

ORIGINAL ARTICLE

DEMOGRAPHIC CHARACTERISTICS AND OUTCOMES OF PATIENTS WITH CORONAVIRUS DISEASE AT A TERTIARY CARE HOSPITAL IN PAKISTAN

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ABSTRACT

Objective: To determine demographics, clinical characteristics, and outcomes of Corona virus disease (COVID-19) patients admitted at Aziz Bhatti Shaheed Teaching Hospital Gujrat, Pakistan.

Material & Methods: Descriptive cross-sectional study was conducted at Aziz Bhatti Shaheed Teaching Hospital Gujrat from 17th March 2020 to 20th April 2020 using non-probability consecutive sampling. Diagnosis was made via RT-PCR for COVID-19. Patients were classified as asymptomatic or symptomatic further into mild, moderate, and severe. Data analysis was conducted using SPSS 20.

Results: Eighty-four patients included 60(71.4%) males and 24(28.6%) females, participated in the study. Mean age was 35.01±15.67 years and 54(64.3%) belonged to the urban and 30(35.7%) to the rural background. Mode of transmission was foreign travel in 35(41.7%), direct contact in 41(48.8%) and local spread in 8(9.5%) patients. Thirty-six(42.9%) were asymptomatic, 35(41.6%) had mild, while 12(14.3%) had moderate and 1(1.2%) had severe disease. Major symptoms were fever (42.9%), cough (41.7%), sore throat (21.4%), dyspnea(14.3%) and anorexia(2.4%). Mortality rate was 1.2%.

Conclusion: COVID-19 is present in more young males living in urban areas, having history of foreign travel. Most of its patients are asymptomatic or have mild disease and it has low mortality.

Key Words: COVID-19, Mortality, Pandemic, SARS-CoV-2.

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INTRODUCTION

One of the commonly viruses affecting humans is coronaviruses that cause diseases of respiratory, hepatic, gastrointestinal, and neurologic systems. Most known epidemics caused by coronaviruses include the severe acute respiratory syndrome coronavirus caused by SARS-CoV in 2003 and Middle East respiratory syndrome coronavirus caused by MERS-CoV in 2012. The recently discovered coronavirus (SARS CoV 2) is the cause of current pandemic due to Corona Virus Disease (COVID-19), which was initially reported in China in last

month of 2019¹ but later was declared a pandemic by World Health Organization (WHO) on 7th January 2020.² Since then it has affected 213 countries, confirmed in almost more than 2.9 million individuals globally and over 200000 people have died from disease to date.³ The virus spread via human to human transmission is documented⁴ and more importantly, it can spread even when the patient is asymptomatic or mildly symptomatic. The disease progression may be formed asymptomatic to severe disease-causing severe acute respiratory distress syndrome (ARDS) and death. Multiple studies

have been conducted at different sites regarding symptoms of COVID-19. Fever and cough were the two most prominent symptoms described in one study followed by fatigue, sputum production, and headache. Hemoptysis and diarrhea were reported in a few patients. However, complications included ARDS, acute kidney injury, cardiac injury, shock, and death.⁵ Other studies also showed similar signs and symptoms. In a study, Zhou et al. also showed that fever and cough are the two most common symptoms in patients with COVID-19 followed by myalgia, fatigue, and nausea/vomiting.⁶ Furthermore, reports have shown that patients with co-morbidities are at greater risk of developing a severe disease.⁷ One study conducted in China showed that the most common symptoms at disease start were fever, cough fatigue, dyspnea, and headache. Among these cases, 5% were asymptomatic, 73.3% were having a mild illness, 4.2% were without pneumonia and 17.6% had severe disease.⁸ Another study done in 138 patients showed that fever, fatigue, and dry cough were the most common symptoms of the disease. The investigations showed that patients also developed lymphopenia, prolonged prothrombin time, elevated lactate dehydrogenase. CT scan of the chest showed patchy shadows as well as ground-glass opacities in bilaterally. Almost 26.1% of patients were given intensive care due to complications. Complications included acute respiratory distress syndrome in 61.1%, arrhythmia in 44.4%, and shock in 30.6% patients. The mortality of 4.3% was noted among their patients.⁹ The first case of COVID-19 was confirmed in Pakistan on 26th February 2020. Since then a number of cases are rising and as of today, more than 13000 cases have been confirmed. Punjab is the worst hit among provinces of Pakistan with a total number of more than 5500 cases and has reported 83 deaths to date.¹⁰ Gujrat is one of the worst hit districts in Punjab with many foreign travelers from the Middle East, Europe, and America. This pandemic has not yet peaked in Pakistan. So, the purpose of this study was to determine the demographics, clinical characteristics, and outcomes of COVID-19 patients admitted at Aziz Bhatti Shaheed Teaching Hospital Gujrat.

