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Characteristic Features of Hospitalized Covid-19 Patients in Al-Dejail Hospital Region

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ABSTRACT

Background: Covid-19 has been one of the affected countries during the pandemic from February 2020. The majority of published research have shown the demographic and clinical features of Covid-19 patients in various parts of Iraq, but not in Al-Dejail district, Salah Alden Governorate. The baseline and clinical features of hospitalized COVID-19 patients hospitalized are described below.

Methods: This is a cross-sectional study in Al-Dejail Emergency and Maternity Hospital from February 2020 until July 2020. Review of 100 admitted patients to the emergency unit was done and, the demographic and clinical manifestations was reported in patients with COVID-19 infection. The patients in this study were split into two groups: mild to moderate cases (percent) and severe to critically sick cases (78 percent). In accordance, a comparative analysis of all reported characteristics is performed.

Results: The patients' mean age was 52.25±13.9 years, with 46-55 years being the most frequent age group. In terms of gender, smoking, or job, there was no statistically significant difference between the mild-moderate and seriously to critically ill groups ($p > 0.05$). Fever (84 percent), cough (82 percent), dyspnea (88 percent), and GIT symptoms were the most prevalent symptoms among the hospitalized patients. Except for obesity, diabetes, and CT results, there were no significant changes in clinical characteristics, co morbidities, or clinical outcomes between moderate and severe patients.

Conclusions:

The majority of COVID-19 patients were symptomatic and were older than previous reports ranges between 46 and 55 years. Obesity and diabetes mellitus were discovered to be strongly associated to the progression and severity of illness.

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BACKGROUD:

A novel coronavirus, which was initially named 2019 novel coronavirus (2019-nCov), and later renamed as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), this disease was named Coronavirus Disease 2019 (COVID-19) by the World Health Organization (WHO) [1]. COVID-19 was discovered in Iraq in January 2020, and the first coronavirus infection was confirmed in an Iranian student in the city of Najaf on 22 February 2020. Later the infections have been steadily increasing till it spread all over Iraq including Al-Dejail district [2]. According to World health organization (WHO) reports, there have been 1,939,408 confirmed cases of COVID-19 with 21,333 fatalities [3].

Coronavirus is now one of the most common viruses that affects people's respiratory systems [4]. However, Coronaviruses have been also diagnosed in animals and can cause a range of severe diseases such as gastroenteritis and pneumonia [5] Fever, exhaustion, loss of smell, lack of appetite, muscle pain, dry cough, productive cough, and shortness of breath are the most prevalent symptoms [6]. The majority of cases result in mild symptoms, some progress to viral pneumonia and multi-organ failure [7]. The WHO's standard criteria were used to classify suspect, probable, and confirmed cases [8]. The gold standard for diagnosing COVID-19 infection is to use real-time reverse transcription polymerase chain reaction (RT-PCR) methods on respiratory tract material [9]. however, the computed tomography (CT) scan has also an essential rule in diagnosis and disease staging, especially it is now widely available and fast [10]. At present, there are no reports to in Al - Dejail district in Salah Alden Governorate in Iraq date in the literature that describes the clinical features of hospitalized patients infected with COVID-19.

Aim of the study: To signifies the most critical characteristics of patients with COVID-19 infection with respect to disease severity in Al -Dejail district in Iraq.

METHODS:

The ethical committee of our local institutional review board authorized this cross-sectional study , and all study participants gave written informed and spoken permission. In the situation that the patients were unable to offer informed permission, it was obtained from their family or the admitting physicians who cared for them. From February 2021, until July 2021, the clinical information of COVID-19 patients hospitalized in the emergency departments of Al – Dejail hospital was collected. Data was summarized, including disease course, age, sex, epidemiological history, underlying comorbidities, clinical symptoms, disease period, and method of diagnosis including RT- PCR tests or chest CT. All recovered patients were followed up two-month post discharge for clinical outcomes and or residual symptoms. A sum of 100 COVID-19 patients were recruited for the study, in which we divided these cases into two groups including 13 mild to moderate cases (13%) and 87 severe to critically ill cases (78%).

