Original Article

Clinical characteristics of 200 COVID-19 patients in Mashhad, Iran, February and March 2020

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Abstract

Introduction: Coronavirus disease 2019 (COVID-19) is a pulmonary involvement which was reported for the first time in December 2019 in the city of Wuhan, Hubei province, China. The aim of the study was to describe the demographic, clinical, laboratory, and radiological characteristics of 204 definitive laboratory-confirmed COVID-19 patients hospitalized in Mashhad, Khorasan Razavi province, Iran. **Patients and Methods:** This study was performed on 204 laboratory-confirmed COVID-19 patients. A set of laboratory tests combined with various patient information and results from lung high-resolution computed tomography (HRCT) were gathered in a checklist and analyzed to give us a better view of patients who are hospitalized due to the complications caused by this disease. **Results:** The average age of our patients was 58.83 ± 15.93 years. There were 122 (59.8%) male and 82 (40.2%) female patients, and almost all of our patients had at least one underlying disease. Nine (4.4%) of our patients reported having gone for a trip to COVID-19-epidemic areas in the last 2 weeks. The most common signs shared among all our patients were cough, fever, and decreased O_2 saturation; the average respiratory rate was 25.50 ± 6.74/min, average axillary body temperature was 37.69°C ± 0.69°C, and average O_2 saturation was 88.34% ± 7.34%. **Conclusion:** Based on our results, the most common signs of this disease are fever, cough, and shortness of breath, similar to seasonal influenza. Our data on disease severity showed that 33 (16.2%) patients had moderate disease, 139 (68.1%) had severe disease, and 28 (13.7%) were critical; 22 (10.8%) of our hospitalized patients died due to the complications of this disease.

Keywords: Coronavirus, COVID-19, SARS-COV-2

Introduction

In December 2019, patients with symptoms of pneumonia and lower respiratory tract involvement were hospitalized in the city of Wuhan, Hubei province, China. The cause of these symptoms was unknown at the time of admission. Later, investigations revealed this was caused by a novel type of an RNA betacoronavirus from the Coronaviridae family, which is classified as Severe Acute Respiratory Syndrome Coronavirus type-2 (SARS-COV-2) by the International Committee on Taxonomy of Viruses.[1-4] The disease itself has been named by the International Classification of Diseases division of the World Health Organization (WHO)[1] as coronavirus disease 2019 (COVID-19).[2,5,6]

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Received: 10-07-2021 **Revised:** 15-11-2021
Accepted: 13-12-2021 **Published:** 14-05-2022

Access this article online

Quick Response Code:

Website: www.jfmpc.com

DOI: 10.4103/jfmpc.jfmpc_1368_21

1 World Health Organization

How to cite this article: AkbariRad M, Allahyari A, Ravanshad S, Mahali SN, Ebrahimzadeh F, Mozdourian M, *et al*. Clinical characteristics of 200 COVID-19 patients in Mashhad, Iran, February and March 2020. J Family Med Prim Care 2022;11:1949-56.

Although the exact origin of this virus has not yet been determined, the first cases identified were all related to a fish market in Huanan as claimed by the Chinese authorities, which also illegally sold wild animals, including bats.[7]

With the increased level of affected cases and hospitalizations, strict controls began in China, and isolating cities and people suspected of having the disease was on the agenda. Despite doing so, the disease soon spread to a global pandemic level.[7,8] By the time that we write this manuscript, there have been 5,165,481 confirmed cases of COVID-19, including 336,430 deaths, as reported by WHO.[9] The majority of people who died from COVID-19 were elderly or the ones who had comorbidity.[4,10]

So far, it has been shown that the transmission of COVID-19 happens from human to human through droplets or direct contact with the nasal or bronchoalveolar discharges of the patients or asymptomatic carriers.[8,11]

