



HIV REACTIVITY IN BLOOD DONORS AT TERTIARY CARE CENTRE PDU MEDICAL COLLEGE RAJKOT

Pathology

Dr. Sanjay R. Talwelkar	Associate Professor, Department of Pathology, P.D.U. Government Medical College, Civil Hospital Campus, Rajkot
Dr. Gauravi A. Dhruva	Dean, Professor & Head, Department of Pathology, P.D.U. Government Medical College, Civil Hospital Campus, Rajkot
Dr. Sfoorti H. Goswami*	Assistant Professor, Department of Pathology, P.D.U. Government Medical College, Civil Hospital Campus, Rajkot *Corresponding Author

ABSTRACT

Background&objectives: India has the second highest HIV population in the world with about 2.5-3.0 million cases. Out of this 1.27 cases have been reported from Gujarat. Cases among general and blood donor population have also been reported mostly from north-western and southern states of India. This single centre study was carried out to observe the HIV reactivity among blood donors from Rajkot.

Methods: A total of 20,395 donors were screened for the presence of HIV infection over the 1-year period. All tests were done using the fourth generation MERELISA ELISA kit which detected the presence of HIV-1 & HIV-2 P24 antigen and anti-HIV antibodies.

Results: A total of 22 (0.12%) donors were found to be repeat reactive for HIV. Of these all were males. Out of this 5 (22.7%) were nonreactive on rapid tests.

Interpretation&conclusions: The prevalence of HIV was 0.12% per cent among blood donors of PDU medical college, Rajkot.

KEYWORDS

HIV, donors, ELIS

INTRODUCTION:

According to the United Nations Joint Program on HIV/AIDS (UNAIDS), an estimated 34 million people with AIDS living within the world¹. The highest number of patients (22.9 million) is reported from sub-Saharan Africa (31.6-35.2 million)². India harbours the second largest number of HIV infected individuals in the world³. Several States in India have now reported the presence of HIV-2 after the first case was reported from Mumbai in 1991⁴.

HIV infection resulting from blood transfusion has been documented repeatedly since the first case report from the United States in late 1982⁵. The problems of transfusion associated acquired immunodeficiency syndrome resulted in a notification in 1989 under the Drugs and Cosmetics Act which made the test for HIV mandatory⁶. Several methods are available for the detection of HIV which detect the presence of anti-HIV antibody or the HIV antigen or both. Recently, nucleic acid based tests which are either PCR or transcription mediated amplification to detect the viral nucleic acid have been introduced for blood donor screening⁷. The specialized rapid assays and the Western blot are two commonly used assays which differentiate between HIV-1 and HIV -2.

This study is done in blood bank of PDU medical college, Rajkot.

AIMS AND OBJECTIVES:

This study set out to determine the prevalence of Human Immunodeficiency Virus among blood donors at blood bank in PDU medical college Rajkot by analysing the distribution of this donors according to gender and age.

MATERIAL & METHODS:

- All donors who donated blood at the Pandit Dindayal Medical Blood Bank, Rajkot, a tertiary care hospital in Gujarat in a year 2019 are included in the study.
- The donors were apparently healthy adults of the age group 18-60 yr.
- All donors were subjected to a pre-test counselling 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 behaviour were excluded.
- Consent for infectious marker testing was obtained from all donors at the time of pre-test counselling 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 4th GENERATION kitenzyme linked immunosorbent assay

(ELISA). It detected the presence HIV-1 P24 antigen and anti-HIV antibodies. All samples tested positive by ELISA were repeat tested in duplicate using the same ELISA kit and using the same sample obtained from the donor at the time of blood donation.

RESULTS:

A total of 20395 people were screened for the presence of HIV over the 1-year period. Of these donors 20346 (99.7%) were males and 49 (0.24%) donors were females. Amongst these 22 (0.12%) were found reactive for HIV in which all were males. 18 of them were informed and referred to ICTC (integrated counselling & testing centre) and we were unable to contact the rest 4.

Of the donors testing positive for HIV by ELISA a high rate of HIV positivity 36.3 per cent (8/22) was seen in the age group of 18-30 year and a small fraction 4.5 per cent (1/22) were in the age category of 51-60 yr. The 41-50 year olds showed the second highest clustering of HIV positives, 31.8 per cent (7/22) followed by 27.3 per cent (6/22) in the age range of 31-40 yr. Of these rapid tests showed negative result in 5 of them, which indicate rapid tests are not as sensitive as ELISA.

