DOI: https://doi.org/10.53350/pjmhs211571886

ORIGINAL ARTICLE

Clinical Profile and Demographic Features of COVID-19 Patients in a Tertiary Care Hospital of Pakistan

GHAZALA FARRUKH[1], SHAZIA SUKHERA[2], FIDA MUHAMMAD[3], ANEELA AMJAD[4], QAMAR ZAMAN[5], ASMA AMBREEN[6]
[1]*Assistant Professor Community Medicine, Sheikh Zayed Medical College, Rahim Yar Khan*
[2]*Assistant Professor Physiology, Fatima Jinnah Medical University, Lahore*
[3]*Assistant Professor of Cardiology, Sargodha Medical College/ DHQ Teaching Hospital, Sargodha*
[4]*Associate Professor, Oral Medicine Sharif Medical and Dental College, Lahore*
[5]*Clinical Instructor, College of Medicine/General Physician, Internal Medicine/ Otorhinolaryngology ENT, Mohammed Bin Rashid University of Medicine and Health Sciences(MBRU) Dubai (U.A.E)*
[6]*Assistant Professor Medicine Foundation University Medical College, Islamabad*
Corresponding author: Dr. Ghazala Farrukh, Email: farrukhnmc@gmail.com, Cell No: +923453267420

ABSTRACT

Background and Objective: The COVID-19 pandemic is an ongoing health challenge for both developed and developing countries worldwide. The epidemiological and clinical features of COVID-19 should be analyzed in our country. The current study aims to evaluate the demographic features and clinical profile of COVID-19 patients ina Tertiary Care Hospital of Rahim Yar Khan, Pakistan.

Materials and Methods: This observational, cross-sectional study was conducted on 85 patients with positive real-time reverse transcriptase-polymerase chain reaction (RT-PCR) verified by nasopharyngeal swabs and throat at Covid 19 setup in Sheikh Zayed Hopsital, Rahim Yar Khan, Pakistan for period of six months i.e from September 2020 to February 2021. Institutional consensus protocol and COVID-19 SOPs were followed to investigate each individual. Various parameters such as symptom presentation, demographics' details, ventilator therapy and oxygen required, and co-morbidities were studied.

Results: The mean age of the patients was 37.6±5.7 years with an age range of 15 to 81 years. Of the total 104 patients enrolled, 60 (58%)were male and 44 (42%). The prevalence of COVID-19 caused by contact was 67 (65%).Symptomatic patients out of enrolled were 49 (47.1%). In this study, a significant association was found between severe COVID-19 and parameters such ashypertension and diabetes history, and patients having age above 65 years. Out of104 COVID-19 positive patients, symptomatic complaints were as follows; Cough 29(27.9%), fever 63 (60.6%), and breathe shortness 12 (11.5%). Tachypnea (RR>24), hypoxia and comorbid illness were found 32 (31%), 27 (25.8%), and 45 (43.2%)respectively. About 19 (18.2%) patients needed intensive care unit admission with 5 (4.8%) required immediate ventilation assistance. Mortality was 3.8% (4 patients) observed in this study.

Conclusion: The COVID-19 pandemic mortalityrate is higher among patients above 60 years of age and with co-morbidities. TheCOVID-19 majority of patients presented in our hospital were of young or average age and asymptomatic. Respiratory symptoms were present in half and fever was recorded in more than half patients. Comorbidities patients were more venerableto the COVID_19 complications. Early admission and aggressive treatment must beprovided to COVID-19 patients to help reduce the mortality rate.