COVID-19's virulence can increase when shifting from one person to another, the same as what happened when it first transmitted from a wild animal in Wuhan's seafood market to humans. We need to keep in mind that the prognosis of the patients who are affected by SARS-COV-2 is related to multiple factors, which, in severe cases, can lead to severe pneumonia, acute respiratory distress syndrome (ARDS)[2], multi-organ failure, and death.[12] In contrast, mild to moderate cases of COVID-19 present with symptoms of lower respiratory tract infection, fever, dyspnea, myalgia, and fatigue.[7,8,13] It has been claimed that the SARS-COV-2 is closely related to the genetic sequence of the SARS-COV, which was earlier isolated from bats in China between 2015 and 2017. This hypothesis suggests that SARS-COV-2 and Bat-COV share a recent common ancestor.[3]

In the present study, we describe the demographic, clinical, laboratory, and radiological characteristics of 204 definitive laboratory-confirmed COVID-19 patients hospitalized in Mashhad, Khorasan Razavi province, Iran.

Patients and Methods

Study Participants

This study was performed on 204 laboratory-confirmed COVID-19 patients. The whole study was designed by the authors and funded by Mashhad University of Medical Sciences, Mashhad, Iran.

Inclusion and Exclusion Criteria

Only definitive laboratory-confirmed COVID-19 positive cases were enrolled in the study. Of these cases, the ones who did not agree to participate in our study were excluded.

Data Gathering

We obtained the medical records and compiled data of hospitalized patients with laboratory-confirmed COVID-19 as reported to the primary health center of Mashhad University of Medical Sciences, as well as a full history and demographic information, which were taken during daily examinations and visits between February 2020 and March 2020. COVID-19 was diagnosed based on WHO interim guidance.[14] A confirmed case of COVID-19 is defined as a positive result of high-throughput sequencing or real-time reverse-transcriptase polymerase chain reaction (RT-PCR)[3] assay of nasopharyngeal swab specimens. It is noteworthy to mention that only laboratory-confirmed cases were included in the analysis.

Sampling Method

We extracted the recent exposure history, clinical signs and symptoms, and laboratory findings on admission and discharge from the registry forms and electronic medical records of the hospital information system (HIS)[4]. We also gathered all required demographic data and different types of information such as familial, social, and past medical histories directly from patients through daily visits.

Analysis and Assays

As per the Iranian Ministry of Health (MOH)[5] routine guideline, 10 mL of venous blood was taken from each patient at the time of admission to perform laboratory tests including complete blood count (CBC)[6], white blood cell, differential (WBC Diff)[7], red blood cell (RBC)[8], hemoglobin (Hb)[9], hematocrit (HCT)[10], platelet (PLT)[11]), fasting blood sugar (FBS)[12], erythrocyte sedimentation rate (ESR)[13], C-reactive protein (CRP)[14], blood urea nitrogen (BUN)[15], creatinine, venous blood gas (VBG)[16], aspartate transaminase (AST)[17], alanine transaminase (ALT)[18], lactate dehydrogenase (LDH)[19], alkaline phosphatase (ALP)[20], bilirubin (total and direct), platelet time (PT)[21], prothrombin time (PTT)[22], international normalized ratio (INR)[23], sodium (Na)[24], potassium (K)[25], calcium (Ca)[26],

2 Acute respiratory distress syndrome

3 Reverse-Transcriptase Polymerase Chain Reaction
4 Hospital information system
5 Ministry of Health
6 Complete blood count
7 White Blood Cell, differential
8 Red blood cell
9 Hemoglobin
10 Hematocrit
11 Platelet
12 Fasting blood sugar
13 Erythrocyte sedimentation rate
14 C-Reactive protein
15 Blood urea nitrogen
16 Venous blood gas
17 Aspartate transaminase
18 Alanine aminotransferase
19 Lactate dehydrogenase
20 Alkaline phosphatase
21 Platelet time
22 Prothrombin time
23 International normalized ratio
24 Sodium
25 Potassium
26 Calcium

and magnesium (Mg)[27]. All patients had undergone a lung high-resolution computed tomography (HRCT)[28] at the time of admission, and the results of the scan were reviewed and reported by an experienced pulmonologist. During the hospitalization period, all patients were interviewed directly by the authors (after the patients signed the personal consent form), and a variety of information including demographic data, past medical history, familial history, social history, drug history, and signs and symptoms were taken from them.

