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Research Paper

Evaluation of Therapeutic Protocol Outcome in COVID-19 Inpatients in Baghdad

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ABSTRACT:

BACKGROUND:

Severe acute respiratory syndrome coronavirus-2 (SARSCoV-2) is the causative agent of coronavirus disease 2019 (COVID-19), which was declared as a global pandemic by the World Health Organization (WHO) on 11th March 2020. SARSCoV-2 was discovered in Wuhan City, China, in December 2019. The first patient with COVID-19 was reported in Iraq on 24 February 2020. At 15 July 2022 the Iraqi Ministry of Health reported 2,334,375 confirmed cases, a number of which 25,229 patients died, and 10,813,380 vaccinations were administered.

OBJECTIVE:

To find out how well a treatment plan works and what associated factors are involved among a group of COVID-19 patients.

PATIENTS AND METHODS:

A cross-sectional study in which a review of patients records was carried out at two designated centers for COVID 19 patients; Dar Al Salam hospital in Baghdad- Al Karkh side and Al Shefaa center in Al Kindy hospital, Baghdad- Al Rusafa side from first of August 2021 to 31 January 2022.

RESULTS:

A total of 304 COVID 19 patients were included in this study. There were 219 (72%) recovered patients and 85 (28%) deaths. Respiratory failure was the most common cause of death among patients 48 (15.8%), Followed by Renal failure then 27 (8.9%), and sepsis & septic shock 10 (3.3%). Recovery rate appeared to be significantly higher among patients without gastrointestinal tract (GIT) symptoms, with acceptable oxygen saturation, and of moderate severity, P=0.001, P<0.001, and P<0.001 respectively.

CONCLUSION:

Comorbidities including diabetes mellitus, hypertension, hypothyroidism, asthma, cerebrovascular diseases, Rheumatic disease, and obesity were without a statically significant association with the recovery but high mortality rate. Patients who were taking steroids were significantly more in recovered group.

KEYWORDS: COVID_19, steroid, SARS_CoV-2 , Comorbidities

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INTRODUCTION:

Severe acute respiratory syndrome coronavirus-2 (SARSCoV-2) is the causative agent of coronavirus disease 2019 (COVID-19), which was declared as a global pandemic by the World Health Organization (WHO) on 11th March 2020. SARSCoV-2 was discovered in Wuhan City, China, in December 2019. [(1)] A novel enveloped RNA beta coronavirus called SARS-CoV-2 has phylogenetic relationships with Middle East respiratory syndrome coronavirus and severe acute respiratory syndrome coronavirus [(2)].One of COVID-19's features is its high contagiousness; in less than 3 months, China and 164 other nations have been hit. At March 18, 2020 the WHO reported 7864 fatalities and 193,475 confirmed cases globally [(3)].At first, the sickness was classified as pneumonia with the potential to develop into a life-threatening condition.Later on ,the illness was regarded as systemic and characterized by a multi-organ failure [(4)]. Although COVID -19 symptoms might vary, they often include fever, cough, headache, exhaustion, breathing problems, and a loss of taste and of smell. Notably, preliminary studies of patient characteristics from China have shown that individuals with COVID-19 suffer from high rates of diabetes, hypertension, and cardiovascular illnesses [(5)].

The COVID-19 might aggravate preexisting diseases and increase the risk of mortality.[6] In individuals with COVID-19, cancer, has been revealed to be a significant risk factor.[7] Old age, males , and patients with chronic illnesses (hypertension , cardiac disease, renal failure and cancer).have all been associated with moderate to severe clinical presentations ,The degree of lung involvement, was substantially correlated with moderate and severe presentations [8]

On February 24, 2020, the Iranian student who got sick with COVID-19 was the first person to be reported in Iraq. After a month, there were 4469 confirmed cases of COVID-19 infections, 160 deaths, and 2738 patients got improved. By June 17, 2021, there were more than a million cases (100,185), and more than 15098 patient were died. [9] The highest number of patients infected with COVID-19 was reported in Baghdad, followed by Basra and Najaf. About 55 percent of the patients were men and 45 percent were women. Of all the patients, 68 % of the died patients were males and the remaining 32 % were females. About 8% of the cases involve children under 10 years old. Iraq's rate of healing is lower than those of Iran, Turkey, and Jordan, but higher than those of Saudi Arabia and Kuwait. About 5 percent of all confirmed cases were healthcare workers. [10]

AIM OF STUDY:

To assess the prevalence of recovery in COVID-19 patients and the impact of Comorbidities on disease recovery.

PATIENTS AND METHODS:

Study Design: A cross sectional study in which a received of records for patients' with COVID-19.

Setting and period: This study was carried out in two designated centers for COVID 19 patients; Dar Al Salam hospital in Baghdad-Al Karkh side and Al Shefaa center in Al Kindy hospital, Baghdad- Al Rusafa side first of August 2021 to 31 January 2022.

Study Population:

The target population was represented by COVID 19 patients' file record that admitted with moderate to critical COVID-19 to the designated wards in Baghdad hospitals. Diagnosis of COVID-19 was admitted to chosen hospital (based on a positive reverse transcription polymerase chain reaction (RT-PCR) test).

