

Original Article

COVID-19: An Experience from a Tertiary Care Hospital of Nowshera

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Author's Contribution

¹ Conception of study

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Abstract

Objective: To determine the frequency of COVID-19 and characteristics of patients presenting to the COVID-19 clinic at Qazi Hussain Ahmed Medical Complex (QHAMC) Nowshera.

Methodology: This cross-sectional study was conducted from 21st Feb 2019 to April 8, 2020, in QHAMC Nowshera. Relevant information was collected on a pre-designed Performa prepared following the objectives of the study.

Results: Out of 220 patients, 165(75%) were males, and 55(25%) females. 96(43.6%) of the patients were in the age range 18-30 years followed by 52(23.6%) in age range 31-45years and 17(7.7%) with age>60 years etc. Out of total the nasopharyngeal swabs of 26(11.6%) strong suspects were sent for PCR testing. 208(94.5%) were sent home while 12(5.5%) were advised quarantine. Forty-seven (21.4%) had a travel history to an epidemic area in the last 14 days. 51(23.2%) had a positive history of contact. Eighty-five (38.6%) had a fever and sore throat followed by 27(12.3%) with (fever & cough), 24(10.9%) with (cough and shortness of breath/dyspnea) and 14(6.4%) with a simple flue, etc. Out of 26 cases, 6(2.7%) were COVID-19 Positive, 12(5.5%) were negative and results of 8(3.6%) were still awaited. The PCR repeated the test for confirmed cases showed; 4(1.8%) negative, one died and one was refractory positive. A positive correlation ($p=0.03$, $r=0.4$) of an increase in age with the severity of the disease/outcome was recorded.

Conclusion: The frequency of infectivity with COVID-19 was 2.6%. A higher number of patients with mild symptoms attend the COVID clinic. The rate of infection and mortality was higher in age> 60 years.

Keywords: COVID-19, rate of infection, mortality, quarantine, provoking factors.

Introduction

Corona Virus disease termed as COVID-19 is an emerging highly contagious respiratory disease that is caused by the novel coronavirus. It was first reported from Wuhan, a metropolitan city in the province of Hubei China, in December 2019. Its main clinical symptoms are fever, dry cough, fatigue, myalgia, and dyspnea. World Health Organization (WHO) declared it as pandemic on March 11, 2020.¹

Scientists with their previous experience of viral epidemics in the form of SARS IN 2002 and Middle East Respiratory Syndrome MERS in 2012, helped them understand the epidemiology, pathogenesis, and treatment of COVID-19.

Until now what we know about the COVID-19, is that it is a respiratory infection of unknown etiology and has quickly spread globally.² The case fatality rate of 2.3% has been reported from China that is lower than SARS (9.5%), MERS (34.4%), and H7N9 (39%).³

In Pakistan the literature so far covering the prevalence and incidence is deficient and we found no published data, however, the so far reported data from government sources declares 4000 confirmed cases with 54 deaths. Punjab is the province with the highest number of corona cases reaching 2000.⁴

In Pakistan, the virus entered on 26th February 2020, when the Government of Pakistan officially declared a student of the University of Karachi diagnosed as COVID-19 positive, with a travel history of Iran.⁵ According to the federal government reports the cases can reach as up to 50000 by 25th April 2020 which is quite alarming.⁶ Its main clinical symptoms are fever, dry cough, fatigue, myalgia and dyspnea.⁷

Little is known about the management plan for this deadly disease. In China, the majority of the patients (90%) presented with fever, cough (76%), and fatigue (32%). Chest X-ray and Computed Tomography (CT) showed bilateral patchy shadows in these patients. They were treated with antiviral and on the same pattern along with traditional treatment for this viral pneumonia.⁸

Gender and age matters when there is talk about the prognosis and outcome of COVID-19. The New York Times has reported that coronavirus is striking and felling more Italian males as compared to females in extreme of age because of their weak immune status. Furthermore, the Italian model of mortality is a trend mirror of what observed in China with a higher death rate in the male gender and older age.⁹ Studies from China have reported that individuals with an extreme of age and those with immune-compromised status

like diabetes etc are at more at risk of 2019-nCoV infection¹⁰.

Therefore the present study was designed to determine the frequency of COVID-19 and characteristics of patients presenting to the COVID-19 clinic of Qazi Hussain Ahmed Medical Complex (QHMC) Nowshera.