Ethics

We obtained written informed consent forms from all participating patients (or their first-degree relatives in the case where the patient was not in a situation to fill and sign the contest form). This study has been approved by the ethical committee of research of Mashhad University of Medical Sciences on March 4, 2020 with the reference code IR.MUMS.REC.1398.308.

Statistical Analysis

All data were collected through a checklist and have been stored in an statistical package for the social sciences (SPSS) data sheet. For quantitative data, if the distribution was normal, we used mean and standard deviation, and if not, we used median and interquartile range accordingly. To describe qualitative data, we used the frequency tables. To describe quantitative data, we used frequency and percentage and placed them in related tables. To compare quantitative data, depending on distribution, parametric or non-parametric tests were used. Pearson Chi-square test was used to compare qualitative data. To compare quantitative data between groups, we used analysis of variance (ANOVA) and Tukey's test. In the case that the data distribution was not normal, the Kruskal–Wallis test was used. Pearson correlation coefficient test was used to determine the association between quantitative variables. All data were analyzed using SPSS software version 24. In all reports, a *P* value less than 0.05 was considered as significant.

Results

A total of 204 patients who were admitted to Imam Reza Hospital of Mashhad, Iran, from February 2020 until March 2020 with a definite diagnosis of COVID-19 entered the study. Of these patients, there were 122 (59.8%) males and 82 (40.2%) females. The average age of our patients was 58.83 ± 15.93 years (58.03 ± 16.17 years for males and 59.98 ± 15.59 years for females, $P = 0.397$) [Table 10]. Of these patients, 62 (30.4%) were diabetics, 36 (17.6%) had ischemic heart disease (IHD)[29], and 60 (29.4%) had hypertension. Also, 16 (7.8%) patients had chronic obstructive pulmonary disease (COPD)[30], eight (3.9%) had a type of malignancy, and only six (2.9%) patients had asthma. We also investigated patients in terms of familial history, according to which nine (4.4%) patients with no underlying disease reported diabetes and nine (4.4%) others reported hypertension in their first-degree relatives. Ten (4.9%) of our subjects reported a history of positive COVID-19 among their relatives and six (2.9%) reported having a first-degree relative who is a healthcare worker.

In the case of social history, 23 (11.3%) of our patients were smokers and five (2.25%) were drug abusers. Only one (0.5%) patient was an alcoholic. It is worth mentioning that nine (4.4%) patients reported having gone for a trip to COVID-19-epidemic areas in the last 2 weeks.

We investigated our subjects' past medical history, which showed 10 (4.9%) patients were angiotensin-converting enzyme inhibitors (ACEI) users and 26 (12.7%) patients were angiotensin receptor blockers (ARB) users. Sixty-two (30.4%) of our patients who were diabetics were also using anti-diabetic medications; five of them were using injectable insulin. A total of five (2.5%) patients had also been on prednisolone therapy, of which four were using less than 15 mg and one was using more than 15 mg daily.

We examined all the patients at the time of admission. The average pulse rate was 94.98 ± 15.92/min, average respiratory rate was 25.50 ± 6.74/min, average axillar body temperature was 37.69°C ± 0.69°C, average O_2 saturation was 88.34% ± 7.34%, and the average blood pressure was 127.12 ± 17.83/85.23 ± 4.76 mmHg [Table 11].

According to the standard defined by Harrison's Principles of Internal Medicine,[15] axillar body temperature more than 37.2°C in the morning or 37.7°C in the afternoon is considered as fever. Therefore, 147 (72.1%) of our cases had a fever at the time of admission. Also, we saw dyspnea in 174 (85.3%) and cough in 186 (91.2%) of our patients. Out of our patients, 37 (18.1%) complained about nausea and/or vomiting and 29 (14.2%) had diarrhea. It is noteworthy to mention that 101 (49.5%) patients complained of myalgia, but only 27 (13.2%) had experienced arthralgia. Moreover, 96 (47.1%) patients had a weakness, 31 (15.2%) had a headache, seven (3.4%) had abdominal pain, and only one patient had a seizure [Table 11 and 12].

