ORIGINAL ARTICLE

Presentation of COVID 19 Patients: An Experience at Military Hospital Rawalpindi

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ABSTRACT

Objective: The objective of this study is to document the initial presentation of COVID 19 cases reporting to hospital.

Study Design: Cross sectional study.

Place and Duration of Study: The study was carried out at COVID-19 ward of Tertiary care hospital, Rawalpindi from May to June 2020.

Materials and Methods: This study was conducted on 647 patients admitted at COVID-19 ward. Data was collected from the patient's presenting complaints, history taking, examination, charts, treatment and nursing records. Pattern of clinical presentation was taken as the presenting symptoms and signs of the patients. They were grouped as mild, moderate and severe by chest computed tomography severity score. The data was presented as frequency distribution tables.

Results: Out of 647 patients 84% were male while 16% were females.48.5% of the cases were asymptomatic while 41.5% cases were having symptoms. The most common clinical presentation was fever (38%) followed by dry cough (32.9%), fatigue (31.1%), productive cough (25.3%) and headache (24.7%). Majority of the patients (71.8%) presented with mild severity on HRCT.

Conclusion: This study gives the insight into the clinical picture of the patients presenting with COVID-19. Majority of the patients presented with the mild to moderate severity. Many patients being asymptomatic are overlooked and become carrier for COVID-19 Disease.

Key Words: *COVID-19, Disease Severity, Symptoms.*

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Introduction

December 2019 was the time when the first huddle of COVID-19 disease was known to the world in Wuhan, China.[1] This predicament was considered as the pandemic on 11th March'2020 by World Health Organization. Ever since this disease has been swiftly spreading and affecting the people around the World with more than 14 million people and death rate as much as 3 million.[2,3] This exponential rise in the cases around the globe is mostly attributed with human-to-human transmission with the countable amount as the asymptomatic carriers.[4] The disease had been known to affect the respiratory system including lung parenchyma with the prime symptoms of fever, cough, and shortness of breath. There is typical and atypical presentation of disease. The conventional signs and symptoms linking the disease are known as typical presentation while when these signs and symptoms diverge from the standard presenting complaints atypical presentation of disease occurs.[5] This viral illness has the spectrum and prototype from asymptomatic presentation of the infection to the typical landmark symptoms of mild upper respiratory tract illness, severe pneumonia with respiratory failure (necessitating ventilators) to death. Worldwide many researchers are trying to

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find the appearance of disease pattern. Studies done amongst patients with the disease indicate fever as the most common symptom followed by cough, dyspnea, myalgia, headache with the diarrhea, rhinorrhea and sore throat noted in a few patients.[6]

Studies recently conducted have shown that it can impinge on multiple organ systems and cause development of extra-pulmonary symptoms.[7] The COVID-19 patients are misdiagnosed or late diagnosed sometimes due to the existence of extra-pulmonary symptoms which can be unfavorable to patients and has deadly effects when unseen.[8] This incomplete knowledge about the presentation of the disease results in misdiagnosis and high infectivity rate while in incubation period. Different studies are now coming up with the patients showing atypical presentation like gastrointestinal and neurological symptoms.[9] These atypical presentations then sometimes overlooked and leads to at times delay detection of disease. More studies are being carried out to now across the world to define the epidemiological indices, modes of spread, clinical presentation and itinerary of disease. These studies have an aim to add in the existing pool of data by documenting the presentation of cases reporting to different hospitals so as to help early suspicion and isolation of cases.[10] Though the definitive diagnosis is still RT-PCR swab but radiological imaging has provided an adjunct to the diagnosis of the disease.[11]

The main objective of this study conducted at our hospital is to document the initial presentation of COVID 19 cases reporting to hospital. The knowledge will be the picture that is helpful for the presentation and pattern of symptoms in Pakistan.

Materials and Methods

This facility based cross sectional study was carried out at a Tertiary Care Hospital, Rawalpindi with the approval of Institutional Review Board. It is 1000 bedded hospital providing health care in almost all specialties. With the start of pandemic, the COVID-19 ward based on 300 beds was established. Confirmed cases of COVID-19 were admitted and managed in the isolation ward between May to June, 2020 were included in the study after verbal informed consent. The total number of the patients in our study duration was 647. All patients who gave the consent were included in the study based on convenience sampling technique.

