Original Article

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The Relationship Between Serum Levels Of CA- 125 and Interleukin -6 with the Degree of Differentiation in Ovarian Neoplasms.

Bhakti V. Kulkarni, Basavaraj P. Bommanahalli* and Rajshekhar T. Pawadshettar

Dept of Pathology, Gadag Institute of Medical Sciences, Karnataka, India

ABSTRACT

Background: Blood transfusion is an integral and indispensible part of treatment in hospitals these days. Transfusion transmissible infections (TTI) are one of the important complications of blood transfusion. This study is aimed at assessing the seroprevalence of HIV among healthy blood donors in our region and its implications on safe blood practices.

Materials and Methods: This is a retrospective study done over a period of 3 years from August 2015 to July 2018 in two blood banks of Gadag i.e. Gadag Institute of Medical Sciences (GIMS) blood bank and Indian Medical Association (IMA) blood bank. A total of 20,144 blood donors were included in the study. It included both voluntary donors and replacement donors. Donors were screened using donor questionnaire form followed by general physical examination for medical and surgical illness. Eligible blood donors donated blood and their blood samples were subjected to a test that detected the presence of antibodies to HIV by using rapid test kit by Qualpro and then confirmed by 4th generation Qualisa ELISA test kit.

Result: In the present study, out of 20,144 blood donors 19,676 (97.67%) were males and 468 (2.33%) were females. Total number of seropositive cases of HIV was 34. The overall seroprevalence was 0.17%. All the seropositive cases were males and the seroprevalence was 0.17%. The prevalence of seropositive cases among voluntary donors was 0.048% and among replacement donors was 0.72%.

Conclusion: Seroprevalence of HIV in the region of Gadag is 0.17%.

Keywords: *Seroprevalence, Replacement Donors, Voluntary Donors, TTI*

Introduction

Blood transfusion remains an integral part of treatment these days. Transfusion transmitted diseases (TTI) are one of the major complications of blood transfusion. One of the main efforts to curb transmission of HIV is rigorous control of blood products used for transfusion.[1] As of now, there is no cure for it. Failure to control the transmission of infection necessitates increased medical care, loss of productive work and high level of dependency. This again becomes an extra burden on health care sector.[2] Hence, prevention is better than cure. Therefore, this study is done to assess the burden of HIV by calculating the seroprevalence of HIV infection among healthy blood donors.

HIV is one of the chief contributors to global burden of disease. According to National Aids Control Organisation (NACO), by the end of 2017, there were an estimated 21.40 lakh people living with HIV in India. Around 87.58 thousand new HIV infections and 69.11 thousand AIDS related deaths occurred in 2017.[3]

HIV was discovered in the year 1981, in the United Nations of America, on observation of homosexual patients presenting with opportunistic infections and Kaposi's sarcoma.[1] It is classified as a member of Retroviridae and has 2 types: HIV-1 and HIV-2. Among these HIV-1 is more virulent.[4] In India, HIV-2 was first reported in Mumbai in the year 1991.[5] It can be transmitted from person to person sexually or by contaminated blood transfusion or vertically from infected mother to child during pregnancy, delivery or breast feeding.[1]

The diagnostic tests for HIV have evolved from 1st generation to 5th generation over the period of 30 years. 3rd generation test detects antibodies Immunoglobin G (IgG) and Immunoglobin M (IgM) anti HIV-1, HIV-2 and Group O. 4th generation test detects HIV-1 p24 antigen along with this. 4th generation test does not differentiate antigen from antibody positivity where as 5th generation does differentiate between them.[6]

Materials and Methods

This is a retrospective study done over a period of 3 years from August 2015 to July 2018 in two blood banks attached to Gadag Institute of Medical Sciences (GIMS) and Indian Medical Association (IMA). 20,144 blood donors were included in the study. It included both replacement donors and voluntary donors. Family members, relatives or friends of the patients were grouped as replacement donors. People who donated either in blood bank or blood camps voluntarily without any favour in return were grouped

as voluntary donors. Donors were given a questionnaire form that comprised of donor register form which included donor's name, gender, address, occupation, date of previous donation, pregnancy status. It also included various risk factors such as hypertension, diabetes, surgery, hospitalisation, blood transfusion. General physical examination and haemoglobin screening was performed.

Inclusion Criteria: Clinically healthy individuals between the age 18 to 65 years with the body weight of above 45 kg and haemoglobin >12.5g/dl, with no apparent medical or surgical illness, were included in the study.

Exclusion Criteria: Individuals having chronic diseases, drug abusers, sex workers, pregnant women were excluded from blood donation.

After blood donation, the samples were obtained for serological testing. Donor samples were processed for the detection of HIV antibodies by using rapid test kit by Qualpro and then confirmed by 4th generation Qualisa ELISA test kit, as per the procedure given by the manufacturer.[5,6]

Statistics: Microsoft Excel sheet was used to enter the data and the seroprevalence was calculated with respect to age, gender and type of donor. The statistical significance was determined by calculating p value using chi-square test.