All laboratory results are presented in [Table 1].

As mentioned above, all patients underwent a lung HRCT, whose result we evaluated for four major manifestations. In this regard, 154 (75.5%) of our patients had a level of consolidation, 155 (76%) patients had a level of ground-glass opacities, 13 (6.4%) patients had pleural effusion, and only one (0.5%) patient had bronchiectasis. Detailed HRCT evaluation results are presented in [Table 2].

For all patients, we started a sort of therapy in which more than 95% of our patients took a combination of hydroxychloroquine, oseltamivir, and lopinavir/ritonavir. We prescribed corticosteroids for 25 (12.3%) patients as a countermeasure of their unstable pulmonary status, which was

27 Magnesium
28 High-resolution computed tomography
29 Ischemic heart disease
30 Chronic obstructive pulmonary disease

Table 1: Laboratory data

Variable	Mean ± SD	Unit
WBC	7.25±3.54	$\times 10^3/mm^3$
RBC	4.64±0.72	$\times 10^6/mm^3$
Hemoglobin	13.31±2.16	g/dL
Hematocrit	37.86±5.39	%
Platelet count	202.23±82.36	$\times 10^3/mm^3$
Neutrophil	75.42±10.55	%
Lymphocyte	18.59±8.84	%
Lymphocyte count	1222.89±762.89	$/mm^3$
Lymphocytopenia (admission time)	154 (75.5%)	-
BUN	34.69±19.55	mg/dL
Creatinine	1.03±0.38	mg/dL
Na	136.47±3.68	mmol/L
K	4.09±0.44	mmol/L
Ca	8.11±0.76	mmol/L
Mg	2.27±0.32	mmol/L
AST	51.22±69.05	U/L
ALT	52.26±76.12	U/L
ALP	228.48±166.62	U/L
LDH	679.96±399.86	U/L
Blood sugar	141.45±75.11	mg/dL
ESR	60.18±31.31	mm/h
CRP	93.64±86.21	mg/L

ALP=alkaline phosphatase, ALT=alanine transaminase, AST=aspartate transaminase, BUN=blood urea nitrogen, CRP=C-reactive protein, ESR=erythrocyte sedimentation rate, LDH=lactate dehydrogenase, RBC=red blood cell, WBC=white blood cell

Table 2: Pulmonary manifestations (frequency)

Characteristics	Frequency (%)
Consolidation	
None	50 (24.5%)
One lobe	4 (2%)
Two lobes	85 (41.7%)
Three lobes	3 (1.5%)
Four lobes	62 (30.4%)
Ground-glass opacity	
None	49 (24%)
One lobe	3 (1.5%)
Two lobes	40 (19.6%)
Three lobes	4 (2%)
Four lobes	108 (52.9%)
Pleural effusion	13 (6.4%)
Bronchiectasis	1 (0.5%)

about to turn to ARDS. This treatment protocol was announced by the COVID-19 Counter Committee of the Ministry of Health of Iran.

For only four (2%) patients whose condition was critical, we prescribed ribavirin; we avoided routine prescription of this drug due to its severe side effects.

In addition to the three-drug regimen, we prescribed a combination of intravenous ceftriaxone and oral azithromycin for all of our patients. In the case where the patient's situation worsened or there were no signs of improvement in terms of lowering of fever and so on, this situation builds a suspicion of superinfection, and therefore, we discontinued the ceftriaxone and azithromycin regimen and prescribed intravenous vancomycin and meropenem as the replacement antibiotic therapy, which had happened for 83 (40.7%) of our patients.

Death and Severity

We defined the disease state for a better understanding of its progress. In this regard, we defined five different states of the disease as given below:

Mild: Patients who have dry cough with mild or without pneumonia, weakness, lethargy, myalgia, and no fever. They were treated on an outpatient basis and not hospitalized. These patients were not enrolled in the current report.

