

# Immunological detection of viral hepatitis HCV and HBV for different clinical samples in Al-Najaf Governorate.

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## Abstract

A high prevalence rate of hepatitis C and B virus has been observed among different categories of patients from hemodialysis, thalassemia, blood transfusions, or other liver diseases recently in the world. Reducing and controlling this spread. An immunological study was conducted using serological technique, where 150 different clinical samples were recruited and examined immunologically for antibodies using a rapid assay and ELISA detection. The results obtained after detection were 63 positive samples for hepatitis C type and 19 positive samples for hepatitis B type out of 150 different clinical samples. These samples were males and females of different ages distributed in several residential places. The global prevalence of hepatitis C virus and type B among patients with dialysis, thalassemia, and blood and liver diseases indicates a close relationship with the centers. Therefore, preventive control measures are very necessary to reduce transmission, in addition to guiding patients who go to centers for the purpose of treatment to observe personal hygiene, immunize them, and give them The necessary treatment and their follow-up through the Training Department in the Governorate Health Department in cooperation with the Patient Safety Division, especially for therapeutic dialysis patients, so that it must be organized in a sequence that takes into account the stages of dialysis without affecting the treatment scheduling in the dialysis departments.

## 1. Introduction

Viral hepatitis is a common cause of chronic liver infection, causing approximately 400,000 deaths annually (1).

Viral hepatitis infection is usually asymptomatic for centuries but can lead to cirrhosis, cancer, and hepatocellular carcinoma over time (2) Hepatitis C virus type B and type B vary in prevalence among dialysis patients and thalassemia patients on a large scale in Iraqi provinces and countries, and it is also associated with prevalence in the general population. (3) Hepatitis C virus genotyping is a key tool in disease outbreaks and in understanding the epidemiology of viral hepatitis infection. (4) Hepatitis C virus is transmitted through blood transfusions, intravenous drug administration, injections, and cases of dialysis, as it was noted that the contamination of tools with the virus increased the spread of the epidemic.( 5) Non-compliance with preventive measures by health care workers, including cadres and employees, are all factors that help in the spread of the disease. (6) As for the hepatitis B virus, it is also transmitted through childbirth, sexual contact, or occupational exposure. (7) It is also transmitted through sexual contact. Through blood or injections, blades, surgical tools, tattoo tools, ear and body piercings, and dental tools. (8) In addition, infection occurs among groups of virus carriers, those who receive blood, patients with hemophilia, thalassemia, immunodeficiency, and people with chronic diseases, prisoners, and health care workers. (9)

## 2. Methods

### Data collection

This is done by creating a questionnaire to collect patient data according to demographic information using SPSS version (10).

### Rapid test

Antibodies to hepatitis C and type B were detected and investigated by the rapid test according to the method provided with the test kit by the manufacturer (HIGH TOP/China)

### Elisa

HCV Ab and HBV Ab were detected and identified in patients' serum by the enzyme-linked immunosorbent assay and tested according to the method provided by the manufacturer (Abia/Germany).

### Ethics of the study

This study was approved, as I was granted a facilitation of the task of collecting samples and some procedures related to the use of laboratory tools by the donor government agencies, the main blood bank, the National Hospital for Surgery and Diseases of the Digestive System and Hepatology, the Medical City, the Kidney Center, and the Public Health Laboratory in Najaf Governorate, where samples were collected after approval Patients filled out a questionnaire showing the most important demographic information.

## 3. Results and discussion

Viral hepatitis C and B were detected in different

clinical samples, where 63 samples were positive for hepatitis C and 19 were positive for hepatitis B through rapid detection and ELISA detection. Patients were warned about the transmission factors of the epidemic virus and its severity, as it leads to cirrhosis. Liver and cell damage, which exacerbates the infection and leads to the life of the individual, taking into account the factors causing the transmission of the virus and limiting or reducing them as much as possible.

The risk factors observed in this study are those all patients on dialysis are susceptible to infection with the virus, and that they are not previously infected, but the infection occurred while receiving treatment as a complement. Infection of thalassemia patients and blood transfusions was observed during the transfer procedures, and this is evidence of the occurrence of contamination occurring among health care workers or Contamination of the tools used or the lack of immunity of the person or the references may have been the carrier of the virus in the first place and that few and rare have had an accidental infection.