Material & Methods

This cross-sectional study was conducted from 21st Feb 2020 to April 8, 2020, in the COVID-19 clinic of QHMC Nowshera. A total of 220 suspected were included in the study. All the suspects attended the COVID-19 clinic irrespective of age and gender were randomly included. The sampling technique was based on convenient probability sampling. All patients irrespective of the type of symptoms attending emergency or outdoor patients departments were excluded. However, if any suspect was referred by the consultant for opinion/nasopharyngeal sample collection for PCR, he/she was entertained in the COVID-19 clinic and he/she became a part of our sampling.

The ethical endorsement was obtained from the institutional ethical review board of the Nowshera Medical College hospital administration before the execution of the survey. Prior informed consent was obtained from all suspects and they were assured of confidentiality.

All those suspects with a score of more than 5 on the scale approved by the competent authority, were enrolled for the collection of nasopharyngeal swabs for detection of COVID-19. All the samples were sent under strict observance of protocols to the public health research laboratory of Khyber Medical University Peshawar (a designated Lab for PCR of 2019nCoV by the Government of Khyber Pukhtunkhwa).

Till the availability of the report, the strong suspects were isolated in hospitals or quarantines of the Government of KP. Some of the cases were isolated at home under strict observance of the health/district administration to ensure to contain viruses.

Results were received in 2- 3 days. All positive cases were isolated and treatment started, and their sample was repeated after 7 days of isolation/treatment. Those who were negative in repeated sample reporting were shifted to quarantine and one refractory positive was kept under strict isolation.

Data was entered in SPSS 25th version and descriptive and correlation statistics were applied. The frequency

and proportion of numerical and categorical variables were presented in percentages. Pearson correlation test was used to show the correlation of age and gender with the rate of infectivity and outcome of the disease. The criteria and scoring for patient selection for PCR testing are mentioned in Table 1.

Table 1: Criteria for COVID-19 scoring system

Criteria for COVID-19 scoring system	
Fever or flu (1)	
Cough (1)	
Sore throat (1)	
Myalgia, body aches (2)	
Shortness of breath (2)	
Travel history to an epidemic area (2)	
Contact history with a traveler of the epidemic area, patient with chest pain, mass gathering, patients with leucopenia or lymphopenia (1)	
Contact history with confirm case (6)	
Total (16)	
Strategy to act:	
Score <5 :	Quarantine
Score: 6-8	Do Labs & Inform Focal Person
Score: 8-10	Labs: Needs Isolation/admission inform Focal Person

Results

We received 220 patients in COVID-19 clinic, 165(75%) were males and 55(25%) females. The majority of the patients were in the age range 18-30 years 96(43.6%), followed by 52(23.6%) in age range 31-45 years and 17(7.7%) with age >60 years, etc (Table 2).

Out of the total suspects attending the COVID Clinic, 47(21.4%) had a travel history to an epidemic area and 51(23.2%) had a positive history of contact. 16(7.3%) had a contact history of 48 hours, followed by more than 5 days in 11(5%). The majority of the patients 85(38.6%) had a fever and sore throat, followed by 24(10.9%) with cough and shortness of breath, etc. To reduce the cost and to discourage the overflow of a patient for PCR test due to limited resources and a limited number of universal/Viral transport media (UTM/VTM), a scoring system was approved by the clinicians and endorsed by the administration that contained values for different variables. Hence patients score less than 5 were not advised PCR. Only 26 (11.8%) with a score of more than 5 were advised swabs collection for viral detection of COVID-19. (Table 3)

Out of 26 cases, 6(2.7%) were COVID-19 Positive and 12(5.5%) were negative. Out of the total, 17(7.7%) strong suspects have advised isolation in Qazi Hussain Ahmed Medical Complex, followed by 15(6.8%) were sent home with an intimation of district health administration.

The test was repeated after one week, 4(1.8%) were negative, one died and 1(0.5%) was still positive. Out of those 26, 25(11.4%) were clinically stable, and one female lady aged 85 years died in hospital, who had other co-morbidities as well as pneumonia and cardiac. (Table 4)

We observed a moderate uphill positive correlation ($p=0.03$, $r=0.4$) of an increase in age with the severity of the disease/outcome. And that was the reason probably of the first corona death observed in our hospital (age 85 years). (Table 5)

Table 2: Demographic characteristics of patients (n=220)

Categories	Frequency (Percentage)
Gender	
Male	165(75%)
Female	55(25%)
Age	
<18 years	30(13.6%)
(18-30 years)	96(43.6%)
(31-45 years)	52(23.6%)
(46-60 years)	25(11.4%)
(>60 years)	17(7.7%)

