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Immunological identification of viral hepatitis HCV and HBV in various clinical samples collected from the Al-Najaf Governorate.

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Abstract

Patients suffering from hemodialysis, thalassemia, transfusions of blood, or any other form of liver disease have lately been found to have a high prevalence rate of hepatitis C and B viruses. They are containing and regaining control of this epidemic., The hepatitis C virus (HCV) is a small, enveloped, single-stranded, positive-sense RNA virus. It is a member of the genus Hepacivirus in the family Flaviviridae. There are seven major genotypes of HCV, which are known as genotypes one to seven., Several clinical pictures have been associated with this type of infection. It may be found in people with anti-hepatitis-C antibodies but with normal serum levels of liver enzymes; in antibody-negative people with ongoing elevated liver enzymes of unknown cause; in healthy populations without evidence of liver disease; and in groups at risk for HCV infection including those on hemodialysis or family members of people with occult HCV.

Key Words: HCV, HBV, immunology, hepatitis.

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INTRODUCTION

Background Viral hepatitis is a prevalent cause of chronic liver infection, and it is estimated that it is responsible for nearly 400,000 deaths yearly. Infection with the hepatitis virus typically does not cause symptoms for decades or centuries, but it can eventually cause cirrhosis, malignancy, and hepatocellular carcinoma [1-3]. The prevalence of Hepatitis C virus type B and type B varies widely among patients undergoing dialysis and those suffering from thalassemia throughout Iraqi regions and countries [4,5]. This variation is connected with the frequency of the virus in the general population. Genotyping the hepatitis C virus is essential in investigating disease outbreaks and studying the epidemiology of viral hepatitis infection. Blood transfusions can disseminate the Hepatitis C virus, the intravenous administration of drugs, injections [6-9], and dialysis cases. It was discovered that contaminated instruments contributed to the rapid development of the epidemic. A factor that contributes to the spread of the disease is the failure of healthcare workers, both cadres and employees, to adhere to the preventative measures that have been established [10-13]. The hepatitis B virus can be passed on to a kid by the mother after childbirth, through sexual interaction, or occupational exposure [14-17]. Sexual interaction is another method by which HIV can be spread. Blood or injections, blades, surgical tools, tattoo tools, ear even body piercing equipment, and dental tools are all potential vectors for the spread of disease [18,19] In addition, those who donate blood, patients with haemophilia, thalassemia, or immunodeficiency, people with chronic conditions, inmates [20-22], and healthcare personnel are also at risk of becoming infected with the virus. An immunological study was carried out via the process of serology. One hundred fifty clinical samples were obtained and immunologically analysed for antibodies utilising a fast assay and ELISA detection. Out of the total of 150 different clinical samples, the detection led to the discovery of 63 positive examples for the hepatitis C type and 19 positive samples [23-25] for the hepatitis B type. These samples included males and females of varying ages, and they were collected from various residential areas.

Methodology

Data collecting

A questionnaire designed to collect patient data according to demographic information is created in SPSS version 10 and distributed to patients to accomplish this goal.

Rapid test

The quick test, conducted by the protocol included in the test kit by the manufacturer (HIGH TOP/China), could detect and study the presence of antibodies to both hepatitis C and Hepatitis B.

The enzyme-linked immunosorbent

Assay was used to detect and identify HCV Ab and HBV Ab in the serum of patients, and the results were analysed according to the method supplied by the manufacturer (Abia, Germany).

Concerning the morality of the research

I was granted facilitation of the task of collecting samples along with specific procedures related to the use of laboratory tools by the donor's government agencies, the central blood bank, the National Centre for Treatment and Diseases of the Digestive System as well as Hepatology, the Medical Centre of the City, the Kidney Centre, and the Public Health Lab in Najaf Governorate, in which samples were collected after approval of this study. This study was given the go-ahead, and it was approved. Samples were collected after approval. Patients were asked to complete a questionnaire highlighting the most relevant aspects of their demographic information.

RESULTS AND DISCUSSION

Through the use of fast detection and ELISA detection, the viruses that cause hepatitis C and hepatitis B were found in a variety of clinical samples, with 63 samples testing positive for hepatitis C and 19 examples testing positive for hepatitis B. Patients were given warnings regarding the transmission aspects of the epidemic viruses as well as the severity of the condition, which is characterised by the development of cirrhosis. Damage to the liver and cells worsens the infection. It leads to the individual's death, considering the elements that cause the spread of the virus and attempting to prevent or reduce them as much as possible. The risk variables discovered in this study are that everyone on dialysis is vulnerable to illness with the virus. These patients did not have an infection in the past but became sick while receiving therapy as a complement. During the transfer operations, conditions of thalassemia patients and blood transfusions were seen; this proves contamination occurred due [26-29] to the actions of medical technicians or patients. Contamination of the instruments used or the absence of immunity of the individual in question or the references may have been the carrier of the virus in the first place, and only a small number of people have likely become accidentally infected by the virus.