Keywords: COVID-19,Comorbidities, Hypoxia

INTRODUCTION

The COVID-19 pandemic has emerged as a major public health emergency, affecting healthcare services worldwide. According to World Health Organization (WHO) statistics about 45 million positive COVID-19 cases were reported globally in 2021, with Pakistan contributing 1.1 million confirmed patients and 24, 478 deaths till now [1, 2]. COVID-19 patients usually had an infection from mild to asymptomatic illness, but sometimes leads to multi-organ dysfunction syndrome (MODS), acute respiratory distress syndrome (ARDS) and finally death. Coronavirus syndrome is a single-stranded enveloped RNA virus causing COVID-19 disease. A worrisomefatality of coronavirus disease was reported 3% [3]. Infected individual respiratory drops are considered as a spreading source for coronavirus [4]. The COVID-19 symptoms are sore throat, fatigue, fever, cough, and conjunctivitis, slight dyspnea, gastrointestinal complaints, and headache which appears upon exposure within 2 to 14 days [5-7]. Vasculopathy, renal failure, pneumonia, encephalopathy, coagulopathy, and cardiomyopathy are coronavirus severe complications. In 2019,China reported the first case of the COVID-19 virus in Wuhan Laboratory, which further spread out throughout the world [8]. Various researchers in China started an investigation on coronavirus and found the common manifestation was conjunctivitis [9-11]. Ophthalmologist reported the COVID-19 first case[12].

Globally scientific research is going on to combat coronavirus. The COVID-19 pandemic was declared a novel coronavirus as its still evolving and people learn new information on a daily basis. The main clinical presentation of COVID-19 includes respiratory and illness like a fever as a symptom [13]. Atypical presentation must be kept in mind to understand regional features. Despite the rapid increase and swift spread affections of coronavirus among the Pakistani population, clinical features and outcomes are still unknown to people. Various researchers investigated theCOVID-19 clinical features such as causes, symptoms, and basics about the transition to other populations. The current study was carried out with the purpose of evaluating the demographic features and clinical profile

of COVID-19 patients in tertiary care hospital Lahore, Pakistan.

MATERIALS AND METHODS

This is a single-center observational-based cross-sectional study carried out on 104 COVID-19 positive patients in Sheikh Zayed Hopsital, Rahim Yar Khan, Pakistan for period of six months i.e from September 2020 to February 2021. Asymptomatic patients that had close contacts with positive coronavirus patients and individuals with influenza symptoms and fulfill the screening criteria of Pakistan Council of Medical Research (ICMR) was screened out. Prior to study conduction, ethical approval and consent form was taken from institutional ethical board and patients respectively. The inclusive criteria were set as follow; real-time reverse transcriptase-polymerase chain reaction (RT-PCR)assay for coronavirus and consecutive patients with age> 15 were included. Children and pregnant women were excluded from this study. Demographic details such as COVID-19 exposure history, vital parameters, and comorbidities were recorded by the researcher during hospital admission. Clinical outcomes, laboratory parameters, and detailed treatment were collected. Institutional consensus protocol and COVID-19 SOPs were followed to investigate each individual. Various parameters such as symptom presentation, demographics' details, ventilator therapy and oxygen required, and co-morbidities were studied.

Basic demographic detail such as age, gender, co-morbidities, symptoms, treatment and ICU admission, ventilator and oxygen therapy, hospital duration, and outcomes were extracted. The collected data were independently checked by the investigator. Pneumonia, chest pain, illness like influenza, wheezing, drawing lower chest wall, dyspnea, altered consciousness, ear pain, seizure, and gastroenteritis (vomiting, nausea, diarrhea, and abdominal pain)were the signs and symptoms of coronavirus positive results. Hypertension, obesity, severe liver disease, chronic pulmonary disease, chronic kidney disease, chronic cardiac disease, and diabetes with and without complications are the coronavirus co-morbidities. Discharge alive or dead was the primary endpoint. SPSS version 20 was used for data analysis. Frequency and percentages of categorical variables such as age, gender, duration of hospitalization, ICU stay, and COVID-19 mortality were calculated. The data was analyzed using various cross-tabulations to determine which characteristics were strongly linked to mortality. Another chi-square test for linear trend was used to determine the trend's statistical significance. The level of significance was 5%.

