Research Paper

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Seroprevalance of anti-HCV Antibodies in different groups of patients and Blood Donors

Medical Science

KEYWORDS : anti-HCV Antibody, Blood donors, Thalassemia

Dr. Pattani Manish Hasmukhray	Associate Professor, Microbiology Department, P. D. U. Govt. Medical College, Rajkot
Dr. Khatri Himanshu Surendrakumar	Associate Professor, Microbiology Department, P. D. U. Govt. Medical College, Rajkot
Dr. Goswami Yogeshanand Shambhupuri	Professor and Head, Microbiology Department P. D. U. Govt. Medical College, Rajkot

ABSTRACT

This study is undertaken to determine prevalence of anti-HCV antibody in blood donors and certain group of patients including thalassemia and those treated by heamodialysis. Serum samples from 10347 were collected from various groups (Group I – Thalassemic patients, Group II – HbsAg Negative viral hepatitis patients, Group III - HbsAg Positive viral hepatitis patients of patients, Group IV – Patients undergoing heamodialysis) and blood donors (Group V) for detection of anti-HCV antibodies.

Prevalance of anti-HCV antibodies is 5 % in Thalassemia, 2.13 % in viral hepatitis sero negative for HBsAg, 3.22 % in viral hepatitis sero positive for HBsAg, 0.00 % in heamodialysis and 0.24 % in blood donor.

This study suggests patients receiving multiple blood transfusions were at high risk for being infected by HCV, in absence of vaccine and effective chemotherapy screening of blood donors is the only way to prevent post transfusion hepatitis C virus infection.

INTRODUCTION

Hepatitis is a major health problem affecting millions of people through out the world. Hepatitis is a disorder involving the inflammation of the liver that may progress to hepatic cell necrosis leading to fibrosis.

Types of hepatitis viruses like Hepatitis A, Hepatitis B, Hepatitis C, Hepatitis D, Hepatitis E & Hepatitis G. hepatitis C virus was cloned in 1988 from complimentary DNA extracted from the plasma pool of chronically infected Chimpanzee.[1]

The main route of transmission of the Hepatitis C virus is dividing in to percutaneous (receiving blood or blood products, intravenous drug users through infected needles) and non percutaneous (sexual contact, perinatal exposure etc.).[2]

The mean incubation period of Hepatitis C infection is 6-12 weeks. More than 85 % of infected patients fail to clear the virus by 6 months and develop chronic hepatitis.[3]

As the Hepatitis C virus infection is the major causative agent of post transfusion hepatitis. In India it is mandatory from June 2001 to screen blood donors for anti-HCV antibodies.

This study was conducted to find out the prevalence of anti-HCV seropositivity in blood donors and certain group of patients including thalassemia and those treated by heamodialysis.

MATERIALS & METHODS

This study was carried out in the Guru Gobind Singh Hospital and Shree M.P. Shah Medical College Jamnagar. 10347 serum samples were collected from various groups (Group I – Thalassemic patients, Group II – HbsAg Negative viral hepatitis patients, Group III - HbsAg Positive viral hepatitis patients of patients, Group IV – Patients undergoing heamodialysis) and blood donors (Group V) for detection of anti-HCV antibodies by third generation diagnostic kit LG HCD 3.0 in vitro enzyme immunoassay for qualitative detection of anti-HCV antibodies.

OBSERVATIONS & RESULTS

A total of 11347 serum samples were collected and tested for anti-HCV antibodies.

Table–1: Anti-HCV seropositivity among different group of the samples.

Sr. No.	Group	No of Sample	No. of anti-HCV positive	Percentage %
1	Thalassemia	100	5	5.00
2	Viral hepatitis (HBsAg Negative)	47	1	3.22
3	Viral hepatitis (HBsAg Positive)	31	1	2.13
4	Hemodialysis	7	0	0.00
5	Blood donors	10162	24	0.24
Total		10347	31	0.29

In Thalassemia group 5 % of samples were anti-HCV antibodies positive which is the highest among all the groups.

Table–2: Age wise Anti-HCV seropositivity among different group of the samples.

Sr. No.	Age (Years)	No of Sample	No. of anti-HCV positive	Percentage %
1	0 – 20	1174	06	0.51
2	21 – 30	5324	14	0.26
3	31 – 40	2859	10	0.34
4	> 41	990	01	0.10

Table–3: Gender wise distribution of Anti-HCV seropositivity among different group.

Sr. No.	Group	Male			Female		
		Total	Positive	%	Total	Positive	%
1	Thalassemia	62	5	3.06	38	0	0.00
2	Viral hepatitis (HBsAg Neg.)	35	1	2.85	12	0	0.00
3	Viral hepatitis (HBsAg Pos.)	24	1	4.17	7	0	0.00
4	Hemodialysis	5	0	0.00	2	0	0.00
5	Blood donors	9963	23	0.29	199	1	0.50
Total		10089	30	0.30	258	1	0.38

DISCUSSION & CONCLUSION:

Population at risk of HCV infection includes patients receiving multiple blood transfusion (Thalassemia and Hemophilia), intravenous drug users, infants born to infected mother, sexual partner of infected patients and health care workers.

A large varity of immunoassay are available today to test the presence of antibodies to HCV infection. For the study a total of 10162 serum samples were collected from the healthy blood

donors and 185 samples were collected from different group such as those suffering from hepatitis, thalassemia and patients with chronic renal failure treated at heamodialysis unit were analyzed for presence of anti-HCV antibodies.

Prevalence of anti-HCV antibodies in thalassemia patients was 5 % in present study which is lower in comparision to 30.39 % by Chaudhary VP et. al.[4] and 17 % by Jaswal et al.[5] The low prevalence in present study may reflect patients in early seroconversion or with an impaired immune response or less prevalence among the health donors.[6]

Prevalence of anti-HCV antibodies in viral hepatitis patients (HBsAg Negative) was 2.12 % in present study which is lower as compare to 12.5 % by Irshad et. al.[7] and 3.33 % by Mamta K.[8]

Prevalence of anti-HCV antibodies in viral hepatitis patients (HBsAg Positive) was 3.22 % in present study which is lower as compare to 14.0 % by Sumathy et al[9] and 30.9 % by Berry et al.[10]

Prevalence of anti-HCV antibodies in patients undergone haemodialysis was 0.00 % in present study which as compare to 38.09 % by Rajesh G et al.[11]

Prevalence of anti-HCV antibodies in blood donors was 0.23 % in present study which which is lower as compare to 1.75 % by Dharmesh et al.[12] and 0.80% by Narayan S.et al.[13]

Patients receiving multiple blood transfusion were at high risk for being infected by HCV, as Hepatitis C virus has capacity to induce chronicity that lead to cirrhosis and liver cancer, in absence of vaccine and effective chemotherapy screening of blood donors is the only way to prevent post transfusion hepatitis C virus infection. The incidence of anti-HCV antibodies is low in our study, indicate less prevalence of hepatitis C virus infection in this region.

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