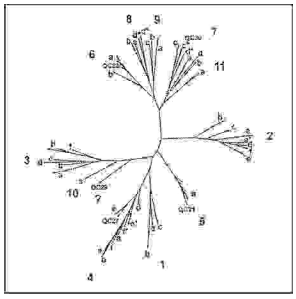
ORIGINAL PROF-1103

HEPATITIS C VIRUS;
PREVALENCE IN BLOOD DONORS IN KARACHI



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ABSTRACT ... gudu014@hotmail.com To find out the prevalence of antibody to HCV in serum of blood donor population in our Community (Karachi). To estimate level of serum ALT in blood donors as possible marker of liver infectivity and hence increasing awareness among the people about the prevention and spread of HCV in Community and to give suggestions in the formulation of blood transfusion policies. **Setting:** At Microbiology Department, Basic Medical Sciences Institute, Jinnah Postgraduate Medical Centre Karachi. **Period:** From September 2001 to January 2002. **Material and Methods:** 150 subjects, consisting of volunteer blood donors and 50 subjects selected from healthy population who had never received or donated blood. **Results:** Among 150 blood donors, 07 subjects (4.66%) were found to be anti HCV positive. Mean age of anti HCV positive donors was 32.85±7.35 years with male predominance. **Conclusion:** It is concluded that HCV is notorious for its infectivity, chronocity and complications. Hence HCV spread should be controlled by screening blood donors for anti HCV antibodies and observing Universal rules in medical practice.

Key words: Hepatitis C Virus, Blood Transfusion, Complications.

INTRODUCTION

Viral hepatitis remains a major public health problem in the developing world. Important causes of Viral hepatitis are hepatitis viruses named as A.B.C.D.E.F and G. Besides these Eastern Barr Viruses, Herpes samples virus, Coxsackie B Virus, Echo Virus, yellow fever virus are capable of causing hepatitis[1].

In Pakistan, each type of viral hepatitis is endemic producing its own pattern of illness and disease

sequelae. Hepatitis B and C are major public health problems because of the overall higher prevalence and adverse outcome in a significant number of people. The prevalence is particularly high in blood transfusions[2]. Hepatitis C virus accounts for approximately 90% of post transfusion hepatitis, 20% of all acute hepatitis, 70% of chronic hepatitis and 30% of end stage liver disease known as Cirrhosis[3,4,5].

Humans seem to be the sole source of infection with hepatitis C virus, and inoculation with blood or blood products are best recognized modes of transmission. Screening of blood donors and heat treatment of Coagulation factors concentrates should prevent infection in future[6]. Since it has parenteral route it can be transmitted by blood and blood products, unsterilized syringes and instruments used in surgery. In most patients infected with HCV, virus persists accompanied by variable degree of hepatic inflammation and fibrosis. Earlier studies of HCV infection suggested that only a small number of hepatocytes become infected, but more recent estimates suggest that 50% or more harbor the virus[7].

Hepatitis C virus infects an estimated 170 millions persons worldwide. In USA nearly 150,000 cases occur yearly, one tenth of which results from blood transfusions and this represents a viral pandemic, that is 5 times as widespread as infection with HIV type I. Chronic hepatitis C following acute infection, develops in 70-80 % of individuals. Co-infections with hepatitis B virus and HIV can accelerate HCV disease and its complications[8,9,10]. The prevalence of HCV antibodies among blood donors have been reported in several studies and appear to differ geographically[11].

MATERIAL AND METHODS

150 subjects, consisting of volunteer blood donors and 50 subjects selected from healthy population who had never received or donated blood.

The study was carried out at Microbiology Department, Basic Medical Sciences Institute, Jinnah Postgraduate Medical Centre Karachi from September 2001 to January 2002.

RESULTS

In this study 150 subjects were included as volunteer blood donors and 50 subjects apparently healthy were taken as controls. 84(56%) subjects were between the age of 18-27 years, 49(32.66%) were between 28-37 years, 16(10.66) were between 38-47 years of age while only 01(0.66%) was above 47 years of age. 138(92%) were male and 12(8%) were female. Among controls 45(90%) were male and 5(10%) were female with most were in the age group of 28-37 years.

Table-I. Sex Wise Distribution of Control Group (n = 50)

Sex	No.	% Age
Male	45	90%
Female	05	10%
Total	50	100%

n = number of subjects.

Table-II. Anti HCV Positive Blood Donors In Different Age Group.