RESULTS

The mean age of the patients was 37.6± 5.7 years with an age range of 15 to 81 years. Of the total 104 patients enrolled, 60 (58%) were male and 44 (42%) as shown in Table 2 and Figure 1. The prevalence of COVID-19 caused by contact was 67 (65%).Symptomatic patients out of enrolled were 49 (47.1%). In this study, a significant association was found between severe COVID-19 and parameters such as hypertension and diabetes history, and patients having age above 65 years. Table 1 demonstrate the baseline characteristics of the participated population. Out of 104 COVID-19 positive patients, symptomatic complaints were as follows; Cough 29(27.9%), fever 63 (60.6%), and breathe shortness 12 (11.5%). Tachypnea (RR>24), hypoxia and comorbid illness were found 32 (31%), 27 (25.8%), and 45 (43.2%) respectively as shown in Table 3 and Figure 2. About 19 (18.2%) patients needed intensive care unit admission with 5 (4.8%) required immediate ventilation assistance. Mortality was 3.8% (4 patients) observed in this study.

Table 1. Baseline Characteristics of 104 COVID-19 Positive patients.

Parameters	Value
Age (years)	
Range	15 to 81
Medium	35.6
Mean ± SD	37.6± 5.7
Interquartile range IQR (%)	27.1-43.5

Table 2. Gender distributions of 104 Patients

Gender	Frequency n	Percentage %
Male	60	58
Female	44	42

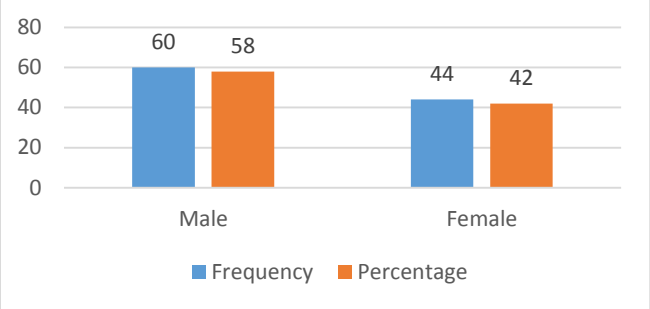

Figure 1. Frequency of male verses female patients

Table 3. Prevalence of symptoms and Comorbidities

Symptoms	Frequency n	Percentage %
Cough	29	27.9
Fever	63	60.6
Breathe Shortness	12	11.5
Total	104	100
Comorbidities		
Tachypnea (RR>24)	32	31
Hypoxia	27	25.8
Comorbid Illness	45	43.2
Total	104	100

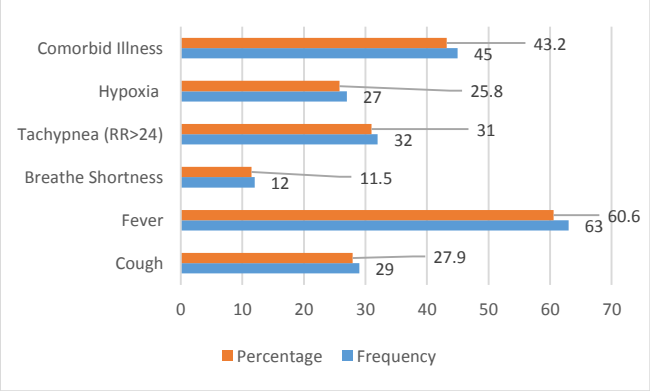

Figure 2. Prevalence of symptoms and Comorbidities

The patient's baseline characteristics were as follows; during admission, 6 patients (5.7%) had below normal range leucocytecounts and was increased in 15 (14.4%) patients, and below the normal range, lymphocyte was in 22 (21.1%). Among 39 (37.5) patients, a high neutrophil to lymphocyte ratio was observed. Thrombocytopenia was found fifteen (14.4%) patients and anemia in 37 (35.6%) (Hemoglobin <12 g/dl). Liver dysfunction with a variable degree was observed at variable degree alkaline phosphatase (23%),aspartate aminotransferase (31%), and aminotransferase (27%). Serumprocalcitonin, C-reactive protein (CRP), and serum ferritin level had 8 (7.6%),38 (36.5%) and 13 (12.5%) respectively as shown in Table 4.

