



Measuring of some biochemical parameters after recovery of COVID-19 infection

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Abstract

Symptoms of COVID-19 vary and range from mild symptoms to serious illness. Common symptoms include cough, fever, loss of smell and tastes. The aim of this study is to measure some biochemical parameter in covid-19 patients 2 weeks after recovery. .Method: The study included 50 patients suffering from infection with the emerging corona virus and 30 samples of healthy people as a control group, and both groups ranged in age from 27-77 years and of both sexes, collected from Kirkuk General Hospital. A number of biochemical variables were measured in the blood serum of the groups under study, including blood urea and creatinine, two weeks after infection. The study revealed that the risk of infection with the Covid-19 virus increases with age, the most affected are the elderly, as the study found that 48% of patients were older than 55 years of age and 15% within the age group 41-55 years. The study also found that males were more affected by the virus than females (52% males and 48% females

Keywords: Covid-19; Treatment; Ferritin; Severe; LDH

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Introduction

On the eleventh of March 2020, the World Health Organization classified the emerging corona virus, Covid-19, as a (pandemic), and on the 25th of March of the same year, the United Nations announced that the new corona threatens all of humanity. Continent, which means that Covid-19 is a pathogen that spreads easily from one person to another in the world, and the widespread spread of a disease among animals is called sweeping, and the endemic epidemic is widespread and stable in terms of knowing the number of individuals who contract it because of it is not considered a pandemic. Historically, several pandemics such as smallpox, tuberculosis and plague have appeared¹. The danger of the Covid-19 virus lies in the nature of its genetic material, which is a single stranded RNA (Positive sen + ve) RNA (ssRNA), which means that there is no template based on it, as well as the absence of a system for correcting errors that may occur during reproduction processes. (As is the case with DNA, which is composed of two strands) with its unstable (brittle) nature, which makes it highly susceptible to mutations, and the most

dangerous of that is that the entry of Covid-19 viruses into the cell will not provoke or stimulate an immediate immune response, because the human cell will not consider it a part Strange, but one of the types of RNA that make up it, and thus the virus takes advantage of this situation to merge with the genome of the host cell (deceived) and multiply and multiply before the defense system discovers it². The virus primarily infects the respiratory and upper digestive tracts of mammals and birds, although the Coronavirus causes flu-like symptoms, but it is more severe. Symptoms of COVID-19 vary and range from mild symptoms to serious illness. Common symptoms include cough, fever, loss of smell and taste³, with less common symptoms including headache, nasal congestion, runny nose, muscle aches, sore throat, diarrhea and in moderate to severe cases difficulty breathing Three common groups have been identified Symptoms: A group of respiratory symptoms accompanied by cough, phlegm, shortness of breath and fever. A group of musculoskeletal symptoms with muscle and joint pain, headache and fatigue. A group of digestive symptoms accompanied by abdominal



pain, vomiting and diarrhea⁴. The aim of this study is to measure some biochemical parameter in covid-19 patients 2 weeks after recovery.

Materials and methods

The study included 50 patients suffering from infection with the emerging corona virus and 30

samples of healthy people as a control group, and both groups ranged in age from 27-77 years and of both sexes, collected from Kirkuk General Hospital. A number of biochemical variables were measured in the blood serum of the groups under study, including blood urea and creatinine, two weeks after infection.

Results

The study showed that COVID-19 patients had a high average B .urea and creatinine in infected patients as compared to the control group and that decreased slightly after two weeks of infection and treatment

Table 1: level of blood urea and creatinine before and after infection

Variables (Mean±SD)	Study group			P. value
	(n:50)Covid patients		Control group (n:30)	
	Before treatment	After treatment		
Urea blood (mg/dl)	78.3±13.5	64.6±12.3	26.3±5.6	0.0001
Creatinine (mg/dl)	1.66±0.34	1.36±0.31	0.74±0.25	0.0001

The study showed that COVID-19 patients had a high average BMI (30.13 ± 3.16 kg/m²) compared to the control group and that their BMI decreased slightly after two weeks of infection and treatment (29.69 ± 2.18 kg/m²), while its average was normal. In the body control group (25.76±2.62 kg/m²), the difference was significant between groups (P. value < 0.001) as shown in Table no. 2

study groups	No.	BMI(mg/dl)	P. value
		Mean±SD	
Covid patients before treatment	50	30.13± 3.16	0.001
Covid patients before treatment		29.69±2.18	
control group	30	25.76±2.62	

The study showed that 74% (37 out of 50) of patients infected with Covid-19 virus improved after two weeks of infection, 22% had complications of infection while unfortunately, 4% (3 of 50) died due to complications of Covid-19 infection, as in Table no.3

Patients	number	%
Recovering	37	74
Complicated	11	22
Death	2	4
The total	50	100



Discussion

To manage COVID-19 infection, early diagnosis, appropriate treatment, and future control measures are all essential to limit the spread of the virus. Laboratory parameters play an indispensable role in the early assessment of disease etiology, diagnosis, treatment, and follow-up. The SARS-CoV-2 virus might also directly attack the Kidney. All these factors may render infected COVID-19. The progression of kidney damage is marked by the rise in two important chemical substances in the blood - creatinine and urea whose evaluation in serum helps to assess renal function⁹. In agreement with our finding, Cheng et al.,⁸ found that B. urea and S. creatinine were found to be significantly higher in COVID-19 patients compared with survivor cases after cure and the control healthy individuals. A recent study showed that high BUN levels at admission were robustly associated with adverse outcomes in critically ill patients admitted to the ICU, even after correction for co-founders, including renal failure¹¹⁰. However, Li, et al.,¹⁰ found that B. urea and S. creatinine didn't increase at admission due to COVID-19 infection. The difference from our finding may be due to clinical characteristics of patients and comorbidities of COVID-19 patients. In agreement with our findings, a study conducted in the city of Kirkuk showed that the majority of infected Covid-19 patients were obese and overweight¹¹. An observational study among a small sample of 24 critically ill patients diagnosed with COVID-19 in the Seattle area was one of the first studies reporting BMI data confirming that 20 patients were overweight or obese¹². In addition, a small study at the University Hospital in Lille, France, reported that the need for ventilator in 124 patients with COVID-19 was greater for those with a BMI greater than 35 kg/m², regardless of other risk factors¹⁶. Obesity-related effects on the immune system play a major role in the pathogenesis and outcomes of most viral infections such as COVID-19 disease and obesity is also associated with increased inflammatory response in adipose tissue¹⁷⁻¹⁸. In contrast, the inflammatory response in adipose tissue can lead to metabolic dysfunction, which can lead to dyslipidemia, insulin resistance, diabetes mellitus, hypertension, and cardiovascular disease. From the lungs, which leads to a decrease in the oxygenation of vital tissues. The lethal outcome

was documented in only 4%. Overall, the association of severity and lethal outcome with age and comorbidity is consistent with the results of studies conducted in Iraq¹³ and other countries¹⁴⁻¹⁵

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