Socio-clinical Characteristics of COVID-19 Pandemic in Anbar Governorate, Iraq

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Abstract

Background: The pandemic COVID-19 disease has a massive impact on the whole world. There is a variation in clinical symptoms in different countries. In addition, there is a wide range of symptoms that involve most of the systems in the body including the respiratory system. However, there is no classical presentation of this devastating disease.

Objective: To describe the socio-demographic and clinical characteristics of hospitalized and non-hospitalized patients with confirmed COVID-19 infection in Anbar Governorate, Iraq.

Patients and Methods: This retrospective study was conducted in Anbar Governorate, Iraq. The study covered the period from 1st of May to 30th of June 2020. All cases were confirmed by Real-time polymerase chain reaction. Data concerning the age, gender, residence, occupation, clinical symptoms, smoking, history of systemic diseases, and the fate of the disease were collected from patients' records.

Results: Out of 481 patients, there were 259 males (53.8%). The age ranged from 12–104 years with a mean age of 45.7 ±16.11. The majority of the subjects were in the age group 36-58 years (n=204; 42.4%), urban (n=318; 66.1%), non-healthcare worker (n=447; 92.9%), and non-smoker (n=440; 91.5%). The main complaint was fever (n=300; 64.2%). The mortality rate was 5.6% (n=27). The increasing age, male gender, and patients with a history of systemic illnesses showed an increased impact on the death rate (P-value<0.05). While residence, occupation, and smoking didn't show a statistically significant difference (P-value>0.05).

Conclusion: The fatality rate was 5.6%. Fever was the main feature of the COVID-19 infection. The elderly, males, and individuals with systemic diseases showed higher mortality rate.

Introduction

COVID-19 is a global pandemic that has affected millions and killed hundreds of thousands of people around the world. It occurs due to a SARS-Cov-2 [1]. Data provided by the WHO Health Emergency Dashboard reported 8,794,337 confirmed cases of COVID-19, including 464,510 global deaths with a 5.28% fatality rate. (as of 11:32 am, 21 June 2020) [2].

The high incidence of COVID-19 in Iraq, particularly in Anbar Governorate, was alarming especially during June 2020. According to the WHO, confirmed cases of COVID-19 in Iraq was 29,222, including 1,013 deaths with a 3.47% fatality rate. (as of 11:32 am, 21 June 2020) [2]

There is a variation in the clinical symptoms [1][2]. However, the most frequent signs of COVID-19 include fever, dry cough, and tiredness. Less frequent signs include aches with pains, nasal congestion with headache, conjunctivitis, sore throat, and diarrhea. Some patients may suffer from loss of taste or smell, and skin rash with fingers or toes discoloration. These sings arise gradually and usually mild and sometime very mild to moderate [2][3].

About 80% of COVID-19 patients recover without the need for hospital help. However, about 1 in 5 people who have COVID-19 become seriously ill and have difficulty in breathing. The elderly and people with chronic diseases such as heart and lung problems, diabetes, cancer, and high blood pressure are more likely to develop severe COVID-19 disease. In fact, this is not a rule as anyone outside of these groups can get seriously ill with COVID-19. COVID-19 patients of all ages who suffer from symptoms of fever and/or cough accompanied by shortness of breath, with or without chest pain should request immediate medical attention [1][2][3].

Understanding the clinical characteristics of COVID-19 can help define the epidemiological map of this disease in Anbar Governorate, guide future management, and identify the people and age groups most susceptible to infection. In addition, the determination of clinical symptoms of COVID-19 can help differentiate this disease from other viral-pulmonary diseases. Our current study focused on describing demographic data, clinical characteristics, and outcome of COVID-19.

Patients And Methods

This retrospective study was conducted in Anbar Governorate, Iraq. The study covered the period from 1st of May to 30th of June 2020. All cases of COVID-19 were confirmed by Real-time PCR. Any patient with complete data in his or her case sheet was enrolled in this study. Patients with incomplete data were excluded from the study. The PCR swabs of the oropharyngeal and nasopharyngeal were tested at the central lab of Anbar Health Directorate, Iraq for the coronavirus using the RealLine Pathogen Diagnostic Kits (RealLine Prep NA for SARS-Cov-2, BioRON Diagnostics GmbH). Data concerning the age, gender, residence, occupation, clinical signs, smoking, history of systemic diseases, and the fate of the disease were recorded. COVID-19 diagnosis were depending on the WHO interim guidance for COVID-19 [2]. A retrospective study of the socio-clinical characteristics and outcome in COVID-19 were done. The Real-time PCR technique was used for detection of SARS-Cov-2 responsible for COVID-19 in oropharyngeal and nasopharyngeal swabs. The study was approved by the Ethical Approval Committee of the University of Anbar (reference number 9, 25-1-2021).

IBM SPSS Statistics version 25 was used for statistical analysis. A P-value < 0.05 was considered statistically significant. Clinical symptoms with demographic data rate and fate were presented as number and percentage of occurrence among the cases.