Table 4. COVID-19 Patients baseline characteristics

Parameters	Measured value	Normal range
Haemoglobin (g/dl), median (IQR)	12.6	11-16
WBC count (×10 /l)	7.8	4000-11000
Lymphocytes	29 (21-35.5)	
Neutrophils	58 (48-70)	
Lymphocyte count	1500 (1000-2500)	1100-3200

DISCUSSION

COVID-19 pandemic is causing swine flu and acute respiratory illness among humans due to its virulent pathogens. China demonstrated an initial case of coronavirus with findings of the spectrum with critical illness, severe respiratory distress, and mild illness. About a 2.3% fatality rate was observed. Countries from different continents observed gaps and discrepancies in clinical patterns and demographic features. This observational study was carried out to assess the clinical profile and demographic information of COVID-19 patients in Pakistan. Following standard investigation protocol and procedure, patients were categorized in manage and severe conditions. Younger patients (medium age 35.6 years) were investigated in our study compared to other studies like in China (median 56 years) [14], Italy (median 63 years) [15], and New York (median 63 years) [16]. Another study followed the age pattern (42 years) and investigated limited patients.

Asymptomatic patients were 58% inour study followed closely with standard procedure. Laboratory abnormalities were found in almost 25% of patients. Another study reported that 5 out of 24 COVID-19positive patients developed symptoms during a hospital stay while before they were asymptomatic [17]. Lymphopenia and leucopenia developed with laboratory abnormalities as observed in 17% of patients. The severe disease might be developed in asymptomatic patients therefore careful observation needs to be carried out. The underlying chronic diseases such as diabetes, and hypertension could increase the incidence of severe COVID-19. Various studies observed similar findings during their investigation on COVID-19 patients [18-20].

COVID-19 severity has been predicted by many biomarkers. One study [21] found this observation on their meta-analysis carried out on 21 studies (4000 patients). Discriminators for severe coronavirus disease were increased ferritin level, interleukin-6 and white blood cells but decrease platelet count. Our study results in terms of CRP, LDH, and ferritinlevel matched other studies but with slight differences of baseline creatinine andhypo-albuminemia indicating coronavirus severe illness. COVID-19 prevalence varied between 7 and 28% related to myocardial injuries in hospitals [22]. Some patients developed acute myocardial while staying at the hospital. Severe diseases caused by the hypercoagulable state of severe COVID-19 lead to thromboembolism among patients. Clinically suspected thrombosis was found on peripheral venous using compression ultrasound. However, no evidence of thrombosis was found on the imaging modality. D dimer levels were increased with 35% of patients and levels were followed as per institutional protocol and standard. The fatality rate was 2.6% in our study. All three patients had type 2 diabetes, and two of them also had chronic kidney disease and were on maintenance haemodialysis. Before being admitted to the hospital with COVID-19, they had missed several dialysis sessions.

CONCLUSION

The COVID-19 pandemic mortality rate is higher among patients above 60 years of age and with co-morbidities. TheCOVID-19 majority of patients presented in our hospital were of young or average age and asymptomatic. Respiratory symptoms were present in half and fever was recorded in more than half patients. Comorbidities patients were more venerable to the COVID_19 complications. Early admission and aggressive treatment must be provided to COVID-19 patients to help reduce the mortality rate

REFERENCES

1. Andrews MA, Areekal B, Rajesh KR, Krishnan J, Suryakala R, Krishnan B, et al. First confirmed case of COVID-19 infection in India: A case report. Indian J Med Res. 2020;151:490–2.
2. Huang C, Wang Y , Li X, Ren L, Zhao J, Hu Y , et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020;395:497–506.
3. Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: Summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. JAMA. 2020;323:1239–42. Guan WJ, Ni ZY , Hu Y , Liang WH, Ou CQ, He JX, et al. Clinical characteristics of coronavirus disease 2019 in China. N Engl J Med. 2020;382:1708–20.
4. Liang WH, Guan WJ, Li CC, Li YM, Liang HR, Zhao Y , et al. Clinical characteristics and outcomes of hospitalized patients with COVID-19 treated in Hubei (epicentre) and outside Hubei (nonepicentre): A nationwide analysis of China. EurRespir J. 2020;55:2000562.
5. Goyal P, Choi JJ, Pinheiro LC, Schenck EJ, Chen R, Jabri A, et al. Clinical characteristics of COVID-19 in New York city. N Engl J Med. 2020;382:2372–4.
6. Bhandari S, Bhargava A, Sharma S, Keshwani P, Sharma R, Banerjee S. clinical profile of COVID19 infected patients admitted in a tertiary care hospital in north India. J Assoc Physicians India. 2020;68:13–7.
7. Indian Council of Medical Research. Strategy for COVID-19 testing in India (Version 5, dated 18/05/2020) [accessed on May 18, 2020]. Available from: https://www.mohfw.gov.in/pdf/Revised testing guidelines.pdf .