Data Collection Procedure

Two research assistants were trained on data collection from the case notes and data entry for a week. These are resident doctors were part of the COVID-19 management team of the Centre from inception of the pandemic. Data for the study was collected from the patient's presenting complaints, history taking, examination, charts, treatment and nursing records. In this study, pattern of clinical presentation was taken as the presenting symptoms and signs of the patients as documented in the selected cases notes of the patients in addition to the required COVID-19 clinical management of the patients. They patients were then grouped as mild/moderate and severe by Chest computed tomography severity score according to Chinese Guidelines as proposed by Yang *et al*. It was created to help assess COVID-19 burden on the initial scan obtained at admission and provide an objective approach to identify patients in need of admission to hospital. The overall CT severity score was defined as the sum of the points scored in each of the 20 lung segment regions, which ranges from 0 to 40 points. Score 0-12 indicates mild cases, 13-24 as moderate and 25 and above as severe.[12]

Data Analysis

Data were then coded, entered and analyzed using the SPSS version 20.0 software. All the continuous data was presented as frequency distribution. Different presentations will be summarized as percent of total cases.

Results

Our study aimed to present the clinical features of the patients at the time of admission to the COVID-19 Disease. The High Resolution Computerized Tomography (HRCT) was done at the time of admission for all patients. Disease severity was concluded at the scoring of HRCT.

The results showed that out of total 647 patients the greater proportion was of male 526 (84%) were with median age of 43.51 years and 101(16%) were females with the median age of 48.20 years. The maximum age for males was 95 years and minimum aged 5 years. On other side females age ranged from 21 years minimum to maximum of 90 years. (Table 1). Table 2 revealed that 48.5% (314) of the cases were asymptomatic while 41.5% cases were having symptoms. The most common clinical presentation

Table 1: Socio Demographic Characteristics

Gender	Frequency n (%age)	Mean Age in years	Min age in years	Max age in years
Male	526(84%)	43.51±16.58	5	95
Female	101(16%)	48.20±17.41	21	90
Total	627			

was fever (38%) followed by dry cough (32.9%), fatigue (31.1%), productive cough (25.3%), headache (24.7%), dyspnea (24.5%) and sore throat (20%). Other presentations were abdominal pain (18.2%), diarrhea (17.6%), flu (16.8%), nausea (6.6%), chest pain (5.8%), vomiting (5.5%), absence of smell (5.4%) rigors (5.25%) and absence of taste (3.09%).

Table 2: Clinical Profiles and symptomatology of the study population (n= 647)

Symptoms	Frequency (n)	Percentages (%)
Asymptomatic	314	(48.5%)
Fever	246	(38%)
Dry cough	213	(32.9%)
Fatigue	201	(31.1%)
Productive cough	164	(25.3%)
Headache	160	(24.7%)
Dyspnea	159	(24.5%)
Sore throat	130	(20%)
Abdominal pain	118	(18.2%)
Diarrhea	114	(17.6%)
Flu	109	(16.8%)
Nausea	43	(6.6%)
Chest pain	38	(5.8%)
Vomiting	36	(5.5%)
Absence of Smell	35	(5.4%)
Rigors	34	(5.25%)
Absence of Taste	20	(3.09%)

Majority of the patients (71.8%) presented with mild severity at HRCT, 23.4% were with moderate and 4.8% were severe cases. (Table 3).

Table 3: Disease Severity of the Patients (n=647)

Disease Category	Frequency (n)	Percentage (%)	HRCT Scoring
Mild	465	71.8%	0-12
Moderate	151	23.4%	13-24
Severe	31	4.8%	25-40
Total	647	100%	

Six hundred and four patients (92.7%) were discharged from the COVID ward while 43 patients were shifted to ICU and 4 of them died. (Table 4).

Table 4: Disposal of Patients

	N	Percentage
Discharge	600	92.7%
Shifted to ICU	43	6.6%
Deaths	4	0.61%

Discussion

Our study shows that majority of the cases were male (84%). The most common clinical presentation observed in the patients was fever (38%) followed by dry cough (32.9%), fatigue (31.1%), productive cough (25.3%), headache (24.7%), dyspnea (24.5%) and sore throat (20%). Other presentations were abdominal pain (18.2%), diarrhea (17.6%), flu (16.8%), nausea (6.6%), chest pain (5.8%), vomiting (5.5%), absence of smell (5.4%) rigors (5.25%) and absence of taste (3.09%). The results of our study showed that 71.8% of patients presented with mild severity at HRCT, 23.4% as moderate and 4.8% showed severe cases. 6.6% of the patients were shifted to the ICU while 1.4% died.