MATERIAL AND METHODS

This descriptive cross-sectional study was conducted at Aziz Bhatti Shaheed Teaching Hospital Gujrat from 17th March 2020 to 20th April 2020. Ethical approval from the hospital ethical committee was taken along with informed consent from patients. Non-probability consecutive sampling was done. All patients who were suspected to be affected by COVID-19 with a history of travel from a foreign country or their first contacts or those suspected to have contact with any COVID-19 case with the symptoms of fever, cough, and shortness of breath were included in the study. These patients were quarantined and RT-PCR for COVID-19 was sent for all patients. Those whose test results were positive were included and others were excluded. Patients without any symptoms were considered asymptomatic. Those having symptoms were classified into three categories depending on their symptoms. Patients with fever, cough, sore throat, and myalgia were considered to have mild disease. Patients with dyspnea and having decreased oxygen saturation at room air maximally but not < 93% with 5 L/min of O₂ inhalation were considered to have moderate disease. Those patients who had an oxygen saturation of <93% while using 10 L/min of O₂ inhalation or required ventilator support were considered to have severe disease. Detailed history regarding symptoms was taken along with travel history and demographic background. Complete blood count, liver function tests, renal function tests, erythrocyte sedimentation rate (ESR), prothrombin time (PT), activated partial thromboplastin time (APTT) and serum electrolytes were sent for all patients. Patients who were asymptomatic or had the mild disease were not given anything for treatment. Patients with moderate or severe disease were given oral tablets of hydroxychloroquine (HCQ) 400 mg twice daily on day 1; then 200 mg twice daily and Syp. Zinc 2 teaspoons twice daily for 10 days. Patients were followed throughout disease for new symptoms and were isolated. Any new symptoms or worsening of disease were followed. RT-PCR for COVID-19 was repeated on the 10th day from the day of the first sample. Those patients having two consecutive tests negative were discharged. The duration of stay

at the hospital was noted. All data were collected on pre-designed proforma. Data analysis was done using SPSS 20.0. Continuous variables like age, duration of stay was depicted as mean \pm SD and categorical variables such as the presence of symptoms or disease classification were depicted as a percentage.

RESULTS

A total of 84 patients was enrolled in the study which included 60 (71.4%) males and 24 (28.6%) females. The mean age was 35.01 \pm 15.67 years. According to demography, 54 (64.3%) belonged to the urban background and 30 (35.7%) belonged to a rural area. The mode of transmission was foreign travel in 35(41.7%) patients, direct contact with COVID-19 positive patient in 41 (48.8%) patients, and local spread (unknown contact) in 8 (9.5%) patients. According to disease severity, 36(42.9%) patients were asymptomatic, 35 (41.6%) had mild disease, 12 (14.3%) had moderate disease and 1.0 (1.2%) had severe

disease. These patients included 2 healthcare workers. In patients who were symptomatic had 36 (42.9%) fever, 35 (41.7%) cough, 18 (21.4%) sore throat, 12 (14.3%) dyspnea and 2 (2.4%) anorexia. Only one patient required a ventilator who later expired due to ARDS. Thus, mortality in our study sample was 1.2% and the patient had no co-morbidity. No co-morbids were present in 78(92.9%) patients; however, 4 (4.8%) had diabetes mellitus and 2 (2.4%) had ischemic heart disease. The mean duration of stay in the hospital was 14.77 \pm 2.77 days. The significant investigations included raised erythrocyte sedimentation rate (ESR) in 23 (27.4%) patients. Lymphopenia was present in 34 (40.5%) of patients. Mean neutrophil to lymphocyte ratio was 2.17 \pm 1.47. Thrombocytopenia was present in 12(14.3%) patients. There was no abnormality noted in the liver or renal function test or serum sodium, potassium, and chloride. PT and APTT were also within normal limits. (Table 1).