Table 3: History of Chief complaints, Travel, and Contact with strong suspects/Confirmed cases(n=220)

Categories	Frequency (Percentage)
Travel history to an epidemic area	
Yes	47(21.4%)
No	173(78.6%)
Duration of contact	
2-5 hours	10(4.5%)
48 hours	16(7.3%)
Up to five days	2(0.9%)
>5 days	11(5%)
Not remembered	12(5.5%)
No Contact	169(76.8%)
Symptoms/Clinical Features	

Flu	14(6.4%)
Fever + cough	1(0.5%)
Fever and sore throat	85(38.6%)
Fever, cough, and flu	27(12.3%)
Cough with blood-tinged sputum	1(0.5%)
Cough with Shortness of Breath/Dyspnea	24(10.9%)
Self Isolation	8(3.6%)
No Symptoms	60(27.3%)
Scoring of a patient on laid down criteria	
2.00	8(3.6%)
3.00	120(54.5%)
4.00	66(30%)
6.00	5(2.3%)
7.00	13(5.9%)
8.00	8(3.6%)
Total	220(100%)

Table 4: Description of infectivity, isolation, refractory Covid-19, and outcome of the disease

Categories	Frequency (Percentage)
PCR Result	
Negative	12(5.5%)
Positive	6(2.7%)
Awaited	8(3.6%)
Not done	194(88.2%)
Quarantined/Isolation	
Home	15(6.8%)
Quarantine	2(0.9%)
Qazi Hussain Ahmed Medical Complex	17(7.7%)
No Isolation	186(84.5%)
Repeated Sample result	
Negative	4(1.8%)
Positive	1(0.5%)
Not applicable	21(9.5%)
Total	26(11.8%)
System could not catch	194(88.2%)

Outcome of the disease

Stable	25(11.4%)
Died	1(0.5%)
Total	26(11.8%)

Table 5: Correlation of infectivity (PCR-Positivity for 2019-nCoV) with the outcome of the disease and age

Correlations		Age Categ ories	PCR Result	Patient condition/ outcome
Age categories	Pearson Correlation	1	0.020	0.424*
	Sig. (2-tailed)	-----	0.766	0.031
	N	220	220	26
PCR Result	Pearson Correlation	0.020	1	.036
	Sig. (2-tailed)	0.766	-----	0.863
	N	220	220	26
Patient condition	Pearson Correlation	.424*	.036	1
	Sig. (2-tailed)	0.031	0.863	-----
	N	26	26	26

* Correlation is significant at the 0.05 level (2-tailed).

Discussion

To the best of our knowledge, this is the first study to give information on symptoms, clinical features, frequency, and outcome of the COVID-19. The disease outbreak in 2019 was different from the presentation of pneumonia of unknown cause, later on, the Chinese Centre for Disease Control and Prevention and local CDC attributed it to a novel virus belonging to the corona family and was termed as 2019-nCoV.¹¹ In China, unprecedented measures were taken well in time to control the rapid spread of COVID-19 epidemics in china. They succeeded to adhere people to homes that were properly achieved by their improved Knowledge, attitude, and practices towards COVID-19.¹²

In the present study, out of 220, 26(11.6%) cases were selected for nasopharyngeal swabs for PCR. Living in a developing country there are so many constraints and hindrances in achieving success to fight against communicable diseases like COVID-19. The virus

transmission media (VTM) provided by the government was limited like in quantity of 20 to thirty, so it was decided by the administration with the consultation of clinician and microbiologist to make use of these VTM under observance of strict criteria. Secondly, there is a stigma associated with COVID-19, people have got a state of anxiety and depression, and they rush for tests to reduce the level of anxiety. The best test is PCR detection of 2019-nCoV as declared by the government that is costly and not affordable to all sectors as well as drains government resources. Scoring in such a situation is the need for time to avoid wastage of resources. In many countries, they keep in mind the risk factors in the form of age, gender, travel history, higher markers level like d-dimers >1 µg/ml, etc are the clues that help clinicians to identify patients for further trial/testing to avoid wastage of resources.¹³

In the present study out of the total suspects that attended the COVID Clinic, 47(21.4%) had a travel history to an epidemic area in the last 14 days. Travel history has its importance in the transmission of COVID-19. Countries have imposed strict restrictions on travel including the borders restrictions especially for the people of China, or those who travelled China in the last 14 days, to contain the virus.¹⁴