Inclusion criteria were (a) fever and respiratory symptoms, such as cough, and dyspnea; (b) mild respiratory symptoms and close contact with a person with confirmed COVID-19 infection; and (c) a positive naso or oropharyngeal swabs.

Exclusion criteria were patients with already existing chronic lung diseases

COVID-19 is diagnosed using the Diagnostic and Therapeutic Program of Novel Coronavirus Pneumonia (6th Version for Trial Implementation) diagnostic criteria [10]. The following are the specifics:

Type 1: mild type (The clinical symptoms are minor, and there is no

evidence of pneumonia on imaging.) Moderate type (Clinical symptoms include fever and respiratory tract symptoms, and pneumonia is observed on imaging). Severe type (According to the following criteria: respiratory distress is defined as an oxygen saturation of ≤ 93 percent at rest, a respiratory rate ≥ 30 breaths per minute, and an arterial blood oxygen partial pressure/ oxygen concentration ≤ 300 mmHg (1 mmHg = 0.133 kPa), with pulmonary changes dramatically progressed > 50 percent within 24–48 h on lung imaging and when patients considered severe during management and treatment. Critical type (Under one of the following criteria: Shock, respiratory failure requiring ventilatory support, and concomitant failure of other organs necessitating intensive care unit (ICU) monitoring and treatment.)

Statistical analysis:

For data analysis, the statistical package for social sciences SPSS software (version 26) was applied. Descriptive data analysis included calculation of frequencies, percentages, means and standard deviations (SD). When the expected count of more than 20% of the cell is less than 5, the Chi-square test was used to compare the proportions, and Fisher's exact test was used when the expected count of more than 20% of the cell is less than 5. To compare the means of two groups (e.g mild-moderate group and sever-critically ill group), a student t test for two independent samples was utilized. *P* value of less than 0.05 was considered as statistically significant.

RESULTS:

One of the exclusion criteria resulted in the elimination of ten individuals from the study. A total of 100 patients, ranging in age from 20 to 80 years, with mean age of 52.25 ±13.9 years were included in the research. The severe to critically ill group showed significantly higher mean age (53.62 ±

13.02) than the mild to moderate group (p = 0.01).

Table (1) summarizes the baseline characteristics of all COVID-19 participants. The most common age group (28%) was 46 -55, while the least affected patients were under 25 years old. Among all age groups, there was statistically significant difference between the mild-moderate severity and severe-critically ill patients (P = 0.007). Results also showed 63 patients (63%) were males, 37 patients (37%) were females. Among occupation, non-employees (housewives) were the most common affected group (32%), next were the salesman (21%). The proportions of smokers among covid patients were less than 25%.

In term of severity comparison, the gender, weight, occupation, and smoking, all showed no statistically significant difference between the two groups (p > 0.05). Considering days of hospitalization, results showed significant difference between mild to moderate group and sever to critically ill patients (p = 0.007). The illness course, on the other hand, does not reveal a statistically significant difference between the two groups (p = 0.096).

Regarding **comorbidities**, diabetes mellitus (DM) and hypertension (HT) where the most common chronic disease in covid patients, and half of patients showed obesity (50 %). Both obesity and DM were significantly seen in severe to critically ill patients (p= 0.003, p =0.037). Rest of comorbidities including cardiovascular diseases (CVD), cerebrovascular accidents (CVA) and asthma were less common and showed no statistical difference between the two groups (p = 1.000).

Table1 Baseline characteristics and underlying comorbidities of COVID-19 patients

