

DETECTION OF HEPATITIS C VIRUS IN BLOOD DONORS; CORRELATION OF HEPATITIS C WITH INTRAVENOUS DRUG USE/ABUSE/ADDICT, TYPE OF BLOOD DONOR AND MULTIPLE-PRICKS

Muhammad Imran Ashraf¹, Yasir Mehmood^{4,3}, Hammad Yousaf², Syed Saeed Ul Hassan¹, Humayun Riaz³, Faizan Sarwar²

¹Department of Pharmacology, Rai Medical College Sargodha, Pakistan.

²Faculty of Pharmacy, The University of Lahore, Lahore, Pakistan.

³Department of Pharmacology Rashid Latif College of Pharmacy Lahore, Pakistan

⁴Department of Pharmacology Ameer and Adnan pharmaceuticals Pvt limited, Lahore, Pakistan.

ABSTRACT

Objective: To Detect the Hepatitis C virus in blood donors and its correlation with intravenous drug use, type of blood donor and multiple-prick

Material and Methods: This study was conducted on the blood donors of Services hospital Lahore-Pakistan, from November 2016 to December 2016. It included 44 patients and the main aim was detection of Hepatitis C percentage in blood donors as well as the correlation of Hepatitis C with the foremost variables in the study conduct. These variables include the Intravenous drug use/abuse/addict as the first factor and multiple prick as the second variable by relating it with the type of donor.

Results: There are various types of Hepatitis C on the basis of genotype. The Hepatitis C is diagnosed by the numbers of test. The test most probably used in this study is commercially available test kits. Other tests are ELISA and PCR test used for the diagnosis of Hepatitis C

Conclusion: HCV is infrequent among donors in Services Hospital of Pakistan

Keywords: intravenous, pricks, hepatitis C, enzyme-linked immunosorbent assay (ELISA), Polymerase chain reaction (PCR).

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INTRODUCTION

Viral hepatitis due to HBV & HCV is unfortunately highly endemic in Pakistan¹. Hepatitis C virus (HCV) is a major public health problem affecting approximately 2-3% (130-170 million) of the world population². Hepatitis C virus (HCV) is a key contributing agent of parenteral non-A and non-B hepatitis^{3,4}. In the report of Choo and co-workers of Chiron, they revealed that HCV is a novel

viral agent of non-A and non-B³. It is discovered in 1989 that Hepatitis C is a spreadable viral disease, which is triggered by virus that mostly infects the liver. Hepatitis C viral infection is the most famous and leading cause of chronic disease of the liver in United States (USA) with rate of Hepatitis C increasing globally⁵. Countries having higher rates of individuals chronically diseased by Hepatitis C includes the following i.e., Egypt(22%), China(3.2%) and Pakistan(4.8%). In Pakistan, prevalence of HCV infection varies between 4-7%^{6,7}.

By the report of World Health organization (WHO) it is estimated that 130-170 million of people severely infected by Hepatitis C virus and greater than 350,000 individuals are dying by Hepatitis C linked disease of liver every year^{8,9}. The disease control centres evaluat-

Hammad Yousaf (Corresponding Author)

Assistant Professor,

Faculty of Pharmacy, The University of Lahore.

Cell: +92-3214001064

E-mail: h_y_84@hotmail.com

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ed that about 1.8 percent (%) or about 3.9 millions of American reported to have Hepatitis C from which 2.7 million individuals are frequently infected¹⁰. In case if Hepatitis C is not treated or left it may lead to chronic persistent hepatitis, which may further progress to cirrhosis, fulminant hepatic failure and/or cholestatic hepatitis¹¹. Most of the individuals having Hepatitis C infection select unconventional method of alignment due to the cost of therapy as well as due to side effects of therapeutic regimen¹². Corresponding and Alternative Medication increases the immune system as a result may slow the spread of disease, thus improve the quality of life. Hepatitis C if not fully cured with natural or pharmaceutical methods, combination of both of the two may be given to optimize the results regarding health of patients^{13,14}.

The modern and advance scientific progress and research of novel oral anti-viral drugs represents that particular supplements including milk thistle gives more appropriate or potential results in the incidence of Hepatitis C infection^{15,16}.

