Research Paper

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Seroprevalance of Transfusion Transmitted Infection In Blood Donors Of Tertiary Care Teaching Hospital Of Jaipur

MEDICAL SCIENCE

KEYWORDS : Transfusion, seroprevalence, HIV, HBsAg, HCV, VDRL and blood donors.

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ABSTRACT

Introduction: Blood donation is a life saving intervention and benefits innumerous patients world wide(1). Screening of transfusion transmissible infections can be a cost effective approach to monitor the prevalence, among healthy looking blood donors(2). The aim of the study was to analyse the seroprevalence of HIV, HBsAg, HCV & VDRL infections in the pretransfusion blood.

MATERIALS AND METHODS: In the present study we aimed to determine the prevalence of transfusion transmitted infection mainly HIV, HBsAg, HCV & VDRL among the healthy blood donors during the period of 1st January 2010 to 30th June 2013. Total 6593 units of blood were collected and were tested for HIV, HBsAg, HCV & VDRL.

RESULT: From the total 6593 blood donors, 158 were seroreactive of at least one of the Transfusion transmitted infection i.e HIV, HBsAg, HCV & VDRL. The prevalence of HbsAg was 122(1.8%), HIV was 15(0.22%) , VDRL was 15(0.22%) and HCV was 06(0.09%) in the present study.

CONCLUSION: The seroprevalance of HBsAg(1.8%) is higher compared to other transfusion transmitted infection i.e HIV, HCV and VDRL.

INTRODUCTION:

Blood transfusion forms an integral part of medical and surgical therapy(3). Transmission of infections through donated blood is a matter of concern. Transfusion transmitted infections include hepatitis B, hepatitis C, HIV, syphilis, malaria and uncommonly toxoplasmosis, brucellosis and some viral infections(4) (5). Blood transfusion has been used since 1930 for various indications(6). Measuring their severity WHO has recommended pretransfusion blood tests for HIV, HBV, HCV, HBsAg, syphilis and malarial parasite as mandatory(7). Government of India published in the year 2002 the National Blood Policy. The objective of the study is to provide safe, adequate quantity of blood, blood components and products. With every one unit of blood transfusion there is 01% chance of transfusion related complications including transfusion transmitted infections(4). Transfusion transmitted infection can exist as asymptomatic disease in their hosts , so donors must be screened for high risk behavior(8). Unsafe transfusion practices also put millions of people at risk of transfusion transmitted infection(9). India is already carrying a burden of 50 million of HBV carriers(10) and 2.27 million of HIV cases(11).

AIM:

Aim of the present study was to analyze the seroprevalence of HIV, HBsAg , HCV and VDRL in healthy blood donors. It would provide the estimation about the disease load in the community and would also reflect on the blood safety measurements. The revealed data may be helpful in formulating the strategies for improving the management of a safe blood supply.

MATERIALS AND METHODS:

Study Design: It was a tertiory care hospital based retrospective study.

Study Location : The data was collected from Blood Bank Of Mahatma Gandhi Medical College & Hospital , Jaipur. The screening of blood for Transfusion Transmitted Iinfection is mandatory for blood safety in the source hospital.

Study Duration : 1st January 2010 to 30th June 2013.

Sample Size: 6593 blood donors.

Sample Variety: Donors both male and female were included in the study(with an obvious male preponderance).A proper history was taken of their health status to exclude all the infectious diseases. Donors with history of hepatitis weight loss , heart disease , malignancy and jaundice were deferred. An elaborate physical examination and CBC (by 3part analyzer,Abacus3) were conducted to rule out anaemia and thrombocytopenia and preexisting infections. A total number of 6593 units of blood were screened for HIV, HBsAG , HCV by using National AIDS Control organization approved ELISA kits and VDRL by RPR kit.

RESULT: A total of Seroprevalence of HBsAG were determined to be 1.81% , HIV was 0.22% , RPR was 0.22% and HCV was 0.09%. Though the prevalence of infection was higher among the male blood donors , HBsAG prevalence was highest. In the present study the overall incidence of TTI was 2.3%. The frequency of HBsAG is more than other infectious diseases because of asymptomatic carriers.

Table 1 : Yearly distribution of voluntary and replacement donors.

Year	Total Donations	Type of Donors
2010	1292	VD-580 RD-712
2011	1187	VD-474 RD-713
2012	2465	VD-1559 RD-906
2013(Till 30th june)	1649	VD-725 RD-924

Table.2 Yearly distribution of seropositive blood donor.

Year	Total Unit	HIV Reactive (%)	HBsAg Reactive (%)	Anti HCV Reactive (%)	RPR Reactive (%)	Total
2010	1292	2	20	3	3	28
2011	1187	2	24	0	6	32
2012	2465	7	50	3	6	66
Jan – June 2013	1649	4	28	0	0	32
Total	6593	15 (0.22%)	122 (1.81%)	6 (0 .09%)	15 (0.22%)	158 (2.3%)

Table.3 Sex and type of seropositive blood donors.

Year	Distribution	HIV (%)	HBV(%)	HCV(%)	Syphilis (%)
2010	Male	2	20	03	03
	Female	0	0	0	0
	Voluntary	1	11	0	3
	Replacement	1	09	3	0
2011	Male	2	24	0	6
	Female	0	0	0	0
	Voluntary	0	13	0	3
	Replacement	2	11	0	3
2012	Male	7	50	3	6
	Female	0	0	0	0
	Voluntary	5	30	2	5
	Replacement	2	20	1	1
Jan – June 2013	Male	4	28	0	0
	Female	0	0	0	0
	Voluntary	2	13	0	0
	Replacement	2	15	0	0

DISCUSSION: Seroprevalence of HBsAG has significantly increased in 31/2 years in apparently healthy community but seropositivity for HIV is on the marginal rise , on the contrary. Though it should never be forgotten that blood donations collected in the latent period of infections may also be infectious despite a negative antibody test. Thus incorporating nucleic acid testing to routine blood screening protocol (to detect low viral RNA or DNA levels) , educating people , creating awareness , encouraging voluntary blood donation camps and implementing strict donor selection criteria as per NACO guidelines to blood bank is the most effective way of ensuring adequate supplies of safe blood on a continuing basis. Also there is a need to report the results of the tests after donation with follow up counseling to prevent further transmission of the infection. Effective control strategies including a sensitive and proper screening of all blood donors , public awareness progress and institution of adequate public health measures are urgently needed(12). The seropositivity could be further decreased by introduction of nucleic acid amplification testing (NAT) for HCV and HIV and introduction of anti HBsAG (IgM) for HBV infection.

CONCLUSION: Our study reports on the prevalence of TTIs in voluntary blood donors in last 3 and half years in the pretransfusion blood. According to this study HBsAG infections has increased but HIV infections are present in almost the same with a marginal rise, in the population as they were 3 and half years previously.

This warrants vigorous efforts in the field of public awareness and emphasis on better and latest generation diagnostic tools to achieve the declining trends in seroprevalence of various TTIs in blood donors of society.

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