Moderate: Patients who have a fever (>38°C), pneumonia with less than 50% of pulmonary involvement, O_2 sat >93%, chill, cough, shortness of breath during activities, and sever myalgia which causes the patient to be reluctant be get out of bed. Thirty-three (16.5%) patients in our study belonged to this group.

Severe: Patients who have dyspnea, hypoxia, respiratory rate of 25 or more/min, O_2 sat <93%, and pneumonia with increasing pulmonary involvement which reached above 50% in the last 24–48 h; 139 (68.5%) patients belonged to this group in our study.

Critical: Patients who have breathing failure, shock, and multi-organ dysfunction; 28 (14%) patients belonged to this group in our study.

Death: Patients who die regardless of the previous classification. Twenty-two (10.8%) of our patients who were enrolled in this study died due to the complications of COVID-19.

Outcomes

We defined multiple situations as our outcome cutoffs, including secondary infections, shock, sepsis, decompensated heart failure (DHF)[31], acute tubular necrosis (ATN)[32], intensive care unit (ICU)[33] admission, intubation, coagulopathy, acidosis, and death, which are given in [Table 3].

Results showed that 83 (40.7%) patients had secondary infection, seven (3.4%) patients had shock, nine (4.4%) patients had sepsis, only one (0.5%) patient had DHF, two (1%) patients had ATN, 14 (6.9%) patients were admitted to the ICU, 23 (11.3%) patients were intubated, one (0.5%) patient had coagulopathy, one (0.5%) patient had acidosis, and 22 (10.8%) patients died due to COVID-19.

In the case of death as the outcome, the ratio was 9.8% in males and 12.2% in females and the difference between the two genders was not significant ($P = 0.594$). We also examined the rest of

31 Decompensated heart failure
32 Acute tubular necrosis
33 Intensive care unit

the outcomes by gender, which did not show significant gender predominance in any of the subjects.

Discussion

By the time that we write this manuscript, the prevalence of COVID-19 in the world is expanding rapidly, and WHO's definitive report as of May 24, 2020 shows that there are 5,165,481 confirmed cases and 336,430 deaths.[9] Regarding the WHO clinical guidance (Rev. March 20, 2020), 97.5% of the COVID-19 patients who develop symptoms will do so within 11.5 days of SARS-COV-2 infection.[14] Our data also show that 96.83% of our confirmed COVID-19 patients had shown symptoms at the time of admission, which is in accordance with the WHO clinical guidance.

Our data suggest that COVID-19 infects more males than females, which is in agreement with other reports.[12,16-22] The average age of our patients was 58.83 ± 15.93 years, which is lower than in other reports, suggesting that the Iranian population of lower age are in COVID-19's contamination age range.[17]

As shown in [Table 4], a large proportion of our patients had at least one underlying disease, of which diabetes mellitus (30.4%), hypertension (29.4%), and IHD (17.6%) had the most frequent incidence among others. It is noteworthy to mention that the patients with underlying pulmonary involvement were not at the top of the list. The rate of diabetes as an underlying disease was higher in our patients when compared to that in some other studies.[20–24]

Regarding the data presented in [Tables 5 and 6], about 15% of our patients gave a clue about their source of contamination (from their relatives or having a trip to the pandemic areas), while the remaining 85% had contracted the disease from unknown sources.

We have described the drug history of the patients in [Table 7], where antidiabetic medications and ARBs had the highest usage, among others. This result is similar to the past medical history of our patients, as shown in [Table 4]. This data suggests that patients with diabetes and hypertension are more prone to COVID-19.

Our data show that cough, shortness of breath, and fever were the most common symptoms that forced patients to refer to the hospital due to complaints. These can be considered as the main signs of patients with COVID-19, respectively. Furthermore, due to dyspnea, the mean respiratory rate was high among the COVID-19 patients and their pulse rate was higher than normal due to their fever.

Based on the data obtained from lung HRCT [Table 8], ground-glass opacity of all four lobes was found to be the most common pattern of lung involvement among COVID-19 patients, which is more common in COVID-19 compared to other viral types of pneumonia. Consolidation was the second most common pattern of lung involvement, which was found in two lung lobes in most of our patients.