In case of Hepatitis C it is necessary to maintain the positive approach like support of physician after analysis as well as from close supportive groups including family and friends. It is also necessary to make the positive life-style changes otherwise Hepatitis C may considered to be the death sentence^{17,18}.

MATERIAL AND METHODS

Total of 44 blood samples (representing to blood donors of Services hospital, Pakistan) were taken from donors who were able to donate blood to patients of hospital in the blood bank from November 2016 to December 2016. All of these given samples were examined for HCV antibodies by commercially available ImuMed HCV Rapid test kit. Then the complete history

of the donor was taken regarding to their infectious diseases, smoking, alcohol user, anaemic condition, HIV, hepatitis in previous history, Intravenous drug abuser or addict, venepuncture, allergic reaction, Cardiovascular disorder, Diabetes mellitus, Epilepsy condition, Malaria, Hyperthyroidism, haemophilia (abnormal bleeding tendency), unexpected weight loss, severe diarrhoea, because these conditions are the helpful parameters for blood donation criteria.

Serum samples were tested by using an ImuMed HCV Rapid test cassette according to the manufacturer's guidelines. The blood donors were divided into two group: one was considered as control group (22 blood donors) and second was considered as experimental group (22 blood donors).

The blood donors in group 1 (control group) was not have any intravenous drug use/abuse/addict as well as multiple-prick in their 1 year life history, their blood was screened for HCV and results were concluded. On the other hand the blood donors in group II (experimental group) have a history of blood donation previously in their life as well as intravenous drug use/abuse/addict history and multiple prick during 1 year of their life history, their blood was screened for HCV and results were concluded.

RESULTS

Of 44 blood donors, only 3 were positive for anti-HCV antibodies. The significance value is $0.025 < 0.05$; showing that there is a relationship between type of donor, Intravenous drug use/abuse/addict, Hepatitis C virus and multiple prick. Since the value of pearson correlation is $0.708 > 0.7$, so it means that intravenous drug use/abuse/addict and multiple prick is responsible for hepatitis C.

Table 1: Types of donor

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	paid commercial donor	6	13.6	13.6	13.6
	replacement donor	1	2.3	2.3	15.9
	voluntary donor	37	84.1	84.1	100.0
	Total	44	100.0	100.0	

Table 2: Hepatitis C virus

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	have hepatitis C	3	6.8	6.8	6.8
	not have hepatitis C	41	93.2	93.2	100.0
	Total	44	100.0	100.0	

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Table 3: Multiple prick

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	6	13.6	13.6	13.6
	no	38	86.4	86.4	100.0
	Total	44	100.0	100.0	

Table 4: IV drug use/addiction/abuse

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IV drug user	21	47.7	47.7	47.7
	not the user of IV drug	22	50.0	50.0	97.7
	IV drug addict	1	2.3	2.3	100.0
Total		44	100.0	100.0	

Table 5: Correlations

		IV drug use/addiction/abuse	hepatitis C virus	type of donor	multiple prick
IV drug use/addiction/abuse	Pearson Correlation	1	.249	.339*	.365*
	Sig. (2-tailed)		.103	.024	.015
	N	44	44	44	44
hepatitis C virus	Pearson Correlation	.249	1	.405**	.418**
	Sig. (2-tailed)	.103		.006	.005
	N	44	44	44	44
type of donor	Pearson Correlation	.339*	.405**	1	.977**
	Sig. (2-tailed)	.024	.006		.000
	N	44	44	44	44
multiple prick	Pearson Correlation	.365*	.418**	.977**	1
	Sig. (2-tailed)	.015	.005	.000	
		44	44	44	44

