



PREVALENCE OF TRANSFUSION TRANSMITTED DISEASES AMONG THE BLOOD DONORS- A CHANGING SCENARIO

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ABSTRACT Transfusion is a process of transfusing blood and its components from one person to another. Transfusion related hazards include the transfusion transmitted disease. Various steps are taken to minimise the risk the transfusion associated infections. Syphilis, malaria and serum hepatitis are the three principal diseases and every donor is questioned for any association with above mentioned disease prior to accept them as donor. Aim of the study is to evaluate the prevalence of transfusion transmitted disease among donors and to identify the commonest disease among the donors in and around Sivagangai. Study was conducted at Blood Bank, Govt Sivagangai Medical College, Sivagangai, a tertiary care center situated in the periphery of Tamilnadu for a period of 5 years from 2012 to 2016. A total of 10626 donor blood were screened and 92 (0.86%) were positive for transfusion transmitted infection. It is our responsibility to assure a safe and sufficient supply of blood and blood products for all patients requiring transfusion.

KEYWORDS : Donors, screening, TTI, transfusion

INTRODUCTION

Transfusion transmitted diseases are iatrogenic diseases which are transmitted through blood and blood products. A wide variety of organisms, including bacteria, viruses, prions, and parasites can be transmitted accidentally or through faulty screening into the recipient. The offending agent starts producing its morbid effects on the host as the spread of infection through transfused blood is very rapid. Hence it is necessary to understand the organisms which could be transmitted through blood transfusion and means by which this could be prevented. The use of a standard donor screening procedure as well as laboratory tests help to reduce the risk of transmitting infectious organism by blood transfusion.

With every unit of blood there is 1 % chance of transfusion associated problems including transfusion transmitted diseases¹. Syphilis, malaria and serum hepatitis are the three principal diseases commonly encountered. TTI can be reduced by donor exclusion, screening for serological infection markers or nucleic acid testing (NAT) by viral gene amplification. Despite this, blood-borne infectious agents are transmitted through transfusion of infected blood donated by apparently healthy and asymptomatic blood donors. Effective screening for the presence of most common and dangerous TTIs can reduce the risk of transmission to very low levels.

As per National AIDS control organization and Tamilnadu State Blood Transfusion Council guidelines, the donated blood is screened for HIV 1 & 2, Hepatitis B Virus, Hepatitis C Virus, Syphilis and Malaria. Screening tests are done by ELISA assay (EIA) or Rapid assay (rapid tests). Prevalence of TTI among the donors are analysed to identify the commonest disease among the donors in and around Sivagangai and whether it correlates with the prevalence of other studies. Any change in trend in the prevalence of diseases analysed by this study.

MATERIAL AND METHODS

The present study has been carried out in Blood Bank, Govt Sivagangai Medical College and Hospital, Sivagangai, a tertiary care center situated in the periphery of Tamilnadu for a period of 5 years from 2012 to 2016. It was a Retrospective study carried out after obtaining Ethical committee permission. Patients relatives, voluntary donors, age between 18-60 years who came to Govt Sivagangai Medical College for donating blood and samples collected from blood donation camps were included in the study. Professional donors, pregnant and lactating mothers and who are on medication were excluded from our study.

All the samples were screened for HIV 1,2 (ELISA), Hepatitis B surface Antigen(ELISA), Syphilis(Rapid) and Malaria(Rapid card test). Tests were performed according to manufactures instructions. All the reactive samples were repeated in duplicate before labeling them seropositive. Internal Quality control was done. External Quality control was done with State Regional Laboratory at Thoothukudi.

The seropositive donor for HIV was referred to ICTC for confirmative

test and further follow up. Other cases were referred to physician for further workup. The seropositive donated blood was discarded as per Biomedical waste guidelines in a proper way.

RESULTS

In our study 10626 donors were enlisted in the study period. Among this 7204 (67.7%) were voluntary donors who donated at Blood donation camps and 3422 (32.2%) donors were replacement donor, voluntary donors who came to blood bank.