Table 3: Outcomes (frequency)

Outcome	Total	Males	Females	*P*
Secondary infection	83 (40.7%)	42.6%	37.8%	0.492
Shock	7 (3.4%)	4.1%	2.4%	0.704
Sepsis	9 (4.4%)	4.1%	4.9%	0.709
ARDS	28 (13.7%)	13.1%	14.6%	0.757
DHF	1 (0.5%)	-	-	-
ATN	2 (1%)	-	-	-
ICU admission	14 (6.9%)	6.6%	7.3%	0.833
Intubation	23 (11.3%)	9.8%	13.4%	0.428
Coagulopathy	1 (0.5%)	-	-	-
Acidosis	1 (0.5%)	-	-	-
Death	22 (10.8%)	9.8%	12.2%	0.594

ARDS=acute respiratory distress syndrome, ATN=acute tubular necrosis, DHF=decompensated heart failure, ICU=intensive care unit

Table 4: Past medical history (frequency)

Characteristics	Frequency (%)
Diabetes mellitus	62 (30.4%)
IHD	36 (17.6%)
Hypertension	60 (29.4%)
Asthma	6 (2.9%)
Autoimmune disorder	5 (2.5%)
CKD	3 (1.5%)
Transplantation	1 (0.5%)
COPD	16 (7.8%)
Cerebrovascular disorders	3 (1.5%)
CNS disorders	2 (1%)
Hepatitis B	1 (0.5%)
HIV	0
Hypothyroidism	3 (1.5%)
Malignancy	8 (3.9%)

CNS=central nervous system, COPD=chronic obstructive pulmonary disease, HIV=human immunodeficiency virus, IHD=ischemic heart disease, CKD=chronic kidney disease

Table 5: Familial history (frequency)

Characteristics	Frequency (%)
Diabetes mellitus	9 (4.4%)
Hypertension	9 (4.4%)
IHD	4 (2%)
First-degree relative COVID-19 positive	10 (4.9%)
First-degree healthcare worker	6 (2.9%)
Second- and third-degree relative COVID-19 positive	5 (2.5%)

COVID=coronavirus disease, IHD=ischemic heart disease

Table 6: Social history (frequency)

Variable	Frequency (%)
Smoking	23 (11.3%)
Addiction	5 (2.5%)
Alcoholism	1 (0.5%)
A recent trip to COVID-19 pandemic areas	9 (4.4%)

COVID-19=coronavirus disease 2019

Furthermore, and as reported in other studies, pleural effusion and bronchiectasis were rare among COVID-19 cases. According to these results, as well as the results reported from other studies, peripheral grand-glass opacity is currently considered to be the most typical lung HRCT pattern in COVID-19.[12]

COVID-19 infection causes several complications in patients, which eventually manifest themselves in the form of outputs listed in [Table 3]. Our data show that secondary infection and ARDS were reported to be the most common outcomes of COVID-19. Accordingly, due to bacterial secondary infections, in addition to routine COVID-19 treatments, antibiotic treatments were started for all our patients. Antibiotic treatment was initiated with a combination of ceftriaxone and azithromycin, and in case of no improvement, broader-spectrum antibiotics (meropenem and vancomycin combination) replaced the initial regimen. As the routine treatment of COVID-19, we also administered a combination of hydroxychloroquine, oseltamivir, and KALETRA®.

According to data from [Table 9], it should be noted that the present study focused on hospitalized and critically ill patients, and patients with mild symptoms that were treated in an outpatient manner were not included in this study. For this reason, this study reports severe cases and deaths based on hospitalized patients only, which differs from the official morbidity and mortality statistics (which measures mortality based on the total population of patients and not just hospitalized ones).

