

Characteristics and Outcomes of COVID 19 Patients in Kirkuk City, Iraq

Tunjai Namiq Faiq¹, Ozdan Akram Ghareeb², Mohammad Fraidon Fadhel³

¹Consultant Otolaryngologist, Kirkuk General Hospital, Kirkuk Health Directorate, Iraq.

²Assistant Lecturer , Department of Community Health Techniques, Technical Institute of Kirkuk, Northern Technical University, Iraq.³Pharmacist, Kirkuk General Hospital , Kirkuk Health Directorate, Iraq

Abstract

The pandemic Coronavirus (Covid-19) is a universal communal health emergency, with millions of infections and lots of mortality globally. Statistics concerning the clinical sequence of hospitalized, discharged and deceased patients are needed. Demographic, clinical features, and outcome statistics for patients who were referred to the hospital designated to receive pandemic patients in Kirkuk governorate, which is affiliated with the Kirkuk Health Directorate, between October 1 and December 30, 2020, were determined through records related to online institutional health. We conducted a cross sectional study of patients who were discharged alive or died in hospital. Of the 450 patients who were admitted to hospital and within the duration of the study, the overall death rate was 3.1% and 96.9% were discharged alive. In those who died, the percentage of men was 2.2%, and in females 0.9%, the percentage for geographical area was 2.2% for districts and sub-districts, and the percentage of Unemployed was 4, 2%. It was concluded that the infection in men are more, especially those over the age of 61 years of them and those who have other comorbidities such as high blood pressure, heart diseases and diabetes.

Keywords: *Pandemic, Covid-19, patients, comorbidity.*

Introduction

(SARS Severe acute respiratory syndrome coronavirus 2 CoV- 2) causes Coronavirus Disease 2019 (COVID-19) ⁽¹⁾, which was the first person registered with it in Wuhan; China in Dec. 2019. It is the seventh coronavirus that affects humans and can cause multiple infections of the of the body's organs ⁽²⁻⁴⁾. The World Health Organization (WHO) described the ongoing outbreak as a pandemic ⁽⁵⁾. On February 22, 2020, the first reported case of COVID 19 infection in Iraq was for an Iranian student in the city of Najaf, followed by four members of one family from Kirkuk Governorate in Iraq who had recently returned from Iran. Then the reporting of cases escalated to include almost all Iraqi provinces ⁽⁶⁾. Most patients undergo minor complications and a good prognosis ⁽⁷⁾. Few of the patients had developed acute pneumonia, pulmonary edema, acute respiratory distress syndrome, or the dysfunction of many organs and consequently died ^(8,9). The aim of our cross sectional study was to describe demographics, features, and results among patients with COVID-19 admitted to hospital in Kirkuk governorate.

Methods

Study population & data collection

In this descriptive cross-sectional study, patient data came from Kirkuk General Hospital located in Kirkuk governorate center in northern Iraq. We sampled 450 patients whose ages are between 31 years old, having Covid-19 infection which is laboratory-confirmed. Between October 1 and December 30, 2020, they were admitted to the above-mentioned hospital (time of data freeze). A reverse-polymerase chain reaction (RT-PCR) assay of a sample obtained by a nasopharyngeal swab was used to assess the reported case of Covid-19. The Directorate of Health ratified this research under a supervisory protocol that allows for analysis of restricted data at the patient level. The data set was obtained from the General Kirkuk Hospital. We obtained demographics, plus clinical features during the hospitalization. Demographics included age and gender, as well as geographic area and occupational status in the electronic health records (EHRs). The group of geographical areas included the governorate center or (districts and sub-districts). The occupational status group included a known or unknown employee. All clinical characteristics were gathered as part of the recommended clinical treatment. To summarise the results, we used descriptive statistics. Categorical variables were summarized as numbers and percentages. Analysis was performed using chi square.

Results

Of the total patients having Covid 19 were referred to Kirkuk General Hospital in the city, we took 450 patients from them to conduct this study on them after obtaining approval and permission from the Kirkuk Health Directorate. Table No. 1 shows the numbers and percentages of patients included in the study who were admitted to the hospital during the three months extending from October 1 to December 30, 2020.

Table (1): Proportions of Covid-19 patients in hospital during the three months, depending on those who died in hospital against those discharged alive.

Months	Patients who were discharged alive	Patients who died in hospital	P value
October	144 (96%)	6 (4%)	0.597
November	145 (96.7%)	5 (3.3%)	
December	147 (98%)	3 (2%)	
Total (450)	436 (96.9 %)	14 (3.1%)	

Outcomes of hospitalized patients

Baseline characteristics are shown below only for patients who completed the course in hospital. A total of 450 Covid-19 hospitalizations were confirmed as patients who had completed their

course in hospital (dead or discharged alive) by the date of the data freeze at the end of the study. Of these, 463 (96.9%) were discharged and 14 (3.1%) died in the hospital. As presented in table (2).