Inclusion criteria: Patients' file record with COVID 19 aged 18 years and older.

Exclusion criteria:

1. pregnant women.
2. patients' records with missing important data.

Sampling method:

Convenient sampling was used.

Study parameters and data collection:

COVID 19 patients that were hospitalized between first of August 2021 to October 2022. were included in the study, where data collected from documented medical records of 304 COVID 19 patients from Dar Al Salam and Al Shefaa centers. A structured questionnaire was used by researcher.

- **Past medical and drugs history** (HT, DM, CVD, Asthma, thyroid disease, RF, rheumatoid, cancer, obesity, allergy, steroids, anticoagulant, chemotherapy, immunotherapy, radiotherapy).
- **Disease outcome from patients' file record (**recovered , death).
- **Hypoxemia (**considered when oxygen saturation equal to (Spo2<92)).
- **Clinical features (** fever, respiratory symptoms, GIT symptoms, disease severity, cPAP, ventilator, RCU admission).

Ethical Consideration: The study was approved by the Ethics Committee of Medical research in University of Baghdad, Al Kindy College of Medicine and department of health. Official approval was obtained from Al Rusafa and Al Karkh health directorates .

RESULTS:

Clinical features and comorbidities

Clinical features and comorbidities of patients were shown in figure 1. All patients presented with fever and respiratory symptoms 304 (100%), 66 (21.70%) presented with GIT symptoms, 242 (79.60%) were hypoxemic (Spo2<92), 79 (26.00%) patients with moderate illness, 95 (31.30%) with severe illness, and 130 (42.80%) patients were critical. There were 261 (85.90%) obese patients (BMI≥30), Overweight (BMI=25-29.9) 26 (8.60%) patients, 155 (51.0%) diabetic patients, 147 (48.40%) hypertensive patients, 56 (18.40%) patients with CVD, 10 (3.30%) hypothyroidism, 10 (3.30%) asthmatic, 6 (2.00%) with Rheumatic disease, and Renal Failure found among 11 (3.60%) patients.

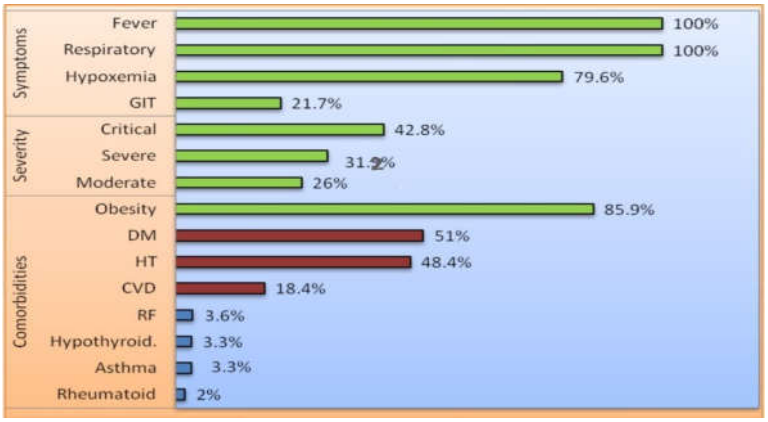

Figure 1:Distribution of patients according to their symptoms, severity and co morbidities

patient outcome

There were 219 (72%) recovered patients and 85 (28%) deaths. respiratory failure was the most common cause of death among patients 48 (15.8 % from total and 56.5% from death), then renal failure 27 (8.9% from total and 31.7% from death), and sepsis &septic shock 10 (3.3% from total and 11,7% from death). Figure 2.

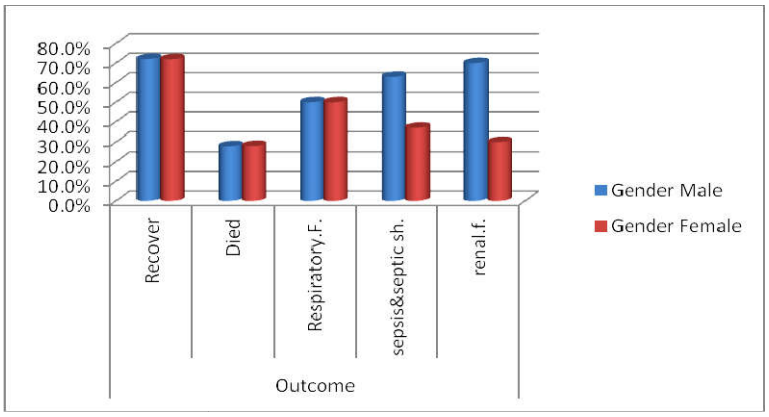

Figure 2: Outcome and causes of death according to gender
outcome according to demographic features and drug history.

According to the demographic features and drug history, recovery rate appeared to be significantly higher among patients on steroid therapy before infected with COVID 19, P=0.047. Table 1.