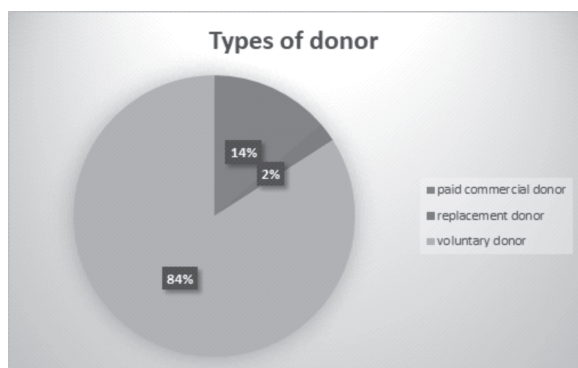


Figure 1: graph presentation of donors

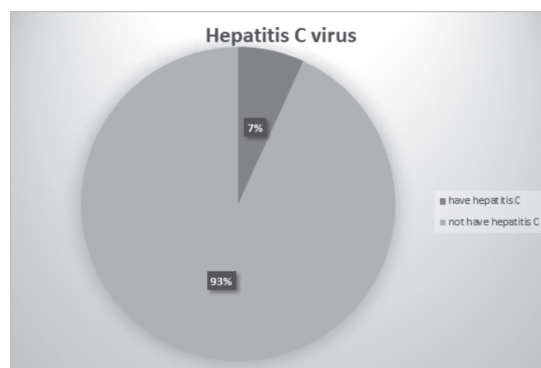


Figure 2: population suffering from HVC

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Figure 3: Multiple prick in population

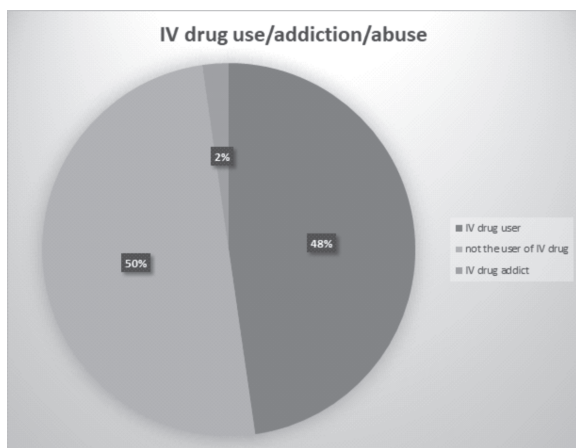


Figure 4: IV drug user

[NOTE: In case of value of pearson
 $I_f < 0.33$ == == > Weak relation
 $I_f > 0.33$ but $< \text{or} = 0.7$, moderate relation
 $I_f > 0.7$, strong relation]

DISCUSSION

HBV causes 563,000 deaths and HCV cause 366,000 death annually¹⁹. The purpose of this study was to conclude the occurrence of HCV infection in group of blood donors in services hospital. HBV and HCV infections are highly endemic in Pakistan⁶. The HBV prevalence across Pakistan has been reported to be 1.11%, 3%, 3.2% and 4%. HCV prevalence has been estimated to be 3.3%, 2.2% and as high as 16.3%⁸.

This study discourages the blood donation by paid type donor which increases the risk of HCV in person to whom the blood is transfused. Otherwise the rate of HCV is increased in Pakistan which is calculated in the report by Nadeem Sajjad Raja and Khalid Abbas Janjua in 2008 that around 10 million persons in Pakistan (6% of the total Pakistan population) have been

existing with HCV infection²⁰. All the 3 cases of HCV is seen in Intravenous drug use/abuse/addict showing a strong relationship as well as a leading cause of HCV in blood donors. According to our information this is supposed to be the first report of HCV correlation of donors in Pakistan.

Blood transfusion centre of Services Hospital in Pakistan use the ImuMed test kit mostly for the prospect of screening the donated blood and are unwilling to take any sample from blood donor that have seropositive confirmation. However, the blood donors are not informed of their seropositive status because no confirmation test is executed on the HCV seropositive person. On the other hand, accomplishment of confirmation test on all the seropositive donors would prove to be helpful for immediately finding and treat HCV positive blood donors, which would also help to decrease the spread of HCV in the state through the blood donors.

CONCLUSION

There is more chances for hepatitis C when blood is taken from paid type donors (having multiple pricks).

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

Ashraf MI: Conception and design, drafting the manuscript, final approval of the version to be published.

Mehmood Y: Drafting the manuscript, final approval of the version to be published

Yousaf H: Analysis and interpretation of data, final approval of the version to be published

Hassan SSU: Critical revision, & final approval of the version to be published.

Riaz H: Acquisition of data.

Sarwar F: Bibliography.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.