This co relates with the studies conducted in China showing high infection rate and male predominancy.[1] The study conducted by Fei Z and colleagues conducted a retrospective multi center cohort study at Jinyintan Hospital and Wuhan Pulmonary Hospital. They included all patients of confirmed COVID-19 Disease with age more than 18 years. Their study was consistent with our results of male pre dominancy towards the COVID-19 infection rate. According to authors the novel corona virus patients when assessed at Wuhan Hospital after positive PCR showed high percentages among male (73%) as compared to females (27%). The most common symptoms at the presentation among patients were fever, cough, fatigue, headache and dyspnea. They did not mention any symptom extrapulmonary symptoms while in our study patients presented with abdominal pain, diarrhea and nausea.[10]

Ching Chang Lai and associates when collected the data in Wuhan the facts and figures were 63% male patients having infection of COVID-19 disease. Majority of the patients were asymptomatic and were in the carrier stage.[7] As in our study almost half of the patients were asymptomatic at the time of

presentation.

At the hospital of Wuhan Prof Nanshan with his colleagues conducted study on the 99 cases admitted at COVID ward, out of the 99 patients with pneumonia, 67 were men while 32 were women. The average age of the patients was 55.5 years. Patients at the time of admission appeared with the clinical manifestation of fever (83%), cough in 82% of cases, dyspnea 31%, muscle ache 11%, confusion 9%, headache 8% while 5% presented with sore throat and flue. Only 2% cases had Gastro intestinal symptoms.[13] This study has similar findings like our study with major symptoms of fever, cough, shortness of breath while small percentages of patients also show GIT upsets.

The mean age of our study in male is 43.51±16.5 years. This finding enlightens the fact that economically productive age group and work force which go out for daily work are more likely to get exposed with the COVID-19 virus. These accorded findings are found by Aigbokhaode AQ and his colleagues showing the mean age of 44.7 years with higher male infection rate. According to the authors 86% of the patients had mild to moderate severity level while 14% were either severe or very severe according to clinical picture. Our study incorporated the clinical presentation with the HRCT scoring. The scoring illustrated that 71.8% were mild while 23.4% had moderate severity while 4.4% presented with higher severity level.[14]

Kristin Garrett Keller conducted a systematic review of 97 descriptive studies on the hospitalized patients of COVID-19 to determine the clinical presentation and outcomes of hospitalized patients. The most commonly reported symptoms were fever and cough while some patients had atypical presentations. In patients with high severity level disease progression was rapid and fatal.[15]

In New York Richardson along with his colleagues conducted the study in 5700 confirmed COVID-19 patients at 12 different hospital settings to describe the clinical presentations at the time of their admission. Total 1734 patients (30.7%) were having fever, 986 (17.3%) had a respiratory rate greater than 24 breaths/min while 1584 (27.8%) had severe respiratory depression. Same were the results in our study as only 38% of the patients showed up with fever as presenting complaint.[16]

Chest imaging plays major role at the early stages of the disease for the prompt diagnosis of suspected pneumonia cases. HRCT should be the first-line imaging modality to sensitively detect pulmonary abnormalities. Outcome of the disease drastically improves if HRCT is done at the initial stages of admission.[17]

In the study conducted on 54 patients at California by Samul J and associates showed the data regarding common clinical picture of COVID 19 patients. Low oxygen saturation predicts severe disease outcome. They included confirmed PCR patients in their study. The mean age group included in their study was 53.5 years which is close to our study age group. They used HRCT and low oxygen saturation as the indicator for disease severity. They used univariate analysis and related the disease severity with the low oxygen saturation at the admission. The results showed the positive association among two variables.[18]

The study conducted by Montpellier University Hospital, France by the Hubert Blain and companions at the long term care facility showed, there were atypical symptoms appearing in the patients of COVID-19. The results of their study relates with our findings as among their study population as well the more common symptoms were cough (14%), hypothermia (13%), diarrhea(10%) and delirium(07%).[19]

The limitation of our study is that sample size is relatively small and is a single centered study. We recommend that multi centered study should be carried out in Pakistan to get clearer clinical picture of COVID-19 patients. This study gives insight of the symptoms with which patients commonly present in the hospital setting.

Conclusion

The major hub of the patients presented with the mild to moderate severity. The clinical patterns of patients attending the hospital are in keeping with that of WHO and NCDC case definitions and described by previous studies. We have a firm believe that this study will surely add up as growing knowledge of COVID-19 disease. It will also assist clinicians in identification and triaging of patients presenting at the hospitals. Early detection and isolation of cases is the key to success in controlling the pandemic.

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