Table 7: Drug history (frequency)

Variable	Frequency (%)
Angiotensin-converting enzyme inhibitors	10 (4.9%)
ARBs	26 (12.7%)
Oral antidiabetic drugs	57 (27.9%)
Injectable insulin	5 (2.4%)
Chemotherapy	4 (2%)
Prednisolone <15 mg/day	4 (2%)
Prednisolone 15-30 mg/day	1 (0.5%)
Anti-tumor necrosis factor	1 (0.5%)
Immunosuppressive agents	3 (1.5%)
Antibiotics	3 (1.5%)
Antifungal agents	1 (0.5%)
Non-steroidal anti-inflammatory drugs	4 (2%)

Table 8: Administered medications during hospitalization (frequency)

Variable	Frequency (%)
Hydroxychloroquine	200 (98%)
Oseltamivir	192 (94.1%)
KALETRA® (lopinavir/ritonavir)	197 (96.6%)
Ribavirin	4 (2%)
Corticosteroid	25 (12.3%)
Ceftriaxone + azithromycin	204 (100%)
Meropenem + vancomycin	83 (40.7%)

Table 9: Death and severity (frequency)

Characteristics	Frequency (%)
Mild	0
Moderate	33 (16.2%)
Severe	139 (68.1%)
Critical	28 (13.7%)
Death	22 (10.8%)

Data from [Table 1] show that 75.5% of our cases had lymphocytopenia at the time of admission. Results also show that the levels of LDH and CRP in COVID-19 patients were significantly higher than normal. Accordingly, we can use CRP and LDH along with lymphocytopenia as the diagnostic criteria of COVID-19.

Conclusion

Results from our study suggest that COVID-19 mostly puts elderly people in the state where they need to be hospitalized for closer care. Moreover, most of the patients who are in moderate

Table 10: Demographic data

Characteristics	Frequency (%)/Mean ± SD
Total number of patients	204
Males	122 (59.8%)
Females	82 (40.2%)
Age (years)	58.83±15.93
Males	58.03±16.17
Females	59.98±15.59

Table 11: Signs

Characteristics	Mean ± SD/Frequency (%)
Vital signs	
Pulse rate	94.99±15.92/min
Respiratory rate	25.50±6.74/min
Systolic blood pressure	127.12±17.83 mmHg
Diastolic blood pressure	85.23±4.76 mmHg
Axillary temperature	37.70°C±0.69°C
Signs and symptoms (frequency)	
Fever	147 (72.1%)
Dyspnea	174 (85.3%)
Nausea/vomiting	37 (18.1%)
Cough	186 (91.2%)
Diarrhea	29 (14.2%)
Conjunctivitis	2 (1%)
Myalgia	101 (49.5%)
Arthralgia	27 (13.2%)
Weakness	96 (47.1%)
Abdominal pain	7 (3.4%)
Seizure	1 (0.5%)
Headache	31 (15.2%)
Sore throat	22 (10.8%)
Chills	46 (22.5%)
Loss of odor	17 (8.3%)
Fatigue	56 (27.5%)
Confusion	5 (2.5%)
Rhinorrhea	4 (2%)

Table 12: Venous blood gas

Variable	Mean ± SD
pH	7.37±0.5
pO_2	32.83±9.36
pCO_2	39.34±7.86
HCO_3	25.51±4.87

and higher states of the disease, have a background condition such as diabetes and hypertension. While COVID-19 is a respiratory disorder, the patients with pulmonary involvement are not on the top of the list, which shows that while COVID-19 is classified as a respiratory disorder, it is mostly affecting other organs, and therefore leads to multiple systemic outputs. Results show that a large majority of subjects had got infected with the disease from an unknown source, which demonstrates public care as an important first-line solution. Based on our data, cough, shortness of breath, and fever are the most common signs of COVID-19 patients at the beginning, where these signs are not specific and are the most iconic symptoms of nearly all types of influenza. Therefore, with such similarity, early differentiation between influenza and COVID-19 based on symptoms is so hard, which can cause a lot of confusion in the timely diagnosis of this disease. Based on our data, a combination of laboratory tests and lung HRCT can lead to a nearly accurate diagnosis of this disease, where high levels of CRP and some absolute manifestations on HRCT have been seen in nearly all subjects.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Acknowledgments

We thank all personnel of Imam Reza and Ghaem hospitals for their kind cooperation in collecting data and Mashhad University of Medical Sciences for funding support.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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