Results

Among the 490 COVID-19-confirmed patients, 481 cases with complete data were included in the study. Age ranged from 12–104 years with a mean age 45.16 ± 16.106. There were 259 males (53.8%). The majority of the subjects were from the age group 36–58 years 204 (42.4%), urban 318 (66.1%), non-health-care worker 447 (92.9%), and non-smoker 440 (91.5%) (Table 1).

Table 1
Socio-demographic data of the 481 COVID-19 Patients.

Character	Number/%
Gender	
Male	259 (53.8)
Female	222 (46.2)
Total	481 (100)
Age groups (years)	
≤ 35	165 (34.3)
36–58	204 (42.4)
≥ 59	112 (22.3)
Total	481 (100)
Residence	
Urban	318 (66.1)
Rural	163 (33.9)
Total	481 (100)
Occupation	
Health Care worker	34 (7.1)
Non-Health Care worker	447 (92.9)
Total	481 (100)
Smoking	
Smoker	41 (8.5)
Non-smoker	440 (91.5)
Total	481 (100)

The most common symptom was fever 300 (64.2%) and the least skin rash 3 (0.6%) (Table 2).

Table 2
Clinical symptoms frequency of the 481 COVID-19 Patients.

Symptom	Number/%
Fever	300 (64.2%)
Fatigue	198 (42.4%)
Cough	197 (42.2%)
Anosmia	180 (38.5%)
Aguesia	157 (33.6%)
Dyspnea	138 (29.6%)
Myalgia	122 (26.1%)
Sore throat	61 (13.1%)
Headache	61 (13.1%)
Abdominal Pain	49 (10.5%)
Diarrhea	35 (7.5%)
Nasal obstruction	12 (2.6%)
Skin rash	3 (0.6%)

The mortality rate was 5.6% (n = 27 cases). The death rate was mostly in the age group ≥ 59 (n = 17, 15.2%) and in male gender (n = 20, 7.7%). Besides, there was a statistical significant difference between the mortality rate and the age, male gender, and patients with a history of comorbidities like obstructive lung diseases, hypertension, diabetic mellitus, ischemic heart diseases, heart failure, and stroke (P-value > 0.05) (Table 3).

Table 3
Fate of the 481 COVID-19 Patients depending on Socio-demographic data.

Character		Fate		Total	P-value
		Recovery (N/%)	**Death (N/%)**		
Gender	Male	239 (92.3%)	20 (7.7%)	259 (100.0%)	**0.023**
	Female	215 (96.8%)	7 (3.2%)	222 (100.0%)	
	Total	454 (94.4%)	27 (5.6%)	481 (100.0%)	
Age groups	≤ 35	163 (98.8%)	2 (1.2%)	165(100.0%)	**0.000**
	36–58	196 (96.1%)	8 (3.9%)	204 (100.0%)	
	≥ 59	95 (84.8%)	17 (15.2%)	112 (100.0%)	
	Total	454 (94.4%)	27 (5.6%)	481(100.0%)	
Residence	Urban	303 (95.3%)	15 (4.7%)	318 (100.0%)	0.162
	Rural	151 (92.6%)	12 (7.4%)	163 (100.0%)	
	Total	454 (94.4%)	27 (5.6%)	481 (100.0%)	
Occupation	Health Care worker	33 (97.1%)	1 (2.9%)	34 (100.0%)	0.711
	Non-Health Care worker	421 (94.2%)	26 (5.8%)	447 (100.0%)	
	Total	454 (94.4%)	27 (5.6%)	481 (100.0%)	
Smoking	Smoker	40 (97.6%)	1 (2.4%)	41 (100.0%)	0.309
	Non-smoker	414 (94.1%)	26 (5.9%)	440 ((100.0%)	
	Total	454 (94.4%)	27 (5.6%)	481 (100.0%)	
Comorbidities	Without	377 (97.7%)	9 (2.3%)	386 (100.0%)	**0.000**
	With	77 (81.1%)	18 (18.9%)	95 (100.0%)	
	Total	454 (94.4%)	27 (5.6%)	481 (100.0%)	

Discussion

COVID-19 is a rapidly evolving public health emergency which disrupted all aspect of humans life. The rapid spread of the COVID-19 has left the world often unprepared to combat this pandemic. Socio-clinical characteristics and mortality rate of the COVID-19 outbreak were described during current study. Mean age of COVID-19 patients was 45 years old compared with the international mean age 47–62 [4][5]. This

variation in the mean age of the COVID-19 disease may be due to the difference in the inclusion criteria and the age group of patients included in the previous studies, however all age groups may be included in the COVID-19 infection, including children under 12 years of age and the elderly who reach the age of 104 as shown by our current study.

Males COVID-19 patients were affected slightly more frequently than females (53.8% vs 46.2%). As compared with other studies, a larger number of COVID-19 males patients (60%) were detected [6] and also similar to the previous studies that showed males predominant [4][7][8]. Previous studies related to previous coronavirus outbreaks, which include severe acute respiratory syndrome (SARS) and middle east respiratory syndrome (MERS), have shown that male patients are the most dominant

[9][10]. The reason for low susceptibility of the females to viral infection may be the strong immune response in females, which weakens the viral infection [11].

