Clinical Presentation of Mild To Moderate COVID–19 Disease in Patients Admitted at Tertiary Care Hospital Pakistan

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ABSTRACT

***Objective*:** To explore the clinical presentation of mild to moderate COVID-19 disease.
***Study Design*:** Cross-sectional analytical study
***Place and Duration of Study*:** Tertiary Care Hospital, Rawalpindi from Mar 2020 to Aug 2020.
Methodology: Three hundred and ninety-two patients with mild to moderate illness, PCR positive for COVID 19 were included. Frequency of typical symptoms of COVID-19 disease cough, fever, sore throat and shortness of breath and trends in laboratory assays were recorded. Discharge Criteria was two consecutive negative PCR performed upon 7th and 8th day of admission, subsequently on the 11th and 12th day if found positive previously.
***Results*:** A total of 392 patients were enrolled in the study with age range of 9-45 years. Out of 96 (24.5%) patients presented with cough and fever. Out of 112 (28.6%) patients complained of fatigue and myalgias. Chest x-ray had a bilateral patch in 96 (24.5%) patients and serum ferritin was raised in 96 (24.5%) patients. The coagulation profile was deranged in 64 (16.3%) patients. PCR results remained positive till 12th day in 80 (20.4%) patients.
***Conclusion*:** Fever, Cough and sore throat and deranged biochemical, radiological and haematological markers prove multi-system implications of mild to moderate COVID-19 disease. PCR can remain positive till the 12th day and beyond in modest disease.

Keywords: Cough, Chest X-ray, Coagulation profile, Fever, Shortness of breath.

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INTRODUCTION

According to WHO, the COVID-19 disease impose a serious risk factor to public health.[2] Most common symptoms include fever, dry cough and tiredness. This virus is highly contagious and results in a quick global spread. Thus, it was designated a public health emergency of international concern due to human transmission.[3] At present, therapeutic strategies to deal with infection are only supportive. Reducing transmission, isolation and swift information to health care services is the main weapon against its spread.[4] Timely diagnosis may establish a preventive and curative role.

Most people who get COVID-19 have a mild form of the disease. According to the WHO, around 80% of people who get COVID-19 will recover without hospitalization. The remaining 20% develop serious complications. High-risk groups include elderly patients with comorbidities including hypertension, diabetes mellitus, asthmatics, rheumatologic disease, cardiovascular symptoms and cancer.[8]

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The mortality rate varies between countries. In United States, the death rate is around 6%.[9] Diagnosis is usually clinical and radiological imaging is used to further aid in the diagnosis and exclude complications.[10] Laboratory investigations include polymerase chain reaction (PCR) testing causing amplification of viral genome assisted with other investigations: acute phase reactants analysis including C-reactive protein, serum amylase levels, serum ferritin levels, serum lactate dehydrogenase levels and erythrocyte sedimentation rates.

This study aimed to highlight clinical manifestations and evaluation of patients infected and admitted with COVID-19. The study will provide means to raise awareness among health care individuals in an ongoing pandemic.

METHODOLOGY

This cross-sectional analytical study was conducted at Tertiary Care Hospital, Pakistan, from March 2020 to August 2020. Approval was taken from the Ethical Research Committee of the institute (ERC/226).

Inclusion Criteria: Patients with mild to moderate COVID-19 disease (mild symptoms up to pneumonia

as defined by the Center of Disease Control and Prevention[11]) were included in the study.

Exclusion Criteria: Patients developing severe symptoms of chest tightness or pain, dyspnoea and decreasing oxygen saturation of less than 90% were excluded from the study and they were shifted to High Dependency Unit.

Three hundred and ninety-two patients were enrolled in the study. Sample size was calculated by using OpenEpi calculator, with 95% confidence level, 5% margin of error and the hypothesized frequency of fever related to COVID-19 was taken 53.3% as reported by Merza *et al*.[12]

The hospital facility was divided into various levels of care considering severity index; therefore, only a restricted number of patients detected to have a comorbidity (diabetes mellitus, hypertension, ischemic heart disease, asthma, chronic obstructive pulmonary disease and tuberculosis). Generally, patients were in earlier decades of age, however old aged patients with multiple systemic illnesses and those who developed signs of pneumonia or impending respiratory distress exhibited by profound shortness of breath or chest tightness were shifted to the High Dependency Unit or Critical Unit.