Table 1 Lab parameters of COVID-19 patients

Lab parameter	Minimum	Maximum	Mean \pm Std.
Hemoglobin (g/dL)	4.90	15.10	11.26 \pm 1.77
Total Leukocyte Count (mm ³)	3800.00	13800.00	7740.91 \pm 2474.00
Platelets (mm ³)	66.00	472.00	222.30 \pm 82.07
Bilirubin (mg/dL)	.09	1.00	.68 \pm 0.15
Alanine aminotransferase (U/L)	15.00	63.00	28.42 \pm 13.00
Aspartate aminotransferase	10.00	61.00	25.65 \pm 12.50
Alkaline Phosphatase	110.00	682.00	273.27 \pm 135.01
Urea (mg/dL)	.90	123.00	26.26 \pm 17.98
Creatinine (mg/dL)	.50	20.00	1.59 \pm 3.47
Erythrocyte Sedimentation Rate (after 1 st hour)	13.00	85.00	41.30 \pm 20.46
Prothrombin time (Sec)	12.00	18.00	13.76 \pm 1.71
Activated partial thromboplastin time (Sec)	11.00	44.00	37.17 \pm 7.64
Serum Na ⁺ (mg/dL)	129.00	141.00	136.28 \pm 2.55
Serum K ⁺ (mg/dL)	3.20	5.00	3.96 \pm 0.40
Serum Cl ⁻ (mg/dL)	92.00	105.00	97.21 \pm 2.68

DISCUSSION

This study was conducted at a tertiary care hospital of Pakistan and showed that most of the COVID-19 patients were asymptomatic or had mild disease. The mortality in our setup was low

till now. Fever and cough remain the top symptoms in symptomatic patients. However, most of the patients included having a history of foreign travel or their direct contacts. Since the pandemic is in Pakistan for just a few weeks, exact mortality cannot be described so early.

Regarding epidemiological characteristics, most of our infected patients were male, from an urban background and belonged to a young age group. However, few patients were aged 50 plus years but were still asymptomatic or had mild symptoms. A study by Guan et al. also suggested that most of their patients were males, were from an urban background, and the age group of 15-49 years however their mean age was 47 years.¹¹ These characteristics are similar to the results of this study. It may be because urban areas are densely populated with more exposure to male members of society. However, most of their patients were symptomatic which is contradictory to the results of this study. This may be attributed to their large sample size and data was collected from multiple hospitals compared to one hospital in this study. Furthermore, their mortality was very high as compared to this study. Either the virus has become less virulent or we have yet to see the peak of viral spread which may change the current data. Regarding symptoms of COVID-19, one recent review of clinical characteristics suggested that almost 90% plus patients were having fever and were symptomatic, which is contrary to the results of this study.¹² Most of the patients were from exposed areas where pandemic had struck which is similar to the results of this study as most of our patients traveled back from abroad or were their first contacts. The local spread was uncommon in both studies. However, another study, which determined the clinical features of only imported cases suggested that most of their cases had mild or moderate disease exhibiting the symptoms of fever and cough in a lower percentage of patients.¹³ Few of their patients showed signs of liver dysfunction and none of them expired. This study showed that only erythrocyte sedimentation rate was high in almost all patients but none had liver dysfunction. It shows that initially imported cases may not show the symptoms of severe disease. However, the duration of hospital stay was more in this study compared to other studies. It is due to the certain standard operating procedure of retesting the COVID-19 positive individuals after 10 days of first sample and delay in reporting of sample results of almost 2-4 days. Lack of resources and laboratories may be attributed to this. Regarding

mortality of cases involved the initial surveillance from China showed a mortality rate of 2.3% which was higher among old aged > 80 years and was more in males as compared to females.¹⁴ The only death which occurred in our setup was a young male without any co-morbidities who died of acute respiratory distress syndrome. However, this study shows lower mortality as compared to China. Similarly, the case fatality rate in Italy was very high of 7.2% which they attributed to a huge number of old aged individuals.¹⁵ It shows that mortality due to COVID-19 varies according to population size and age distribution. The exact mortality in Pakistan cannot be determined solely on this study. Regarding laboratory manifestations of COVID-19, our results show only raised mean erythrocyte sedimentation rate, lymphopenia, and thrombocytopenia in a few patients. However, all liver function tests, renal function tests, serum sodium, potassium, and chloride were normal. The rates of these abnormalities differ from the results of a review by Morales et al. However, the review showed that these abnormalities are persistent with different percentages among all COVID-19 patients.¹⁶ Furthermore, serum albumin, lactate dehydrogenase, C-reactive proteins, troponin T, serum ferritin, or D-dimers were not evaluated in this study due to a lack of resources. Raised values of these tests have been reported as predictors of poor progression of COVID-19.¹⁷ This study is probably the pioneering study in Pakistan regarding COVID-19, its demographic, clinical, laboratory characteristics, and outcomes of patients. However, there are multiple limitations to this study. The sample size is small as compared to other studies published to date. Laboratory investigations, which have been reported as a predictor of poorer outcome were not noted due to lack of resources. Further large-scale studies are required to determine the exact parameters described in this study.

CONCLUSION

The COVID-19 was found in more young males living in urban areas, having a history of foreign travel. Most of its COVID-19 patients are asymptomatic or have mild disease with a low mortality rate.

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