Table 1: Distribution of patients' outcome according to demographic features and drug history

Demographic features and drug history		Outcome				P
		Recovered		Died		
		No.	%	No.	%	
Age Group	<20 years	9	81.8%	2	18.2%	0.054**
	20-39 years	20	90.9%	2	9.1%	
	40-59 years	86	75.4%	28	24.6%	
	≥60 years	104	66.2%	53	33.8%	
Gender	Male	124	72.1%	48	27.9%	1*
	Female	95	72.0%	37	28.0%	
Hospitalization Days	≤7 days	91	67.9%	43	32.1%	0.49**
	8-14 days	64	74.4%	22	25.6%	
	15-30 days	40	74.1%	14	25.9%	
	> month	24	80.0%	6	20.0%	
Smoking	Yes	11	73.3%	4	26.7%	1*
	No	208	72.0%	81	28.0%	
Alcohol	no	217	71.9%	85	28.1%	0.99*
	yes	2	100.0%	0	0.0%	
allergy to penicillin	no	216	71.8%	85	28.2%	0.98*
	yes	3	100.0%	0	0.0%	
Anticoagulant	Yes	45	75.0%	15	25.0%	0.63*
	No	174	71.3%	70	28.7%	
Steroids	no	199	70.6%	83	29.4%	0.047*
	yes	20	90.9%	2	9.1%	
Thyroxin	Yes	5	100.0%	0	0.0%	0.19*
	No	214	71.6%	85	28.4%	
Antidiabetic	Yes	19	61.3%	12	38.7%	0.16*
	No	200	73.3%	73	26.7%	
Antihypertension	Yes	89	76.7%	27	23.3%	0.15*
	No	130	69.1%	58	30.9%	

**Fishers' Exact t test, P is significant at <0.05*

***Chi² t test, P is significant at <0.05*

DISCUSSION:

The Iraqi Ministry of Health (MOH), like all the counterpart agencies around the world, adopted and frequently updated treatment protocols for the management of the clinical condition of the COVID-19 patients to reduce the morbidity and mortality rate.

clinical picture, the fever and respiratory symptoms were found in all included patients followed by hypoxia and GIT symptom. Many studies reported that fever was the commonest symptom presented in COVID patient that could be presented in (83-98%) of patients followed by cough and shortness of breath [11,12].

GIT symptoms were not prominent in early COVID-19 breakout, throughout the infection spread globally, a worldwide studies from different countries stated the presence of GIT symptom in COVID patients, and could be the presenting symptom of the disease, GI manifestations are reported in (11.4–61.1%) of patients where most of them had symptom mild in severity as mentioned by Pan et al., study [12].

Anorexia and diarrhea were also the most common reported symptoms by Cheung et al., study [13]. In the current study GI manifestations was 66 (21.70%).

Hypoxia is prominent symptom of COVID-19 infection in this study (79.60%) of COVID-19 patients were had hypoxia (SpO_2<92) as a presenting symptom, this agrees with another study by Alhusain et al., [14] in al Saudia Arabia found hypoxia in 87.1% of all participants. Brouqui et al., [15] stated in their study that conducted in Marseille France, that those who had hypoxia had poorer outcome, also the prevalence of poor clinical outcome (transfer to intensive care unit and/or death) significantly increased among patients with dyspnea.

In the current study mortality rate was (28%) and this was coincided to Mendes et al., study [16] in which (32%) of included patients died, most of them had comorbidities and were from male gender.

Most common cause of death in patients with COVID-19 is related to respiratory failure; however, in the current study respiratory failure was the most common cause of death in (56.5%) of dead patients followed by renal failure (31.8%) and sepsis & septic shock (11.8%). Prevalence of Renal impairment is common in COVID-19 infection, according to Yang et al., [17] study the incidence of acute kidney impairment was (4.5%) in all included patients, the incidence is higher in critical ill patients that reach (36.4%). The result of Russo et al., [18] agrees with the current study results in which the mortality rate was higher in those who develop renal impairment in comparison to those who had no renal injury. Sepsis and septic shock were also a cause of death in COVID-19 patients, according to da Silva Ramos et al., [19] 16 out of 19 patients died due to sepsis or septic shock.

A statistically significant association found between the using of steroids in the treatment protocol of COVID-19 patients and recovery as (90.9%) of those who use steroid are recovered, steroid drugs had good effect on viral infection based on previous pandemic and respond of patients on using steroids, according to Chatterjee et al., [20] using dexamethasone will decrease risk of death, length of oxygen therapy, bad progression of infection and need of mechanical ventilation.

CONCLUSION:

1. Co morbidities had clinical effects on admission to hospital and outcome, (recovery or death) of disease .
2. Admission rate was higher in patient who suffer from pyrexia, respiratory symptom and hypoxia.
3. Majority of patient passed from respiratory failure then from renal failure .
4. There is a significant association between taking steroids and recovery.

RECOMMENDATIONS:

- Notify of health authorities to order the medical staff to record the patients data accurately.
- Encourage elderly people especially those with chronic illness to limit contact with others and adhere to personal protective measures that include; wearing of face mask, regular hand washing with soap and water or using of sensitizer with alcohol base and practicing of social distancing.
- Encourage the whole population especially risk groups to have vaccines urgently.

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