Most common three symptoms in our patients were fever (64.2%), fatigue (42.4%), and cough (42.2%). However, gastrointestinal tract manifestations were uncommon and these were consistent with a previous study [12]. These symptoms were consistent with previous studies [4][13] and it was in concordance to findings of other kinds of literature [14][15]. On the other hand, we found ear, nose, and throat symptoms as anosmia (38.5%) and aguesia (33.6%) in all cases, and these symptoms were observed in several studies [16][17]. Patients with a mild infection may show only slight fatigue and no fever and this was in agreement with a previous study [18]. Interestingly, in a prior study there were 4 COVID-19 patients (26.7%) exhibited smell and taste disorders [19]. The current result was similar with the COVID-19 patients in Italy, where 33.9% of them showed either an abnormal smell or taste [20], This means that smell and taste disorders can be a useful diagnostic guide in the COVID-19 outbreak, although it is present in many viral diseases.

The mortality rate was 5.6% during our study and this result was higher than the result of the Chinese Centers for Disease Control who showed that the mortality rate was 2.3% [3]. The difference between the two studies is due to the big difference between the numbers of patients between the two studies. Besides, the mortality rate was higher than a study from Saudi Arabia, which reported a 1% [8]. This difference may be attributed to differences in the follow-up period and there was a considerable patients (9.3%) of the Saudi Arabia study were asymptomatic while in our study all the studied patients were symptomatic. However, COVID-19 outbreak mortality rate in the world is much lower than 10% and 30% mortality rate respectively for SARS and MERS [21][22]. The mortality rate during the current study was less than the mortality rate during the previous study which showed a comparatively high COVID-19 mortality rate approximately 14.1% [23]. This is partly due to the admission of large numbers of patients with a critical condition from COVID-19, who was admitted to Tongji Hospital with limited medical resources with the onset of the COVID-19 pandemic outbreak. Our results appear to be different from another study in Beijing [24] where all of the patients recovered. Regarding the rate of critical cases and higher mortality mentioned in this previous research compared to the lower death rate in our current study, this is partly due to the admission of large numbers of patients suffering from a critical condition

of COVID-19, who were admitted to China Hospital with limited medical resources at the beginning. This is an epidemic as it tends to introduce only critical cases to hospitals in China [7][14][25].

Health-care workers are exposed to COVID-19 more than other population while providing health and medical services to patients [26]. This confirms what our study and other similar studies have found that early screening of those workers to avoid transmission of the infection and preserve health-care workers [8][23]. However, the source of infection cannot determine whether it is from the community or the hospitals outbreaks [8].

Males were more predominant than females in COVID-19 patients who died compared with those who recovered and there was a significant difference in fatality rate between males and females of COVID-19 patients during our study (P-value = 0.023). This result was in agreement with the results reported by previous studies [3][14] which showed that the fatality rate for confirmed COVID-19 cases was appeared to be more frequent in male than in COVID-19 female patients, as there is an increase in the risk of death rate with age in both sexes.

Age group ≥ 59 years was more predominant than other age groups among deceased patients than recovered patients (P-value = 0.000). This result was in agreement with the results reported by Wu et al. study [27] who showed that the more frequent rate was in COVID-19 patients aged 80 and above. As the younger patients have a strong immune response and they have no risk factors. Many previous studies have shown that the COVID-19 outbreak has a more complex and deep course in elderly patients, especially those who suffer from comorbidities accompanied by a weak immune response [6][14].

To note, transmission of the infection is more in crowded (urban areas) than relatively less crowded areas. However, there was no statistically significant difference in fatality rate between urban and rural COVID-19 patients during our study (P-value = 0.162). This result was in agreement with the results reported by previous studies [3] [25].

No statistically significant difference in the death rate between health-care and non-healthcare workers of COVOD-19 patients during the current study (P-value = 0.801) and this result was in agreement with the results reported by prior study [3]. Notably, health-care workers were possible to have a better outcome, which is in agreement with previous study that showed low fatality rate (0.3%) registered in health-care workers COVID-19 patients [28].

No statistically significant difference in fatality rate between smokers and non-smokers of COVID-19 patients during the study (P-value = 0.356). This result was in agreement with the results reported by Chen et al. study [3] but in disagreement with the previous meta-analysis that showed the risk of smoking on the severity of COVID-19 infection [29].

Patients with comorbidities were more predominant than patients without history of comorbidities among deceased patients than recovered patients (P-value = 0.000). This result was in agreement with the

previous studies [3][30] which reported that the comorbidities were strongly associated with the fatality of COVID-19 patients.

These results will enrich the information provided about this epidemic and this will be reflected in helping to improve recovery outcomes and reduce the mortality rate. However, the main current study limitation was the small sample size.

In conclusion, the mortality rate was 5.6%. Fever, fatigue, and cough were the main symptoms of the COVID-19 disease. Old age, males, and subjects with history of systemic diseases increase the fatality rate.

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