Tab.1. The demographic features of the study samples are listed.

Characteristic	Category	Number (%)	P value
Gender	Male	86(57.33)	0.011**
	Female	64(42.66)	
	Total No.	150	
Age	Oct-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	Cirrhosis of the liver	8(5.33)	<0.001*
	Thalassemia	23(15.33)	
	Dialysis of the kidneys	32(21.33)	
	Blood transfusion	87(58)	
	total	150	

* No significant change at P<0.05
**Significant variation at P<0.05

Tab.2. Shows the number and percentage of individuals who tested positive for viral hepatitis based on 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**

* There was no significant difference when compared using P0.05 ** There was a significant difference when compared using P0.05

Tab.3. The number and percentage of samples that tested positive for viral hepatitis, Taking into consideration the age range.

Age interval	Total No.	Hepatitis B	Hepatitis C	Total
Oct-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)
The calculated value of P		0.001*	0.043*	0.035*

*There is a significant difference when P is less than 0.05.

Tab.4. The number of positive hepatitis samples and the percentage of residents who tested positive for the virus.

Residents Affected	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)
The calculated P value		0.158*	0.029	0.22

*There is no statistically significant difference when compared using P 0.05

Tab.5. The number of positive hepatitis samples and the percentage of residents who tested positive for the virus.

Dis. State	Total No.	Hepatitis B	Hepatitis C	Total
virus cirrhosis of the liver	8	0(0)	8(100)	8(100)
Thalassemia	23	0(0)	23(100)	23(100)
Dialysis of the kidneys	32	0(0)	32(100)	32(100)
Transfusion of blood	87	19(21.83)	0(0)	19(21.83)
Total	150	19(12.66)	63(42)	82(54.66)
The calculated value of P		0.001*	<0.001*	<0.001*

*There was a significant difference when P was less than 0.05.

Tab.6. Antibody titer of positive samples for hepatitis, broken out by gender Mean Standard Deviation Mean Standard Deviation.

Gender	Mean Standard Deviation	Mean Standard Deviation	Mean Standard Deviation
Male	0.106±0.04	1.650±0.72	1.116±0.13
Female	0.081	1.410±0.74	1.364±0.139
Calculated P value	0.625	0.206	0.231

* No significant difference at P<0.05

Tab.7. Antibody titers of positive samples for viral hepatitis .

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

* Significant variation at P<0.05

Tab.8. Antibody titer of samples that tested positive for viral hepatitis broken down by the residents' countries.

residence	Mean Standard Deviation	Mean Standard Deviation	Mean Standard Deviation
Rural	0.078±0.03	1.52±0.66	1.093±0.15
Urban	0.116±0.04	1.56±0.83	1.314±0.12
Calculated P value	0.109	0.847	0.267

* No significant change at P<0.05

Tab.9. Antibody titer of samples that tested positive for viral hepatitis broken down by the residents' countries.

Dis. State	Mean Standard Deviation
Cirrhosis of the liver	1.92±0.87
Thalassemia	1.65±0.84
Dialysis for the kidneys	1.37±0.9
Calculated P value	0.131*

This study was carried out by following the essential basic information to prevent the spread of the virus and assessing the necessary steps to control infection and its effectiveness in the holy city of Najaf. This study's results determined that disease

could be prevented through cooperation with the training division in the Najaf Health Department and the Patient Safety Division and by encouraging patients to pay attention to personal hygiene. Commitment to periodic reviews and procedures for all routine examinations, immunisation, vaccination, and treatment necessary to limit the spread of the virus; attention to sterilisation of tools; taking all preventive measures, precaution, and caution during blood transfusion in a bank or therapeutic dialysis in the dialysis unit; and organising the stages of treatment according to a specific date with mentioning all patient data if there is Chronic disease or weasel. All of these things are necessary to limit the spread of the virus. On World Viral Hepatitis Day, the World Organisation emphasises bringing hepatitis care closer to primary health facilities and communities [30-34]. This will allow people to receive improved treatment and care services, regardless of the form of hepatitis they may be afflicted with. The CDA Foundation's goal is to completely eradicate both hepatitis C and hepatitis B over the world by the year 2023. It aspires to give global countries and territories validated data and evidence, economic impact modelling, access to affordable diagnostics and treatments [35-39], creative financing, and knowledge sharing—collaborations aimed at eradicating this lethal pathogen.

CONCLUSIONS

The strong connection between the centres and the global prevalence of hepatitis C virus and type B among patients with dialysis, thalassemia, and other blood and liver illnesses is indicated by the findings of this study. In light of this, preventative control measures are essential to lower the transmission risk. These steps include advising patients who travel to centres for treatment to practise proper personal hygiene, immunising them, and providing them with medication. The necessary treatment and their follow-up through the Training Department in the Governorate Health Department in cooperation with the Patient Safety Division, particularly for patients undergoing therapeutic dialysis, must be organised in a sequence that takes into account the stages of dialysis without having an effect on the treatment schedule in the dialysis departments.

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