

# COVID-19 Infection Among Hemodialysis Patients in Tikrit City

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## ABSTRACT

It has been widely documented that hemodialysis patients get a blocked secure response, that might result in a greater prevalence rate of viral diseases, according to Coronavirus epidemic 2019. (Covid -19). The point of this consider was to assess the recurrence of Covid -19 Immunoglobulin G (IgG) antibodies among hemodialysis patients. The current research included 90 hemodialysis patients (50 males and 40 female) who gone to Tikrit Teaching Hospital for the time from starting of December/2020 to the conclusion of May/2021. The Covid -19 -IgG was found in a higher rate in males than that in females (18.89% and 12.22% respectively). Also, non-significant relation was found between age and seropositivity for Covid -19 -IgG antibodies ( $p \leq 0.05$ ). Since patients receiving hemodialysis treatment are immunocompromised and can be at risk of infection of Covid -19.

**Keywords:** Covid -19, hemodialysis patients, ELIZA.

## 1. INTRODUCTION

The worldwide health emergency caused by serious acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the causative agent of Covid -19, has had a detrimental impact on human health as well as financial and social activities all over the world [1]. Coronaviridae are the largest enveloped RNA infections, with positive-stranded RNA genomes ranging from 28 to 32 kb. Coronaviruses have a wide range, infecting both human and bird species. They are responsible for a broad range of severe and persistent infections of the hepatic, respiratory, gastrointestinal, and neurological systems [2]. Coronavirus disease 2019 (Covid -19) patients ordinarily appear a assortment of symptoms—from mellow side effects to extreme ailment. Common indications incorporate dry hack, shortness of breath, fever, weariness, and upper breath, aviation route congestion [3]. It may take 2-14 days for the adverse effects to appear after the infection has been diagnosed [4] be that as it may, a few tainted individuals stay asymptomatic [5].

The virus is mostly transmitted from person to person by close contact (within 6 feet) and tiny air droplets [6]. According to certain research, the virus can be transferred from asymptomatic people to others [7]. Coronavirus infection 2019 (Covid-19) could be a recently rising irresistible illness as of now spreading worldwide. It is caused by a new coronavirus known as extreme intense respiratory disorder coronavirus 2 (SARS-CoV-2) [8]. The outbreak of new coronavirus infection in 2019 (Covid -19) was caused by a previously unknown Coronavirus emerged in December 2019 and has since spread around the world, becoming a global threat. The Covid -19 was quickly discovered to be caused by a coronavirus, which was later called serious intense respiratory disease coronavirus 2 (SARS-CoV-2) and is a member of the coronavirus family. It is one of the 1970 coronaviruses known to infect people; four of these coronaviruses (NL63, 229E, HKU1, and OC43) produce very mild symptoms of the common cold. In contrast, the other three, Middle East respiratory syndrome Coronavirus (MERS-CoV), SARS-CoV, and SARS-CoV-2, are capable of causing severe adverse effects and even death, with casualty rates of 10%, 37%, and 5%, respectively [9].

## 2. MATERIALS AND METHODS

The current research included (90) hemodialysis patients (50 males and 40 female) with Coronavirus who gone to Tikrit Teaching Hospital for the time from starting of December/2020 to the conclusion of May/2021. (5 ML) of blood was collected from each understanding by vein cut utilizing expendable syringes. The blood was set in plastic expendable tubes; it was cleared out to stand at room temperature (20- 25°C) to permit it to clot, at that point the sera was isolated by centrifugation 10000 rpm for 5 minutes and put away at -20°C until the time of test. Serological examination included discovery of Covid -19 IgG Antibodies by using enzyme-linked immunosorbent test (ELISA) for the subjective location of the Covid -19 IgG in human serum (Sunlong Biotech Kit). The procedure was carried out according to the manufacturer’s instructions.

## 3. STATISTICAL ANALYSIS

The statistical investigation was performed utilizing chi-square test. P values less than 0.05 were considered factually non-significant.

## 4. RESULTS AND DISCUSSION

The World Health Organization designated Severe Acute Respiratory Syndrome, often known as Corona illness, or Covid -19 as a consequence of instances of unknown cause found in Wuhan City, China, in December 2019 [10]. Many countries within the world have set confinements and taken arrangement measures inside the context of social withdrawal, distance working and self-isolation. Extreme financial repercussions have happened. Since of the Covid -19 outbreak, people’s daily work activities have deteriorated, and reasons such as reduced social interactions and difficulty in adapting to the new situation have also brought about psychological problems for many individuals. Individuals who cannot access social support networks when they need it cannot meet their congenial attachment and acceptance needs. This may cause emotional and psychological problems including depression, anxiety, substance abuse and suicidal ideation throughout the society [11].