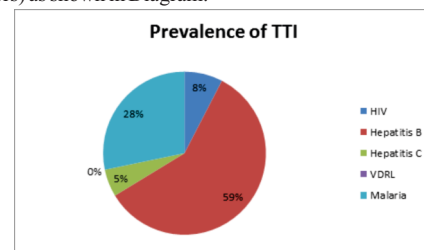
Of these, male outnumbered females with 8895 (83.7%) male donors and 1731 (16.2%) female donors. Among these, 7628 donors aged from 18 to 30 years and 2872 donors aged from 31 to 40 years and 126 donors from 41 to 55 years.

Out of this 10626 donors 92(0.86%) were positive for transfusion transmitted infection for the 5 years study period. Year wise sero positive cases were depicted in Table No. 1.

Table No.1 Year wise statistics of TTI

Year	No. of Donors	No. of bags positive for HIV	No. of bags positive for HBSAg	No. of bags positive for HCV	No. of bags positive for Malarial Parasite
2012	1380	1	11	2	6
2013	1918	-	14	-	5
2014	1793	2	10	2	4
2015	2651	4	13	-	5
2016	2884	-	6	1	6
Total	10626	7	54	5	26

The prevalence of HIV was 0.07 % (7 donors). The prevalence of Hepatitis B surface Antigen was high among TTIs and was 0.55 % (54 donors) and Hepatitis C virus was 0.06%(5 donors). The sero prevalence of VDRL was zero. The prevalence of Malaria was 0.2 % (26 donors) as shown in Diagram.



DISCUSSION

Transfusion of blood and blood products is a life saving measure. But it is an important mode of transmission of infections. Regarding blood donors male outnumbered females. The donors with age group range between 18 to 30 were more in number. This fact was correlating with other studies. Voluntary donors were in high number than replacement donors, denotes awareness in the society about blood donation.

In our study, the overall seropositive of TTIs was 0.86 %. It was similar to other studies in which it was from 0.6 to 0.8 %^{3,4,5,6}. In Hilda Fernandes study, it was 0.6 %². Regarding HIV, the seropositivity was 0.07 % (7 cases) in our study compared to 0.06 % in Hilda study, 0.23 % in Tulika study and 0.44 % in Pallavi study^{2,3,4}. The sero positivity of HBSAg was (0.55 %) high in the present study, and it was 0.34 % in Hilda study, 1.96 % in Tulika study and 1.27 % in Pallavi study^{2,3,4}.

The sero positivity of HCV was 0.06 % when compared to 0.06 % in Hilda study, 0.85 % in Tulika study and 0.23 % in Pallavi study^{2,3,4}. VDRL reactivity was zero in our study while 0.11 % in Hilda study, 0.01 % in Tulika study and 0.28 % in Pallavi study^{2,3,4,7}. Malaria positivity was high 0.2 % (26 cases) in our study and the incidence was found constant in all five years. But it was 0.01 % in Hilda study and 0% in Pallavi study^{2,4}.

TABLE 2. COMPARATIVE STUDY

	HIV	HEPATITIS B	HEPATITIS C	MALARIA
Present study	0.07%	0.55%	0.06%	0.2%
Hilda study	0.06%	0.34%	0.06%	0.01%
Tulika study	0.23%	1.96%	0.85%	-
Pallavi study	0.44%	1.27%	0.23%	0%

From the above facts it was clear that HBSAg positivity was in increasing trend while HIV positivity was decreasing. The prevalence of HIV has been decreasing in the society favours increased awareness of this life threatening disease. HBsAg infection still continues to be very high in general population. There were more malaria positive cases among donors in this study than others. Persons with VDRL reactivity were very minimal among donors in this area.

CONCLUSION

It is our responsibility to assure a safe and sufficient supply of blood and blood products for all patients requiring transfusion. Over all, extensive donor selection and screening procedures are essential to prevent TTIs and to improve blood safety. Awareness and attitude of people towards blood donation should still be standardized to improve the quantity and quality of blood donation. TTI can be reduced by donor exclusion, screening for serological infection markers or nucleic acid testing (NAT) by viral gene amplification. Despite this, blood-borne infectious agents are transmitted through transfusion of infected blood donated by apparently healthy and asymptomatic blood donors.

DECLARATION

Funding none

Conflict of interest declared none

Ethical approval obtained

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