We observed 27(12.3%) suspects attending the COVID clinic had a contact history of more than 48 hours of being a healthcare worker in a hospital with isolation units for COVID-19 patients. It is pertinent to mention that in the present study, two positive cases among the six are brother. One case that is repeatedly positive after 7 days, relates the types of contact to a religious mass gathering for more than five days in Karachi. As for corona infection, person to person transmission is well learned from the data of China and Italy. Epidemiological investigations were carried out among the close relatives of the COVID patients, and they observed mild to severe types of clinical features/manifestations in these contacts. However, the communicable period can last for up to three weeks to develop symptoms.^{11,15}

Regarding the clinical features of the disease, 85(38.6%) of the suspects presented with fever and sore throat to COVID clinic, followed by 27(12.3%) with fever & cough and 24(10.9%) with cough with shortness of breath. Studies from the epidemic areas have reported different presentations of COVID suspects/patients. A study from China reported fever (23, 82.1%), dry cough (22, 81%) and dyspnoea (14, 50.0%) and lymphopenia (23, 82.1%) in their study patients.¹⁶ Similarly, [Zhao D et al](#)¹⁷ also reported The

most common symptoms were fever and cough (78%) cases, which coincides with our findings.

Out of 26 cases where PCR was done, 6(2.7%) were COVID-19 Positive, 12(5.5%) were negative and results of 8(3.6%) were still awaited. The positivity rate of COVID-19 in our suspects was 2.7%. A study from Japan reported a higher proportion of asymptomatic of 17.9% (95% confidence interval (CI: 15.5–20.2%). They further stated that infection in the majority of the patient has occurred before they join quarantine.¹⁸ Other studies with different proportions of COVID positive cases in suspected/asymptomatic patient's findings are shown in Table 6.

Table 6: Comparison of proportion of positivity of COVID-19 among the suspected/asymptomatic population

Present study	Mizumoto K et al ¹⁸	Zhou X et al ¹⁹	Quilty BJ et al ²⁰	Tian S et al ²¹
Khan H et al				
2.7%	17%	4%	17%	5%

We repeated the sampling for virus detection after 7 days as per government guidelines we observed that 4(1.8%) cases were negative, one died and 1(0.5%) was still positive. Data of the Chinese centre for disease control and prevention reported that in 72000 COVID-19 patients the fatality rate was 2.7%.²² The WHO-China joint mission on coronavirus disease published on 28th Feb 2020, showed a mortality of COVID-19 as 7.6% in cases with co-morbidities. Otherwise the overall mortality due to corona infection in 3.8%, and it is further 1.4% when there is no associated co-morbidity.²³

There was a moderate uphill positive correlation ($p=0.03$, $r=0.4$) of an increase in age with the severity of the disease/outcome. And that was the reason probably of the first corona death observed in our hospital (age 80 Years). Italy is the second most affected country, with more than 40000 cases of SARS-CoV infection. They attributed these infections with poor compliance of the people towards precautionary measures during the early stages of the current epidemic in the country, and the mortality is higher in age people as compared to the younger population, which identifies an immunity gap.²⁴ Another study from China reported 80% of the causalities (deaths)

due to COVID-19 were in the adults aged >60 years as compared to 0.1% in a person aged <19 years.²⁵ Similarly, a positive correlation ($p=0.01$, $r=0.5$) of female gender with the severity of the disease/outcome was noted. In one male patient, the second result after 7 days was still positive, but he was clinically stable with no deterioration in health status. And one case of death noted in females with age >60. However, the literature is still in search of gender conflict in acquiring the disease. A study reported that SARS-CoV-2 has infected more men than women (0.31/100,000 versus 0.27/100,000).²⁶

Conclusion

A higher number of patients with low scores attended the COVID-19 clinic that shows the stigma of the disease. Due to limited resources, the criteria were strict for the selection of suspects for PCR testing. The male gender infectivity rate is higher. Age more than 60 years has a poor prognosis in COVID-19 infection. There is a strong correlation between COVID infectivity and mortality with an increase in age. Therefore it is suggested that special care should be given to suspects with higher risks like in age <5 years & age >60 years, and patients with immunity gaps. There were some unavoidable limitations in the study like limited resources, limited VTM/UTM, short duration of the study, and a low number of positive cases, though we had an acceptable population of suspects. Therefore it is suggested that further studies should be carried out covering the maximum duration of the study, the maximum number of positive patients, and if possible to cover a higher number of deaths reported so far, to correlate different risk factors with morbidity and mortality of COVID-19.

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