III:Final outcome of participants (N=235)

Charecteristics	n	%
Survival		
Cured	229	97.45
Death	6	2.55
Hospital staying in day		
Not stayed	27	11.49
Stayed for <3 days	60	25.53
Stayed for 3-7 days	71	30.21
Stayed for 8-14 days	46	19.57
stayed for>14 days	31	13.19
Mean ± SD hospital stay (Day)	13.41 ± 11.38	
Ventilation		
Needed ventilation	14	5.96
Average ventilation time (Day)	11	

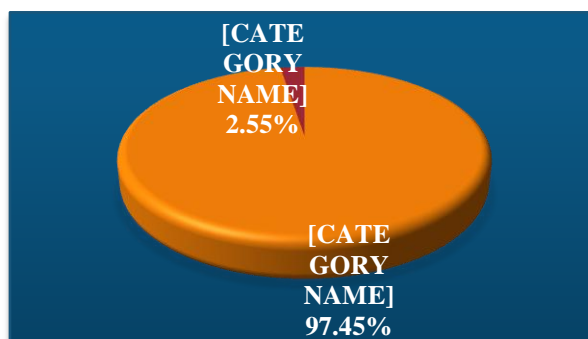


Figure I:Survival rate of participants from COVID-19 (N=235)

V. Discussion

The aim of this study was to assess the outcomes of COVID-19 patients in the northern part of Bangladesh. In this current study, the total number of participants was 235. Among them 31 were in critical condition and the rest 204 were in non-critical condition. Among the critical COVID-19 patients, 58% were male and 42% were female, whereas among the non-critical COVID-19 patients, 53% were male and the rest 47% were female. Among critical patients 9.68%, 48.39%, 29.03% and 12.9% were from 1-20, 21-40, 41-60 and >60

years' age groups respectively. On the other hand, among non-critical patients 9.8%, 55.88%, 27.94% and 6.37% were from 1-20, 21-40, 41-60 and >60 years' age groups respectively. According to the data (Korea Disease Control and Prevention Agency, 2020) of confirmed COVID-19 in patients from 07 to 20 July 2020, the proportion was high at 41.6% among middle-aged patients aged 50 years and 50% of deaths were in patients aged 80 years, which showed high fatality rates. In our study, among all the COVID-19 patients of the northern part of Bangladesh, the survival rate was found 97.45%. As per the report of hospital staying of the participants we observed, 11.49% patients did not stay at hospital even for a single day. The mean hospital staying tenure of the participants was 13.41 ± 11.38 days. For only 5.96% COVID-19 patients, ventilation facilities were in needed and the average ventilation time of them was 11 days. Prior studies have suggested that this is related to the morbidity of severe COVID-19 in patients with chronic diseases¹⁹ and that the underlying disease may be a risk factor for severely ill patients²⁰. Besides these, a lower survival rate was observed in those aged 75 years, which was identified as a factor that increased the risk of death²¹. Studies have also shown that the survival rate decreases in cases aged >60 years, and those with cerebrovascular disease, diabetes, hematologic disease, neurological disease, kidney disease, etc.; these factors have been shown to affect death²². In our study we have not disseminated the death ratio of COVID-19 patients against their ages. But, as per the findings of early studies in China after the outbreak of COVID 19, most deaths from COVID 19 in 2019 were in adults aged >60 years and people with serious underlying diseases. In the case of the United States, according to the results of an initial report, the mortality rate in those aged ≥ 85 years was highest among the above, followed by 65–84 years, and the number of hospitalizations and ICU admissions was highest among those aged 65–74 years²³. In Korea, the mortality rate was 79% among those aged ≥ 70 years and in the 296 COVID-19 patients who died, and there were more severe patients in the 70-79 years age group²⁴. COVID-19 is a serious disease with high hospitalization, ICU hospitalization, and mortality among the elderly subjects.

Limitations of the study

This was a single centered study with a small sized sample. So, the findings of this study may not reflect the exact scenario of the whole country.

VI. Conclusion And Recommendations

The frequency of hospital admission of COVID-19 patients in our study place hospital indicated that, that was the rising stage of corona pandemic in the northern part of Bangladesh. Patients with more than one comorbidity are more vulnerable against corona virus. Ensuring early diagnosis of COVID-19, proper ICU and ventilation may decrease the sufferings and mortality of the COVID-19 patients in this region of Bangladesh. For getting more reliable information we would like to recommend for conducting more studies in several places with larger sized samples.

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