Basic Characteristics		Total (%) (n = 100	Mild to moderate type (n = 13)	Severe to critically ill type (n = 87)	P value
Age (mean)		52.25 ±13.87	43.07 ± 16.38	53.62 ± 13.02	0.01
Age group in years					
under 25		2 (2%)	2 (15.4%)	0 (0.0%)	0.007*
26-35		9 (9 %)	2 (15.4%)	7 (8.0%)	
36-45		22 (22%)	5 (38.5%)	17 (19.5%)	
46-55		28 (28%)	1 (7.7%)	27 (31.0%)	
56-65		20 (20 %)	1 (7.7%)	19 (21.8%)	
66 and older		19 (19 %)	2 (15.4%)	17 (19.5%)	
Gender					
Male		63 (63%)	6 (46.2%)	57 (65.5%)	0.222*
Female		37 (37 %)	7 (53.8%)	30 (34.5%)	
Epidemiological history	**Occupation**				
	teacher	6 (6%)	0 (0%)	6 (6.9%)	0.648*
	military	14 (14%)	4 (30.8)	10 (11.5%)	
	employee	14 (14%)	1 (7.7%)	13 (4.9%)	
	housewife	32 (32%)	5 (38.5%)	27 (31.0%)	
	retired	12 (12%)	1 (7.7%)	11 (12.6%)	
	driver	1 (1%)	0 (0%)	1 (1.1%)	
	salesman	21 (21%)	2 (15.4%)	19 (21.8%)	
	Smoker	24 (24%)	3 (12.5%)	21 87.5%)	1.000*
	Days of hospitalization				
	< 3	47 (47%)	11 (84.6%)	36 (41.4%)	0.007
	3 - 7	41 (41%)	2 (15.4%)	39 (88.8%)	
	> 7	12 (12%)	0 (0.0%)	12 (13.8%)	
	Comorbidities				
	Obesity	50 (50%)	12 (92.3%)	38 (43.7%)	0.003*
	DM	43 (43%)	2 (15.4%)	41 (47.1%)	0.037
	HT	39 (39%)	4 (30.8%)	35 (40.2%)	0.561
	Cardiovascular	12 (12%)	1 (7.7%)	11 (12.6%)	1.000*
	diseases	4 (4%)	0 (0%)	4 (4.6%)	1.000*
	cerebrovascular	4 (4%)	0 (0%)	4 (4.6%)	1.000*
	disease Asthma				
Disease course (days)					
< 11		9 (9%)	3 (23.1%)	6 (6.9%)	0.096*
11-20		61 (61%)	8 (61.5%)	53 (60.9%)	
> 20		30 (30%)	2 (15.4%)	28 (32.2%)	

Indicated Fisher's Exact Test *

Clinical features of admission for patients who have accomplished the hospital progress are shown in **Table (2),** stratified by disease severity. Positive PCR was reported in 79% of cases and showed no difference between groups, while cases with chest CT scan finding were of 44%, and significantly higher in severe-critically ill patient (p=0.035).

This study showed that patients presented with fever were (84%), headache (5%), dyspnea (88%) cough (82%), fatigue (36%), and sore throat, rhinorrhea, and loss of smell and taste (15%). Mild dry cough was more frequent finding (75%) than the productive cough (8%). Some patients presented with GIT symptoms including vomiting (5%), diarrhea (13%) and loss of appetite with anorexia (5 %).

Table 2 Clinical symptoms, and clinical outcomes of the admitted COVID-19 patients.

Clinical Characteristics		**Total (%) (n = 100)**	**Mild to moderate type (n = 13)**	**Severe to critically ill type (n = 87)**	**P value**
Positive PCR CT scan findings		79 (79%) 44 (44%)	11 (84.6%) 2 (15.4%)	68 (78.2%) 42 (48.3%)	0.731* 0.035*
Symptoms					
Respiratory system	Dyspnea	88 (88%)	10 (76.9%)	78 (89.7%)	0.187*
	Cough	82 (82%)	11 (84.6%)	71 (81.6%)	1.000*
	Mild dry cough Productive dry cough	75 (75%) 8 (8%)	11 (84.6%) 0 (0.0%)	64 (73.6%) 8 (9.2%)	0.777*
	Sore throat, rhinorrhea, loss of taste and smell	15 (15%)	2 (15.4%)	13 (14.9%)	1.000*
GIT system	Vomiting Diarrhea	5 (5%) 13 (13%)	1 (7.7%) 2 (15.4%)	4 (4.6%) 12.6%)	0.509* 0.676*
Systemic sings	Headache	5 (5%)	0 (0%)	5 (5.7%)	1.000*
	Fever	84 (84%)	13 (100%)	87 (81.6 %)	0.121
	Arthralgia, myalgia, fatigue	36 (36%)	7 (53.8%)	29 (33.3%)	0.215*
	Anorexia Insomnia	5 (5%) 9 (9%)	0 (0%) 1 (7.7%)	5 (5.7%) 8 (9.2%)	1.000* 1.000*

