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RETROSPECTIVE STUDY OF PREVALENCE OF HIV IN BLOOD DONORS AT A.D.GORWALA BLOOD BANK

Pathology

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ABSTRACT

Background: India has the second highest HIV population in the world with about 2.5-3.0 million cases. Blood transfusion saves millions of lives worldwide each year but Blood transfusion is an important mode of transmission of infections to recipients and at the same time it is also associated with large number of complications including transfusion-transmissible infections (TTIs).
Aims & objective: to study the prevalence of HIV in blood donors of A.D.Gorwala Blood bank From January 2005 To December 2010.
Methods: A retrospective study was conducted among blood donors through the years 2005-2010. Sera from blood donors were tested for the detection of Anti HIV by using third generation ELISA tests, strictly following the instruction of manufacturers. The donor information was collected through the donor registers from A.D. Gorwala Blood Bank.
Result: From the total of 28,371 screened blood samples collected, the prevalence of HIV in blood donors in the blood bank was 0.23% in the five consecutive years but the trend of HIV infection has decreased from 2005(0.31%) to 2010 (0.04%). The age groups18-30 has the highest prevalence and the age group 51-60 was the lowest prevalence of HIV infection. The Prevalence of HIV among male (0.18%) was higher than in female donors (0.05%). The trend of HIV infection was decreasing for both male and female blood donors.
Conclusion: The analysis of HIV seroprevalence among blood donors through the year 2005- 2010 showed a significantly decreasing trend, probably due to the cumulative effect of increasing awareness of HIV and improved screening system for safe blood donation.

KEYWORDS

Blood donors, HIV, Seroprevalence

INTRODUCTION:

Human immunodeficiency virus (HIV) is a lentivirus that cause acquired immunodeficiency syndrome (AIDS). [1,2] Transmission of infectious diseases through donated blood is of concern to blood safety as transfusion forms an integral part of medical and surgical therapy. Blood transfusion carries the risk of transfusion-transmissible infections, including HIV, hepatitis, syphilis, malaria. With every unit of blood, there is 1% chance of transfusion-associated problems including transfusion-transmitted diseases. [3] According to the United Nations Joint Program on HIV/AIDS (UNAIDS),at the end of 2010, an estimated 34 million people with AIDS living within the world. [4] The highest number of patients (22.9 million) is reported from sub-Saharan Africa (31.6-35.2 million) [5] India harbours the third largest number of HIV infected individuals in the world. [6] Several States in India have now reported the presence of HIV-2 after the first case was reported from Mumbai in 1991. [7] The problems of transfusion associated acquired immuno deficiency syndrome resulted in a notification in 1989 under the Drugs and Cosmetics Act which made the test for HIV mandatory. [8] Since the 1980s many different preventive approaches have been used according to the types of contamination to be avoided specially in hospitals, blood banks. One of the main efforts in the fight against HIV transmission consists of rigorous control of blood products used for transfusions. This has been done by analyzing biological and behavioral characteristics of the candidates for blood donation and examining the collected blood, which intends to identify not only HIV infection, but also other pathological conditions that could temporarily or permanently impair the blood donation. As a result, it is calculated that the risk of acquiring the AIDS virus through a blood transfusion is about 2 in 1 million or even lower. [9,10]

MATERIALS AND METHODS

This retrospective cross-sectional study was conducted at A.D. Gorwala Blood Bank of Shree Krishna Hospital Karamsad, Gujarat during January 2005 to December 2010 after ethical permission of institutional ethical committee among all voluntary and replacement donors. Voluntary blood donation was also conducted in the blood bank as well as various blood donation camps.

The donors were apparently healthy adults of the age group 18-60 yr. All donors were subjected to a pre-test counseling which was done by qualified staff trained to screen donors for blood donation. Donors who did not fulfil the general criteria for blood donation, paid and commercial donors and those with a history of high risk behavior were excluded. Consent for infectious marker testing was obtained from all donors at the time of pre-test counseling prior to blood donation. The donor blood samples were collected at the time of blood donation from the primary bag and tested for the presence of HIV using 3rd generation enzyme linked imunosorbent assay (ELISA) tests according to manufacturer's instructions. Test protocol and test interpretation was according to guidelines laid by NACO.