The laboratory diagnosis which was done in the current research revealed that Covid -19 -IgG was found in 28 out of 90 (31.11%), of hemodialysis patients. As in Table-1.

**Table 1.** Covid -19 IgG Antibodies in hemodialysis patients.

No. of patients	SARS-2 Covid-19 IgG	
	No.	%
90	28	31.11

Here, serologic assays will be used to estimate IgG antibodies in symptomatic or asymptomatic Covid -19 subjects recovered from the disease. The variation in the presence of anti Covid -19 IgG positive level in different studies may be related to the number of individuals sera examined, geographical distribution and sensitivity of different immunoassays for defection of level of anti-Covid -19 IgG antibodies [12]

Similar result was obtained by Muhammad Fayyaz ur Rehman: Serologic assays involving IgG antibodies to detect antibodies against SARS-CoV-2 are of great interest as these antibodies can be detected from the second week of the start of Covid -19 symptom’s, IgG has been found after the eighth day of disease onset. Serologic assays provide quick diagnostic by avoiding PCR false positive/false negative result as well as these provide antibody pattern for estimation of strength and duration of humoral immunity. Here, serologic assays will be used to estimate IgG antibodies in symptomatic or asymptomatic Covid -19 subjects recovered from the disease [13].

The study presented here included 50 male, Covid -19 -IgG was found in 17 (18.89%) of them. Regarding females, Covid -19 -IgG was detected in 11 out of 40 (12.22 %). However, the result was non-significant ( $p \leq 0.05$  ). As in Table-2.

**Table 2.** Distribution of Covid 19-IgG Antibodies According to Sex

Sex of patients	No. of patients	SARS-2 Covid-19 IgG		p.value	X <sup>2</sup>
		No.	%		
male	50	17	18.89	0.8017	2.331
		11	12.22		
female	40	28	31.11		
Total	90				
p-value $\leq 0.05$ considered statistically significant (95% confidence interval)					

As of April 2020, the US government had not followed information on the sex of COVID-19 contaminations. Comparable to that Investigate has appeared that viral illnesses such as Ebola, HIV, flu, and

SARS influence men and ladies in an unexpected way [14].

Reason behind this disparity. Immunological differences between men and women,[15]. Seriousness of COVID-19 is related with expanded age, male sex, and pre-existing therapeutic conditions [16 ].

Information from the Seriously Care National Review and Inquire about Middle (ICNARC) has reliably detailed that COVID-19 admissions to basic healthcare are mostly among men, accounting for 71.0 percent of all admissions recorded of May 21 [17]. Likewise, it is unclear what explains the disparities in results between men and women. Some may be caused by differing risks of infection – for example, due to behavioral and occupational variables – as well as variations in how males and females experience symptoms, obtain care, and are identified, or by biological and immunological abnormalities that place males at greater risk [18] Data obtained by the current work revealed that the highest rate of Covid -19 -IgG antibodies was found in hemodialysis patients within the age group 50-62 yr. followed by those within the age group 37-49 yr. (13.33% and 6.66 % respectively), although the result was nonsignificant ( $p \leq 0.05$ ). Table-3. Similar result was obtained by The WHO stated that persons aged 50 and older are at a greater risk of coronavirus-related mortality than those in any other age category [19].

**Table 3.** Distribution of Covid 19-IgG Antibodies According to Age group

Age group yr	No. of patients	SARS-2 Covid-19 IgxG No. %		p.value	X <sup>2</sup>
≤36	22	5	5.56	0.5616	4.862
37-49	20	6	6.66		
50-62	27	12	13.33		
≥ 63	21	5	5.56		
Total	90	28	31.11		
p-value ≤ 0.05 considered statistically significant (95% confidence interval)					

Also this study agree with Jared Bullard et al., Compared with grown-ups, children with nasopharyngeal swabs that tried positive for SARSCoV-2 were less likely to develop infection in culture, and had higher cycle limits and lower viral quantities, indicating that minors are not the primary carriers of SARS-CoV-2 [20] and with the study of Muhammad Fayyaz ur Rehman that said: Elderly people and people with compromised health are mainly affected by the disease [21].

## 5. CONCLUSION

Since patients receiving HD treatment are immunocompromised and can be at risk of infection of Covid-19 , its necessary to identify these patients with anti Covid-19 IgG specific serological tests for appropriate management .Fast and basic serological tests for characterizing counter acting agent reactions are vital within the current Covid-19 widespread caused by SARS-CoV-2.

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