All the patients included in the study, were PCR positive for COVID-19. Testing was carried out in the patients who had developed symptoms, travel history, or contact with COVID positive patients. The sample was taken from the throat and nasopharyngeal swabs. The investigation was performed by real-time polymerase chain reaction. Reports were generated after 48 hours. A team of trained laboratory technicians wearing personal protective equipment collected the samples. On the first day of positive PCR, the patients were admitted to a ward entirely dedicated to COVID-19 patients. PCR was repeated after seven days of admission. If it was negative, another PCR was planned on a consecutive day. Two consecutive negative PCR were considered fit for discharge. There was adequate spacing between the beds of admitted patients.

Patients with fever were advised HCQ 400 mg twice a day for two days followed by 200 mg twice daily for another four days. Tablet Azithromycin 500 mg once daily and tablet Ivermectin once daily was given for five days. Treatment was further aided with vitamin C, calcium and zinc supplements. C–reactive protein, liver function tests, chest X-ray, serum ferritin, blood complete count and coagulation profile were carried out as the part of management. Patients were admitted, isolated and followed protocols to prevent transmission by wearing a mask and keeping an adequate distance of 6 feet along with frequent hand washing.

Statistical Package for Social Sciences (SPSS) version 23 was used for the data analysis. Quantitative variables were summarized as Mean ± SD and qualitative variables were summarized as frequency and percentages. Chi-square test was applied to find out the association. The *p*-value of ≤0.05 was considered statistically significant.

RESULTS

Total 392 patients were enrolled in the study with the mean age of 33.22 ± 7.98 years. Out of 96 (24.5%) patients presented with cough and fever. Fatigue and myalgias were predominant in 112 (28.6%) patients. None of patients had conjunctivitis, skin rash, ageusia and anosmia. Headache was prevalent among 104 (26.5%) participants. Shortness of breath was witnessed in 40 (10.2%) patients. Chest tightness was present in 96 (24.5%) patients as shown in Table-I.

Table–I: Association of gender with symptoms.

Symptoms		Gender (n= 392)		*p*-value
		Female (n=8)	Male (n=384)	
Cough	No	5 (62.5%)	291 (75.8%)	0.41
	Yes	3 (37.5%)	93 (24.2%)	
Fever	No	5 (62.5%)	291 (75.8%)	0.41
	Yes	3 (37.5%)	93 (24.2%)	
Sore throat	No	6 (75%)	298 (77.6%)	1.00
	Yes	2 (25%)	86 (22.4%)	
Myalgia's	No	6 (75%)	274 (71.4%)	0.58
	Yes	2 (25%)	110 (28.6%)	
Diarrhea	No	7 (87.5%)	361 (94%)	0.40
	Yes	1 (12.5%)	23 (6%)	
Headache	No	5 (62.5%)	283 (73.7%)	0.68
	Yes	3 (37.5%)	101 (26.3%)	
Chest Tightness	No	5 (62.5%)	296 (75.5%)	0.41
	Yes	3 (37.5%)	96 (24.5%)	
Shortness of Breath	No	7 (87.5%)	345 (89.8%)	1.00
	Yes	1 (12.5%)	39 (10.2%)	

Hypertension was observed in 40 (10.2%) patients, diabetes mellitus in 24 (6.1%) and asthma in 8 (2%) patients (Table-II). Total leukocyte count (TLC) and serum ferritin were raised with bilateral patches of chest x-ray in 96 (24.5%) patients. Exaggerated values of serum creatinine and serum sodium were noticed in 24 (6.1%) and 16 (4.1%) patients, respectively. PCR results on the 7th and 8th day were negative in 144 (36.7%) patients, whereas on the 11th and 12th days, PCR results were negative in 312 (79.6%) patients (Table-III).

Table-II: Association of comorbid conditions with the symptoms.