8. Directorate General of Health Services (EMR Division), Ministry of Health & Family Welfare, Government of India. Revised guidelines on clinical management of COVID-19. [accessed on March 31, 2020]. Available from: https://www.mohfw.gov. in/pdf/RevisedNational Clinical Management Guideline for COVID1931032020.pdf .
9. Choudhary ML, Vipat V , Jadhav S, Basu A, Cherian S, Abraham P, et al. Development of in vitro transcribed RNA as positive control for laboratory diagnosis of SARS-CoV-2 in India. Indian J Med Res. 2020;151:251–4.
10. ICMR-National Institute of Virology (ICMR-NIV), Pune. Standard Operating Procedure For Detection of 2019 novel coronavirus (2019-nCoV) in suspected human cases by rRTPCR: First Line Screening assay. Document No.: SP .01
11. Discharge Policy of nCoV Case. [accessed on March 17, 2020]. Available from: https://www.mohfw.gov.in/pdf/Corona%20Discharge-Policy.pdf .
12. N. Chen, M. Zhou, X. Dong, J. Qu, F. Gong, Y. Han, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study Lancet (2020)
13. M. Chung, A. Bernheim, X. Mei, N. Zhang, M. Huang, X. Zeng, et al.CT imaging features of 2019 novel coronavirus (2019-nCoV) Radiology (2020), p. 200230
14. C. Huang, Y. Wang, X. Li, L. Ren, J. Zhao, Y. Hu, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China Lancet 2020; 395:497–506.
15. SGM Mowla, KAK Azad, A Kabir et al, Clinical and Epidemiological Profile of 100 Confirmed COVID-19 Patients Admitted in Dhaka Medical College Hospital, Dhaka, Bangladesh, Journal of BCPSJune 2020 DOI: 10.3329/jbcps. v38i0.47445
16. Guan W, Ni Z, Hu Y, et al. Clinical characteristics of 2019 novel coronavirus infection in China. medRxiv. 2020
17. Kadhkar P, Kaka N, Baig MN, A Comprehensive Literature Review on the Clinical Presentation, and Management of the Pandemic Coronavirus Disease 2019 (COVID-19), Cureus. 2020 Apr; 12(4): e7560. PMCID: PMC7138423, PMID: 32269893
18. Zhou, P., Yang, X.-L., Wang, X.-G., Hu, B., Zhang, L., Zhang, W., Shi,Z.-L. (2020). Discovery of a novel coronavirus associated with the recent pneumonia outbreak in humans and its potential bat origin. bioRxiv.
19. Zhao, Y., Zhao, Z., Wang, Y., Zhou, Y., Ma, Y., &Zuo, W. (2020). Single-cell RNA expression profiling of ACE2, the putative receptor of Wuhan 2019-nCov., bioRxiv.
20. Jaillon S, Berthenet K, Garlanda C Sexual dimorphism in innate immunity Clin Rev Allergy Immunol, 56 (2019), pp. 308-321 Cross Ref View Record in Scopus Google Scholar
21. Report of the WHO-China joint mission on coronavirus disease 2019 (COVID-19) . (2020). Accessed: March 21, 2020: https://www.who.int/docs/default-source/coronaviruse/whochina-joint-mission-on-covid-19-finalreport.pdf.
22. Pauline V, Diem LV, Arnaud G, Manuel S, Laurent K, Frederique J. Clinical features of covid-19, The wide array of symptoms has implications for the testing strategy. BMJ 2020;369.