Clinical outcome				
Recovered/discharged	97 (97%)	13 (100%)	84 (96.6%)	1.000*
Clinical death	3 (3%)	0 (0.0%)	3 (3.4%)	1.000*
SOB post covid	7 (7%)	1 (7.7%)	6 (6.9%)	1.000*
Fatigue post covid	12 (12%)	3 (25%)	9 (75%)	1.000*
Post covid DM	2 (2%)	0 (0%)	2 (2.3%)	1.000*
Post covid blurred vision	1 (1%)	0 (0%)	1 (1.1%)	1.000*
Need of CPAP	11 (11%)	0 (0%)	11 (12.6%)	0.350*

Indicated Fisher's Exact Test *

In terms of clinical outcome, only 3 patients died (because of respirotary system failure), and the rest (97%) showed clinical improvement with discharged. Eleven case (12.6%) from the severe to clinically ill group required CPAP and there was no significant difference in comparison with the other mild-moderate group (p= 0.35). Twelve patients had fatigue symptoms, and (7%) of patients had persistent shortness of breath post discharge. While only 2 patients had newly diagnosed DM and one patient had blurred of vision and later were referred the ophthalmology clinic. More than 10% of patients required CPAP all were from the severe to critically ill group. Finally, no significant difference was estimated in all clinical features and outcomes between the two groups ($p > 0.05$).