Results

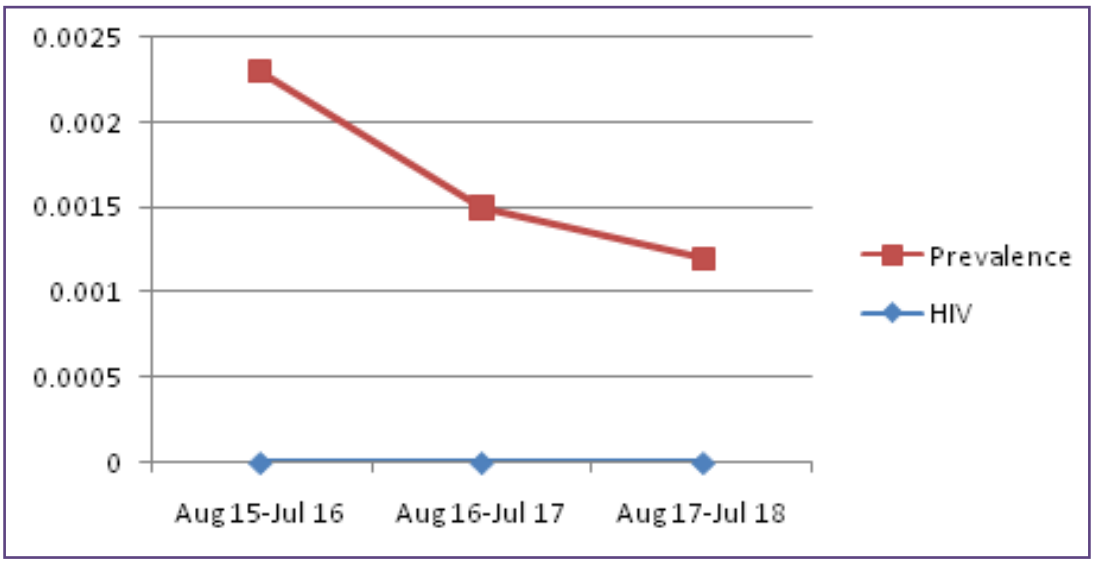
The overall seroprevalence of HIV infection among blood donors was 0.17%. Seroprevalence was higher among replacement donors when compared to voluntary donors, accounting for about 0.72%, which was statistically significant (p value <0.00001). Prevalence was high among male donors accounting for about 0.17% and in females it was 0%. The difference of seroprevalence among gender was statistically insignificant (p value > 0.7421). The seroprevalence was high in the age group 26-30 years accounting for 0.28 % (Table 1). Seroprevalence of HIV among donors showed a decreasing trend from 2015 to 2018(Graph 1).

Table 1: Seroprevalence of HIV infection among blood donors by demographic Characteristics.

Variable	No. of Donors	Seropositive cases	Seroprevalence (%)
Type			
Voluntary	16541	8	0.048
Replacement	3603	26	0.72
Gender			
Male	19676	34	0.17
Female	468	0	0
Age			
18-25	7753	5	0.064
26-30	5283	15	0.28
31-35	3287	9	0.27
36-40	1788	2	0.11
41-45	1088	2	0.18
46-50	523	1	0.19
>50	422	0	0
Total	**20144**	**34**	**0.17**

Table 2. Seroprevalence of HIV infection among blood donors in various regions of India.

Study	Seroprevalence(%)
Shah et al[7], Gujarat	0.15
Arora et al[8], Southern Haryana	0.3
Das et al[9], Kolkata	0.32
Makroo et al[10], Delhi	0.25
Sharma et al[11], Gwalior	0.19
Pallavi et al[12], Mysore	0.49
Chandra et al[13], Lucknow	0.23
Sawke et al[14], Bhopal	0.51
Present study	0.17



Graph 1: Yearwise trend of seroprevalence of HIV infection among blood donors

Discussion

HIV poses a major threat to safe blood transfusion in India. Much emphasis is laid on preventive aspects as there is no complete cure once the infection is acquired.

In a study done by Sharma et al[11], in Gwalior, the seroprevalence of HIV among blood donors was 0.19% (Table 2). In the present study, the overall seroprevelence of HIV among blood donors was 0.17%. The reason for low seroprevalence could be due to increasing public awareness and involvement of Government bodies like National AIDS Control Organisation (NACO).

In the present study, the highest seroprevalance was observed in the age group 25-30years. A study done by Makroo et al showed highest seroprevalence in the age group 18-30years.[5]

In our study, we observed higher seroprevalence among males accounting for 0.17 % and none of the female donors showed seropositivity. The difference between them was not statistically significant (p value > 0.7421). The reason could be lower participation by females due to cultural norms, lower body weight and anemia. In a study done by Neto et al[1] in Curitiba, Brazil, the seroprevalence among male donors was 0.155% and that among female donors was 0.132%.

In our study, we observed that the seroprevalence of HIV was higher in replacement donors accounting for 0.72% when compared to voluntary donors which accounted for 0.048%. The difference between them was statistically significant (p value < <0.00001). Replacement donors may donate blood out of compulsion rather than free will. Hence, they may not fully reveal about the infection while donating the blood. This might be one of the reasons of high seroprevalence among replacement donors.

Conclusion

We conclude that the seroprevalence of HIV infection among blood donors in our region is low. The seroprevalence is high among economically productive age group and replacement donors. Much emphasis is to be laid on prevention of the infection and encouraging voluntary donation. Therefore, there is a need to ensure safe blood transfusion by encouraging extensive donor blood screening, increasing awareness among people regarding the spread of infection and achieve 100% non-renumerated voluntary donation.

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***Corresponding author:**
Dr. Basavaraj P. Bommanahalli, Professor and Head, Department of Pathology, Gadag Institute of Medical Sciences, Gadag, State: Karnataka, India;
Phone: +91 99160 88221
Email: basupath@rediffmail.com

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