	HTN	DM	Asthma	*p*-value
Shortness of Breath				
No	24 (60%)	24 (100%)	-	<0.001*
Yes	16 (40%)	-	8 (100%)	
Chest Tightness				
No	32 (80%)	8 (33.7%)	8 (100%)	<0.001*
Yes	8 (20%)	16 (66.3%)	-	
Fever				
No	32 (80%)	8 (33.7%)	8 (100.0%)	<0.001*
Yes	8 (20%)	16 (66.3%)	-	
Cough				
No	32 (80%)	8 (33.7%)	8 (100%)	<0.001*
Yes	8 (20%)	16 (66.3%)	-	

Table–III: 8th and 12th day polymerase chain reaction test results.

		Polymerase Chain Reaction Test 8th Day	
		Negative	**Positive**
Polymerase Chain Reaction Test 12th Day	Negative	144 (100%)	168 (67.7%)
	Positive	-	80 (32.3%)

DISCUSSION

Our study results enumerated fever and cough as the most prevalent impacts of disease, followed by sore throat and myalgias. A small proportion of patients had complaints of shortness of breath and chest tightness. Olfactory, gustatory and ophthalmological features were not associated with mild to the moderate disease process. Raised serum ferritin, C-reactive protein, and chest x-ray findings explained for multidisciplinary disease management. Our results were compatible with global preliminary literature on the disease.

Merza *et al*, executed a prospective study in Kurdistan (Iraq) and enrolled,[15] confirmed cases. The mean age of the patients was 28.06 ± 16.42. The examination exhibited that nine patients were symptomatic. Eight patients had a fever, whereas seven had a cough, shortness of breath, and exhaustion was present in three patients. Four patients had smell and taste issues.[12] Consistent with our study as we also concluded cough and fever to be most prevalent (24.5%).

Fu *et al*, reported a preliminary review investigating the clinical ramifications of dynamic neutrophil to lymphocyte proportion and D-dimer in COVID-19 conceded patients. Frequent findings were hemocytopenia, lymphopenia, leukopenia, and thrombocytopenia (45.3%, 21.3%, and 12%, respectively).[13] Liver and renal function tests were within the stipulated range; serum ALT was deranged in (8.1%) patients. The rise of the C-reactive protein level was seen in 58.7% COVID-19 patients compared to 12.2% participants in our study. Guan *et al*, investigated clinical manifestations of COVID-19 disease in 1099 patients. The most prevalent symptoms were fever (88.7%) and cough (67.8%).[14]

Chen *et al*, reviewed disease profiles in 67 male patients and 32 female patients. Clinical Presentation was fever (83%), cough (82%), shortness of breath (31%), muscle ache (11%), headache (8%), sore throat (5%), rhinorrhea (4%) and chest tightness (2%) patients.[15]

Wang *et al,* investigated clinical characteristics of COVID-19 patients and reported fever (98.6%), exhaustion (69.6%), dry cough (59.4%), myalgia (34.8%), and dyspnea (31.2%).[16]

Zhan *et al*, reported characteristics of 140 patients with COVID-19. Fever (91.7%), cough (75.0%), fatigue (75.0%), and gastrointestinal adverse impacts (39.6%) were the most widely recognized clinical symptoms. Hypertension (30.0%) and diabetes mellitus (12.1%) were the most common comorbidities.[17]

Xiao *et al*, reported positive rate of RT-PCR as most frequent (97.9%) from 0-7day, with the decline to 68.8% from 8-14 day. Positive rate of RT-PCR as 36.3% from 15-21 day, 30% from 22-28 day and 26.3% at 28 days.[18] These findings were consistent with our analysis as PCR results remained positive in 80 (20.4%) patients beyond 12th day.

CONCLUSION

Fever, cough, sore throat, and deranged biochemical, radiological and haematological markers prove multi-system implications of mild to moderate COVID-19 disease. PCR can remain positive till the 12th day and beyond in modest disease.

Conflict of Interest: None.

Authors' Contribution

KA: Manuscript draft, AR: Manucript draft, SA: Concept manuscript draft, AMKB: Supervisor, BA: Statistical analysis.

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