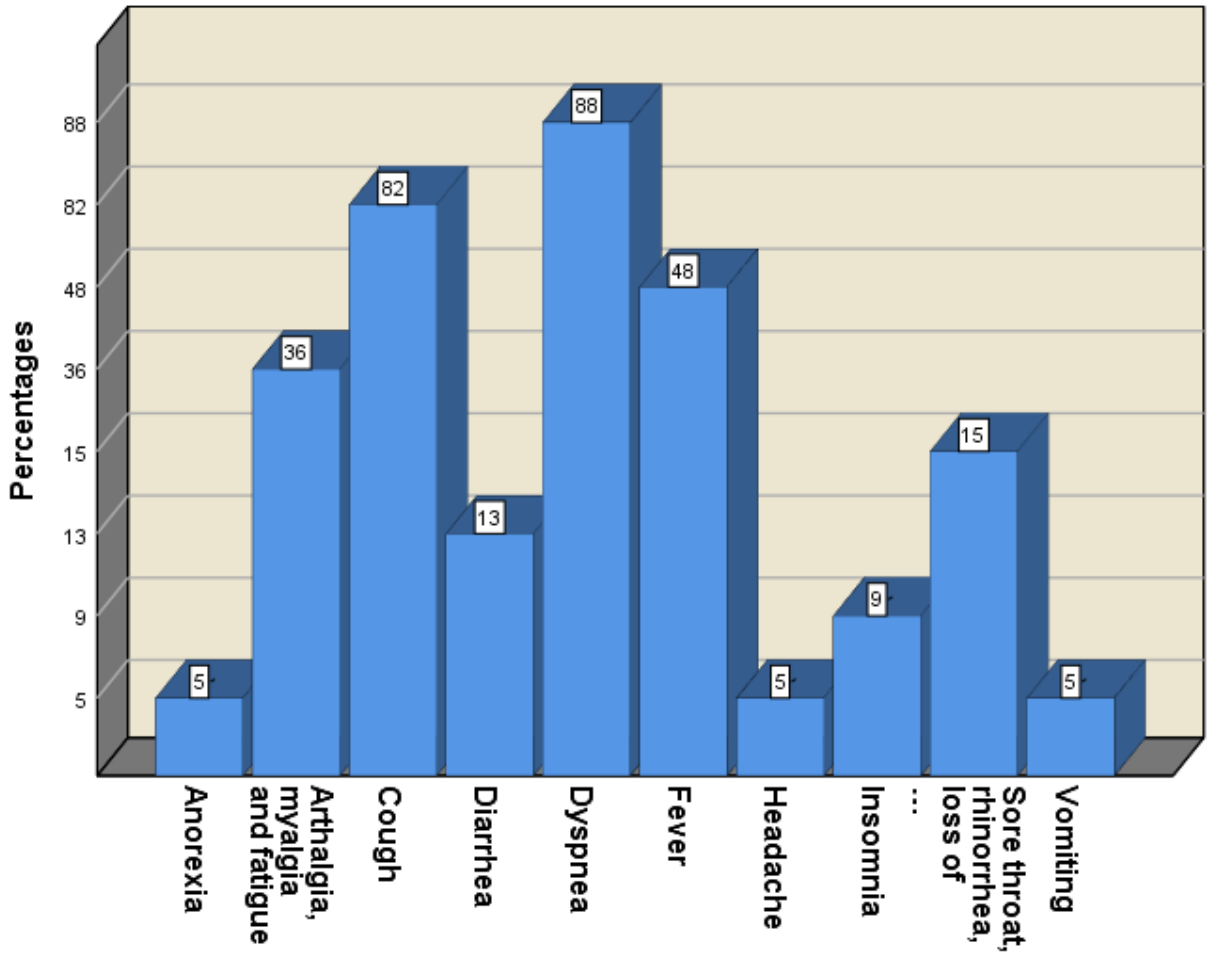

Figure (1): COVID-19 patients' percentages of common symptoms.

DISCUSSION

In previous literatures, there are several research on covid-19, each focusing on a different component of the condition. It was acknowledged that even when a patient's clinical symptoms are consistent with COVID-19, we must carefully examine disease features in each location to assess disease variations and their impact on disease progression. The findings of the current study revealed that all ages are susceptible to infected with COVID-19 and the majority of admitted patients were in their forties and fifties, ranging in age from 46 to 55 (28%). In terms of age, our estimated results were slightly higher than age group proportions reported in a previous study in Iraq [11]. This likely related to variations in the inclusion criteria and the age groupings of the population. Covid-19 incidence was highest among younger individuals, according to

certain data from the Centers for Disease Control and Prevention (CDC), those patient group helped to the transfer of covid-19 to elderly people in the community [6].

Gender differences among patients infected with COVID-19 have been described in literature. The data from recent reports reviewed that COVID-19 infection is more likely to affect males [13, 14]. However, in this study, there was no significant difference in the proportion of men and women between mild and sever group. Previous studies linked increased male affection to hereditary characteristics, smoking, frequent travel, and interactions, as well as biological elements that may give superior immune protection for women, such as estrogen and the X chromosome [15].

There are a range of co-morbidities that have been recognized as risk factors in Covid course and outcomes, including obesity [14,16]. Nearly 40 of case were observed having obesity which was more frequent than other weight groups and seen more frequent in severe-critically patients (41.1%). It has been found a significant association between obesity and severity (P=0.003). The results in our study indicate that patients with obesity were more likely to have low oxygen saturation and require supplemental oxygen on admission.

Younger adults are the primary laborers in the society, and they are more inclined to interact with others (employees, Salesmen and military). Similarly, several research [17] found that young adults make up a significant fraction of frontline employees (e.g., public transportation, retail establishments, and social services) [18] when implementing preventive treatments on a consistent basis may be difficult or impossible. Firstly, younger individuals may be less inclined to adhere to community prevention measures such maintain social distance and avoiding group meetings [19]. Secondly, younger persons, who are more likely to have mild or none at all and are more prone

to unwittingly transfer the illness, have a role in pre - symptomatic or asymptomatic transmission [17, 20] .

Smoking proportions showed no significant difference between mild and severe groups. Similarly, prior data were inconclusive with regard to the impacts of smoking on COVID-19 severity [21] .

In terms of diagnostic tools, the chest CT is a sensitive diagnostic test of COVID 19 pneumonia [22]. We founded that 48.3% of severe-critically ill patients presented with positive chest CT findings and this proportion significantly associated with more severe cases (p=0.035). This result agrees with the studies of Jiang M et al [23]. In at-risk patients who show with large lung lesions on CT scan and have a poor prognosis, the index of suspicion may need to be elevated early [24].