Table (2): Baseline features of patients having hospitalized Covid-19 by in-hospital deaths versus those discharged alive (N = 450)

Baseline Characteristics		Outcomes of in-hospital patients		Total 450 (100%)	P value
		Patients who were discharged alive 436 (96.9 %)	Patients who dead in hospital 14 (3.1%)		
Gender	Male	285(63.3%)	10 (2.2%)	295(65.6%)	0.638
	Female	151 (33.6%)	4 (0.9%)	155(34.4%)	
Age group	31-40	7 (1.6%)	0 (0.0%)	7 (1.6%)	0.006
	41-50	26 (5.8%)	0 (0.0%)	26 (5.8%)	
	51-60	77 (17.1%)	1(0.2%)	78 (17.3%)	
	61-70	138 (30.7%)	1(0.2%)	139 (30.9%)	
	71-80	139 (30.9%)	6 (1.3%)	145 (32.2%)	
	81-90	49 (10.9%)	6 (1.3%)	55 (12.2%)	
Geographic Area	Districts or sub-districts	243 (54.0%)	10 (2.2%)	253 (56.2%)	0.244
	Governorate center	193 (42.9%)	4 (0.9%)	197 (43.8%)	
Employed or not	Employee	37(8.2%)	3(0.7%)	40 (8.9%)	0.094
	Otherwise	399 (88.7%)	11(4.2%)	410 (91.1%)	
Comorbidity	HYP	84 (18.7%)	3 (0.7%)	67 (19.3%)	<0.001
	HD	64 (14.2%)	3 (0.7%)	8 (14.9%)	
	DM	50 (11.1%)	2 (0.4%)	52 (11.6%)	
	RD	24 (5.3%)	1 (0.2%)	25 (5.6%)	
	CAN	0 (0.0%)	1 (0.2%)	1 (0.2%)	
	MIX	16 (3.6%)	3 (0.7%)	19 (4.2%)	
	NONE	198 (44.0%)	1 (0.2%)	199 (44.2%)	
Note : HYP=Hypertension , HD= Heart Diseases , DM= Diabetes Mellitus, RD=Renal Diseases, CAN=Cancer, MIX=Mixed					

The highest proportions of patients were male (65.6%), (56.2%) were residents of the districts and sub-districts, (91.1%) were not employees .The lowest percentage of patients admitted to hospital was in the age group (32-40), and it was also the lowest in the death rate, as was the age group (42-50).While The highest percentage of the dead was for those over the age of 71, compared to those who were cured and discharged from the hospital. Of those who died, 0.7%

had high blood pressure, the same percentage had heart diseases and mixed diseases, while 0.4% had diabetes mellitus, and 0.2% had both cancer and chronic kidney diseases.

Clinical features of admission for patients who have accomplished the hospital progress are shown in table (3), stratified by outcomes. Those with a fever were (92.1%), dry cough (88.9%), fatigue (81.6%), sore throat (64.9%), rhinorrhea (61.3%), loss of sense of smell and taste (83%), dyspnea (32.2%), pleuritic chest pain (12.2%), and diarrhea (22.9%) .

Table (3): Selected clinical features for in-hospital COVID-19 patients are divided according to mortality and hospital discharges.

Clinical Features	Total 450 (100%)	Outcomes of in-hospital patients	
		Patients who were discharged alive N=436	Patients who died in hospital N=14
Fever	410 (91.1%)	396	14
Dry Cough	400 (88.9 %)	386	14
Fatigue	381 (86%)	368	13
Sore Throat	292 (64.9%)	281	11
Rhinorrhea	276 (61.3%)	266	10
Loss of sense of smell & taste	375 (83.3%)	363	12
Dyspnea	145 (32.2%)	131	14
Pleuritic chest pain	55 (12.2%)	42	13
Diarrhea	103(22.9%)	101	2

Discussion

In this study, we noticed that male were more than female in 450 cases of COVID-19 infection. It was also found in the SARS Cov and MERS CoV ^(10, 11). This It may be due to the X chromosome as well as sex hormones, which are important in innate and adaptive immunity⁽¹²⁾. Also, the men showed a high level of ACE 2 receptors, which can increase the likelihood of infection and mortality rates ⁽¹³⁾. Based on results by our research, it is indicated that elder adult males having chronic diseases are more likely to be infected by COVID-19 due to impaired immune function in these patients ⁽¹⁴⁾. Aging and co-morbidity may be associated with increased mortality. Giving antibiotics quickly to prevent infection and strengthening immunosuppressive therapy may reduce complications and deaths ^(15, 16). The attributes of the patients who died were generally consistent with a previous study's early warning model for estimating viral pneumonia mortality specifically with respect to age and comorbidities ⁽¹⁷⁾. Furthermore, about more than half of the patients have chronic underlying diseases, mostly cardiovascular and diabetes. This is comparable to MERS-CoV ⁽¹⁸⁾. COVID-19 binds to angiotensin converting enzyme 2 (ACE2) to penetrate cells. Angiotensin converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) increase the level of angiotensin converting enzyme (ACE) and thus can

increase COVID-19 infection. As for diabetes, it leads to impaired immune function in these patients ⁽¹⁹⁾. As for the clinical signs, fever, dry cough, fatigue, and runny nose are common symptoms of a viral respiratory infection. However, muscle pain, sore throat, nausea, vomiting, and diarrhea may indicate a more specific infection ⁽²⁰⁾. Inability to smell and taste was identified in a previous study as one of the most predictive symptoms of COVID-19 infection ⁽²¹⁾. Dyspnea was a common symptom in this study in 44.3% of patients, and it is more closely related to disease severity. It is often higher in COVID-19 patients who develop acute respiratory distress and have the worst clinical outcomes ^(22,23).

Conclusion

In conclusion, infection with the COVID-19 virus was more likely in elder males with comorbidities such as high blood pressure, heart disease and diabetes, and led to acute and even deadly cases.

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