By following the important basic information to limit the spread of the virus and to evaluate the necessary measures to control infection and its effectiveness in the holy city of Najaf, this study was carried out, through which it was clear that infection can be

prevented through cooperation with the training department in the Najaf Health Department and the Patient Safety Division and urging patients to pay attention to personal hygiene Commitment to periodic reviews and procedures for all routine examinations, immunization, vaccination and treatment necessary to limit the spread of the virus and attention to sterilization of tools and taking all preventive measures, precaution and caution during blood transfusion in a bank or therapeutic dialysis in the dialysis unit and organizing the stages of treatment according to a specific date with mentioning all patient data if there is Chronic diseases or weak immunity to avoid infection later. On World Viral Hepatitis Day, the World Organization highlights the need to bring hepatitis care closer to primary health facilities and communities so that people can get better treatment and care services, regardless of the type of hepatitis they may suffer from.

The CDA Foundation strives to eliminate hepatitis C and hepatitis B globally by 2023. It seeks to provide countries and territories worldwide with validated data and evidence, economic impact modeling, access to affordable diagnostics and treatments, innovative financing and knowledge sharing Partnerships to eradicate this deadly virus.

**Table (1) demographic characteristics of study samples**

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Characteristic	Category	No. (%)	P value
Gender	Male	86(57.33)	0.011**
	Female	64(42.66)	
	Total No.	150	
Age	10-21	32(21.33)	0.001**
	22-33	47(31.33)	
	34-45	26(17.33)	
	46-57	21(14)	
	58-70	24(16)	
	Total	150	
Residency	Rural	70(46.66)	0.248*
	Urban	80(53.33)	
	total	150	
Dis. State	Liver cirrhosis	8(5.33)	<0.001*
	Thalesemia	23(15.33)	
	Kidney dialysis	32(21.33)	
	Blood transfusion	87(58)	
	total	150	
* No significant difference at P<0.05			
**Significant difference at P<0.05			

**Table (2) No. and Percentage of positive samples to viral hepatitis according to the gender**

Gender	Total No.	Hepatitis B	Hepatitis C	Total
Male	86	18(20.93)	35(40.69)	53(61.62)
Female	64	1(1.56)	28(43.75)	29(45.31)
total	150	19(12.66)	63(42)	82(54.66)
Calculated P value		<0.001**	0.708*	0.047**
* No significant difference at P<0.05				
** Significant difference at P<0.05				

**Table (3) No. and Percentage of positive samples to viral hepatitis According to the age interval**

Age interval	Total No.	Hepatitis B	Hepatitis C	Total
10-21	32	0(0)	18(56.25)	18(56.25)
22-33	47	6(12.76)	16(34.04)	22(46.8)
34-45	26	7(26.92)	6(23.07)	13(50)
46-57	21	6(28.57)	12(57.14)	18(85.71)
58-70	24	0(0)	11(45.83)	11(45.83)
total	150	19(12.66)	63(42)	82(54.66)
Calculated P value		0.001*	0.043*	0.035*
* Significant difference at P<0.05				

**Table (4) No. and Percentage of positive samples to hepatitis according to the residency**

Residency	Total No.	Hepatitis B	Hepatitis C	Total
Rural	70	6(8.57)	36(51.42)	42(60)
Urban	80	13(16.25)	27(33.75)	40(50)
total	150	19(12.66)	63(42)	82(54.66)
Calculated P value		0.158*	0.029	0.220

\*No significant difference at P&lt;0.05

**Table (5) No. and Percentage of positive samples to hepatitis according to the residency**

Dis. State	Total No.	Hepatitis B	Hepatitis C	Total
Liver cirrhosis	8	0(0)	8(100)	8(100)
Thalesemia	23	0(0)	23(100)	23(100)
Kidney dialysis	32	0(0)	32(100)	32(100)
Blood transfusion	87	19(21.83)	0(0)	19(21.83)
Total	150	19(12.66)	63(42)	82(54.66)
Calculated P value		0.001*	<0.001*	<0.001*