With respect to co-morbidities, COVID-19 was related with pre-existing comorbidities. Some studies from Saudi Arabia [25], Oman [26] and various parts of Iraq [27, 28]. reported significant rates of hypertension and diabetes mellitus among COVID -19 patients. It has been found that hypertension has resulted in those cases with more severe symptoms and higher death rates [29]. However, other inconclusive studies regarding the mortality risk associated with hypertension may be smaller than previously believed [30]. In this study, hypertension and diabetes mellitus were observed in (39%) and (43%) of patients respectively, but only DM has significant association with disease course or severity (p= 0.037). This is in accordance with previous reports that suggested diabetes might be the most consistent comorbidity predicting disease severity and that future research should carefully assess the comparability of reporting cases, variables, and outcomes throughout the many stages of COVID-19's natural history [31]. We also identified CVD, asthma and CVA, though none of these co-morbidities showed a significant difference between mild and severe group. At present studies, results showed that cerebrovascular disease was strongly associated with an

increased risk of both ICU admission and death [14, 16, 32].

COVID-19 instances have a wide variety of clinical symptoms, ranging from asymptomatic to symptomatic to severe illness [33]. Consistent with previous reports [34], the most common symptoms in our patients were dyspnea (88), cough (82%) and fever (84%); though, gastrointestinal (GI) symptoms were infrequent [35]. Similarly, Huang et al reported that the most common symptoms of hospitalized cases were fever, dyspnea, fatigue, myalgia, cough and sputum production in addition to GI symptoms.[36] Most symptoms in this study were of slightly higher proportion in sever than milder group but shows no significant association between symptoms and disease course. This result disagrees with previous studies that reported symptoms on presentation associated with severe disease were dyspnea, fever, cough, and fatigue [37]. Our patients presented also with less frequent GI symptoms including vomiting, diarrhea, and loss of appetite with anorexia. Digestive problems are prevalent in COVID-19 patients, according to some reports, however the duration from beginning to admission is prolonged [35]. Interestingly, anorexia was presented in 5% of severe to critically ill group. This finding was in accordance with a previous report by Wang et al who reported that some digestive symptoms were more common in critically ill patients, including anorexia [33].

In terms of outcomes, only three cases died, and all were in severe to critically group, though this result did not show significant association with disease severity. (p=0.1000) In contrast, a prior Chinese study found that severely and critically sick patients have a much greater chance of death than mild and moderately unwell individuals [36]. This contrast in our results might be attributed to the low sample size our research. The majority of the investigations that have been published in the literature have found clusters of illnesses following epidemic COVID-19

outbreaks include chronic fatigue, lethargy, sleep disturbance, malaise, and poor concentration, often aggravated by physical exertion or stress [38]. In the current study, fatigue symptoms were a frequent complain from our patients (24%), and 7 patients complained or had dyspnea. According to a recent study done in Italy, post-acute COVID-19 patients had dyspnea and shortness of breath even during little tasks, culminating in severe impairment and death, and recommended a rehabilitation protocol according to the baseline conditions of the patients [39]._**Another post covid symptoms** was blurred vision seen in one patient. After recovering from a severe COVID-19 infection, patients might suffer hazy vision and floaters, according to Shroff et al [40].

Conclusions

The majority of the COVID-19 patients were symptomatic, fever, cough and dyspnea were the main symptoms. Patient's age ranging from 46-55 years old. Obesity and diabetes mellitus are the most critical comorbidities that need to be addressed because they have been linked to disease progression and severity. There is no link between illness progression and symptoms, gender, smoking, or career. Only a few individuals, the most of whom were SOB, experienced adverse outcomes

Abbreviations WHO: World Health Organization; 2019-nCov: 2019 novel coronavirus; Covis-19: Coronavirus Disease 2019 ; RT-PCR: real-time polymerase chain reaction ; CT: computed tomography; SD : standard deviation ; CDC: centers for Disease Control and Prevention.

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