RESULT

A total of 28,371 people were screened for the presence of HIV over the period of 2005 to 2010 and 64 donors were reactive for HIV. Of these, 14 (0.05 %) donors were females and 50 (0.18%) donors were males. A high rate of HIV positivity 42(0.94%) was seen in the age group of 18-30 yr and a small fraction 3(0.04%) were seen in the age category of 51-60 yr. Age group 31-40 and 41-50 were 9(0.2%) & 10(0.2%) find positive during study period respectively.

Table: 1 Gender wise distribution of HIV in blood donors.

YEAR	HIV POSITIVE FEMALE	HIV POSITIVE MALE	TOTAL DONOR
2005	4(0.11%)	7(0.20%)	3461
2006	3(0.07%)	5(0.12%)	4103
2007	2(0.04%)	12(0.29%)	4114
2008	4(0.08%)	17(0.35%)	4853
2009	0(0%)	7(0.12%)	5477
2010	1(0.01%)	2(0.03%)	6363
TOTAL	14(0.05%)	50(0.18%)	28,371

Table: 2 Age wise distribution of HIV in blood donors

Age Group	Prevalence of HIV in 2005(%)	Prevalence of HIV in 2006(%)	Prevalence of HIV in 2007(%)	Prevalence of HIV in 2008(%)	Prevalence of HIV in 2009(%)	Prevalence of HIV in 2010(%)
18-30	07(0.20)	07(0.17)	08(0.19)	15(0.30)	03(0.05)	02(0.03)
31-40	02(0.05)	01(0.02)	03(0.07)	03(0.06)	00(0)	00(0)
41-50	01(0.02)	00(0)	03(0.07)	03(0.06)	03(0.05)	00(0)
51-60	01(0.02)	00(0)	00(0)	00(0)	01(0.01)	01(0.01)

Table: 3 Total prevalence of HIV in blood donors

YEAR	TOTAL DONOR	HIV POSITIVE	PREVALENCE
2005	3461	11	0.31%
2006	4103	08	0.19%

2007	4114	14	0.34%
2008	4853	21	0.43%
2009	5477	07	0.12%
2010	6363	03	0.04%
TOTAL	28,371	64	0.23%

DISCUSSION

The first documentedHIV infection in India was among a cohort of sex workersin the southern State of Tamil Nadu, in 1986. [11,12] The virus since then has beenspreading rapidly across the country. States with a high prevalence of HIV include Maharashtra, Tamil Nadu, Karnataka, Andhra Pradesh, Manipur, and Nagaland. [5,11]

In our study we reported that prevalence of HIV among blood donors was 0.31% to 0.04% in A.D. Gorwala Blood Bank, Shree Krishna Hospital, Karamsad between 2005 to 2010. The age group 18-30 years had highest incidence of 0.15% of the total HIV positive donors, followed by 31-40 years with 0.03% followed by 51-60 years with 0.02%.

The prevalence of HIV reported in Indian blood donors ranges from 0.084-3.87 percent. [14] while A study Conducted on blood donors at a tertiary care centre of the Armed forces revealed seropositivity rates of 0.12% in 2003, 0.17 % in 2004 and 0.10% in 2005, with an overall seropositivity of 0.13%. [14] Mondal R et al., observed that seroprevalence of HIV was reported 0.42% in a sub-Himalayan rural tertiary care centre in Darjeeling, India. [15]

According to NACO, more men are HIV positive than women. Nationally, the prevalence rate for adult females is 0.29%, while that for males is 0.43%.The findings of higher infectivity among men in the reproductive age group, in the present study arein concurrence with the findings of other studies on blood donors. [16]

In our study we reported that the prevalence is 0.18% in males and 0.05% in female donors. This finding is correlate with the similar study done in India by Shehgal S et al [16], Pahuja et al[17]observed >90% of the male donors.

CONCLUSION:

The analysis of trends in HIV seroprevalence among blood donors through the year 2005- 2010 showed a significantly decreasing trend, nationwide. The decreasing trends might be due to the cumulative effect of increasing awareness of HIV and implementation of improved screening system for safe blood collection. The risk of transmitting a TTI through blood transfusion has declined over the years in the developed world. However, in the developing countries each blood unit still has a 1 % risk of transmitting a TTI.

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