\*Significant difference at P&lt;0.05

**Table (6) Antibody titer of positive samples to hepatitis according to the gender**

Gender	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD
Male	0.106 $\pm$ 0.04	1.650 $\pm$ 0.72	1.116 $\pm$ 0.13
Female	0.081	1.410 $\pm$ 0.74	1.364 $\pm$ 0.139
Calculated P value	0.625	0.206	0.231

\* No significant difference at P&lt;0.05

**Table (7) Antibody titer of positive samples to viral hepatitis according to the age**

Age interval	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD
2-17	---	1.56 $\pm$ 0.86	1.565 $\pm$ 0.2
18-33	0.092 $\pm$ 0.05	1.60 $\pm$ 0.73	1.191 $\pm$ 0.19
34-49	0.100 $\pm$ 0.04	1.05 $\pm$ 0.89	0.499 $\pm$ 0.21
50-65	0.122 $\pm$ 0.04	1.78 $\pm$ 0.61	1.233 $\pm$ 0.22
66-80	----	1.36 $\pm$ 0.53	1.366 $\pm$ 0.16
Calculated P value	0.554	0.386*	0.024*

\* Significant difference at P&lt;0.05

**Table (8) Antibody titer of positive samples to viral hepatitis according to the residency**

residency	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD
Rural	0.078 $\pm$ 0.03	1.52 $\pm$ 0.66	1.093 $\pm$ 0.15
Urban	0.116 $\pm$ 0.04	1.56 $\pm$ 0.83	1.314 $\pm$ 0.12
Calculated P value	0.109	0.847	0.267

\* No significant difference at P&lt;0.05

**Table (9) Antibody titer of positive samples to viral hepatitis according to the dis. status**

Dis. State	Mean $\pm$ SD
Liver cirrhosis	1.92 $\pm$ 0.87
Thalesemia	1.65 $\pm$ 0.84
Kidney dialysis	1.37 $\pm$ 0.9
Calculated P value	0.131*

Greet,R.;Rob, B.;Darush, G.;Homie, R.and Frederik, N.(2016).Global genotype distribution of hepatitis C viral infection among people who inject drugs. Journal of Hpatology.65:1094-1103.

Caroline ,S.;David, C.;Victor, S.;David, B.;Michael , A. ;Dung ,N. and et al.(2020).Epidemiological trends in HCV transmission and prevalence in the Viennese HIV + population. Liver International.40(4)787-796.

Falade-Nwulia, O.;Irvin, R. ;Merkow,A. ;Sulkowski, M.;Niculesu, A.; Olsen, Y and et al. (2019). Barriers and facilitators of hepatitis C treatment up take among people who inject drugs enrolled in opioid treatment programs in Baltimore. Journal of Substance Abuse Treatment. 100:45-51.

Binecta, K.; Urvashi, T. and Anupam, P. (2018). Hepatitis B Virus transmission and health Car Workers: Epidemiology , pathogenesis and diagnosis Indian Journal Medical Specialists. 9(1):30-35.

Lewis, J. D; Enfield, K. K .B . and Sifri, C. D. (2015). Hepatitis B in health care Workers: Transmission events and guidance for management. World Journal of Hpatology.7(3):488-97.

Ly, N.; Chu, Y. H.; Zhao, S.Y.; Li, P.L. and Chen, X. (2014). Analysis on the Outcomes of hepatitis B virus Perinatal Vertical Transmission: nested car- control study. European Journal of Gastroenterology and Hepatology. 26(11):1286.91.

Daniel ,W. (2009). Biostatistics: foundation for Analysis in the Health Science. 9<sup>th</sup> edition. John Wiley and Sons.ING.USA.

## References

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European Association for the Study of Liver [EASL] (2018). EASL. Clinical Practice guidelines on hepatitis E virus infection j. Hepatol. 68, 1256-1271. Doi:10.1016/J. jeep. 2018 .03 .005  
.Skhan , S., Attaullah ,S . Ali, I, Ayaz, S., Khan, S. N, Siraj,S, & Khan,J.(2011).Rising burden of Hepatitis C virus in hemodialysis patients Virology journal, 8(1),438.