Age Group	No. of Positive Case for HCV/No. of Donors	% Age
18-27 years	2/84	2.38%
28-37 years	3/49	6.12%
38-47 years	2/16	12.5%
> 47 years	Nil	-
Total	7/150	4.66%

Blood donor group has the history of previous blood transfusion and have received transfusion. They had history of contact with jaundice / hepatitis patients, tattoo marking, tooth extraction and barber shaving.

ALT levels in control group and anti HCV negative blood donors were not significantly raised with P>0.05. Four patients out of seven anti HCV positive blood donor had

increase level of ALT whereas remaining three blood donors had ALT level within normal limits.

DISCUSSION

Hepatitis C is a flavi RNA virus which is one of the most important causes of infectious hepatitis. It is five times as widespread as an infection of the human immunodeficiency virus (HIV). There are six different types of hepatitis virus A, B, C, D, E, F and G viruses. Among them Hepatitis B, C and D viruses are transmitted via parenteral route (by blood and blood products or intravenous sepsis). Viral hepatitis is endemic in developer countries like Pakistan, and is punctuated by periodic out breaks. However the prevalence varies from area to area and population due to variability in ethnicity and socio-economic status. The prevalence is particularly high in blood donors[12,13].

HCV accounts for approximately 90% of post transfusion hepatitis. The most alarming aspects of HIV infection are its high rate of chronicity leading to cirrhosis and hepatocellalar carcinoma[14,15,16,17]. HCV infection constitutes a major public health problem because vaccine has not been developed against this virus because of its highly variable genetic material and multiple stereotypes. The HCV is inherently unstable giving rise to multiple titers. HCV circulates as a population of divergent genome exhibiting a quasi species distribution. Specifically, over time, several dozen mutant strains can be detected within one individual and mapped as derivative strain of the original HCV strain infecting that individual. This genome instability and antigenic variability have seriously hampered efforts to develop an HCV vaccine. In particular elevated titers of anti HCV I, G occurring after an active infection do not confer immunity[18].

This study was conducted to find out the prevalence of HCV in blood donors in Karachi population. In our study there were 150 blood donors and 50 age and sex matched control. Our study consist of 150 volunteer blood donors including 92 % male and 8 % female donors. Male to female ratio in our control group and blood donor group showed statically non-significantly difference (P>0.05). Male predominance in blood donors reflects the social and cultural make up of our society where males donate blood more than females.

In our study 7(4.66%) subjects in volunteer blood donors group of 150 were found anti. HCV positive, among these blood donors 6 (4.00%) subjects were male and 1(0.67%) was female. Badu[19] reported the prevalence of HCV in various groups living in Saudi Arabia, while in Pakistani population was 3.7% and 2% among blood donors. Lin-Chu et al[20] reported in their study that anti HCV, positivity among blood donors in Taiwan was 1.6%. In Taiwan the prevalence rate of anti HCV positivity, among blood donors were reported to be 1.6%. The highest prevalence was reported in Egyptians i.e. 19.1% which is much higher than our study[19]. Rehman[21] et al reported in their study at Lahore the prevalence of HCV infection as 4.1%. Alman[13] et al has detected anti HCV in Sindh in 9% blood donors. These all findings are in correlation with our study.

The prevalence of HCV in blood donors varies from country to country. We found that 73 donors (49.33%) had history of previous blood donations, while 77 subjects were first time donors. Out of 7 positive cases for anti HCV found in our study, there were 4(57%) donors who had donated blood repeatedly.

Prevalence of anti HCV positivity of 4.6% in our study in blood donors and presence of 57% (out of 7) anti HCV positive donors who have repeatedly donated blood previously indicating towards the dangerous pool that is spreading HCV infection.

In our study ALT levels showed wide range of fluctuation between normal to raised level in anti HCV positive blood donors group. Similarly in Taiwan Lin-Chu[21] noted no correlation between fluctuation in serum ALT levels and anti HCV titres. Estimation of serum ALT level was used as a surrogate (indirect) test for screening HCV infection because ALT rises about four weeks prior to production of antibodies against HCV[19]. World Health Organization (WHO) has set definite recommendations that all donated blood should be screened for hepatitis C virus

whenever possible[22].

CONCLUSION

It is concluded that proper screening of donated blood for anti HCV should be enthusiastically done to prevent transmission of HCV infection. Use of contaminated needles, blood & blood products should be avoided as preventive strategy. Proper precautions should be taken during tooth extraction, acupuncture, tattooing, nose & ear piercing and during surgical procedure.

Print and electronic media should be mobilized to launch an education. Campaign to educate the people about the mode of spread & preventive measures regarding HCV infection.

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