Of total 20395 donors, 9 (0.13%) or were HIV reactive from 6825 inhouse donation list while 13 (0.09%) were HIV reactive from 13550 outdoor camp list.

Table 1: Prevalence of HIV in donors in different age range

Age Distribution (years)	Prevalence (%)
18-30	36.3
31-40	27.3
41-50	31.8
51-60	4.5

Chart shows Prevalence of HIV in donors in different age range

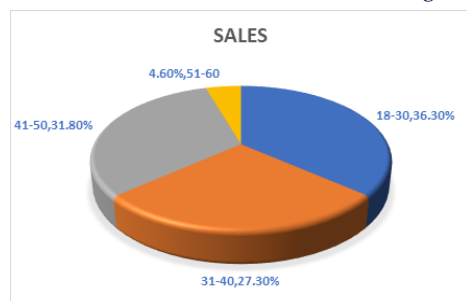


Table 2: Comparison of HIV reactivity in outdoor & indoor camp donors

List	Reactive(outof22)	Reactivity(outof20395)
Inhouse	9	0.13%
Camp	13	0.10%

DISCUSSION:

The first documented HIV infection in India was among a cohort of sex workers in the southern State of Tamil Nadu, in 1986^{8,9}. The virus since then has been spreading rapidly across the country. States with a high prevalence of HIV include Maharashtra, Tamil Nadu, Karnataka, Andhra Pradesh, Manipur, and Nagaland¹⁸. Within these high-prevalence areas, the HIV epidemic reflects the diverse social, cultural, religious, and sexual practices^{10,11}. There are "hot spots," where commercial sex work is common, such as in coastal Andhra Pradesh, northern Karnataka, and southern Maharashtra¹.

According to NACO, more men are HIV positive than women. Nationally, the prevalence rate for adult females is 0.29 per cent, while that for males is 0.43 per cent. The findings of higher infectivity among men in the reproductive age group, in the present study are in concurrence with the findings of other studies on blood donors¹². Heterosexual promiscuity seems to be the only cause of higher seropositivity in males. The prevalence of HIV reported in Indian blood donors ranges from 0.084-3.87 per cent¹³. A study conducted on blood donors at a tertiary care centre of the Armed forces revealed seropositivity rates of 0.12 per cent in 2003, 0.17 per cent in 2004 and 0.10 in 2005, with an overall seropositivity of 0.13 per cent¹³.

CONCLUSION:

So, the prevalence of HIV is 0.12% & more prevalent in male donors of reproductive age group in the tertiary care centre of PDU medical college, Rajkot.

REFERENCES:

- UNAIDS Data Table 2011. [accessed on December 28, 2011]. Available from: http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/JC2225_UNAIDS_datatables_en.pdf.
- UNAIDS World AIDS Day Report 2011. [accessed on December 28, 2011]. Available from: http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/JC2216_WorldAIDSday_report_2011_en.pdf.
- [accessed on December 28, 2011]. Available from: http://www.unicef.org/india/hiv_aids_156.htm (UNICEF)
- Kannangai R, Nair SC, Sridharan G, Prasannakumar S, Daniel D. Frequency of HIV type 2 infections among blood donor population from India: A 10-year experience. *Indian J Med Microbiol*. 2010;28:111-3. [PubMed] [Google Scholar]
- Lange JM, Van den Berg H, Dooren LJ, Vossen LM, Kuis W, Goudsmit J. HTLV III/LAV infection in nine children infected with a single plasma donor: clinical outcomes and recognition patterns of viral proteins. *J Infect Dis*. 1986;154:171-4. [PubMed] [Google Scholar]
- The Gazette of India. New Delhi: Ministry of Health & Family Welfare; 1989. Ministry of Health & Family Welfare, Government of India (1989): Drugs and Cosmetics Act. [Google Scholar]
- Allain JP. Genomic screening for blood borne viruses in transfusion settings. *Clin Lab Haematol*. 2000;22:1-10. [PubMed] [Google Scholar]
- John TJ, Babu PG, Jeyakumari HM, Simoes EAF. Current prevalence and risk groups of HIV infection in Tamil Nadu, India. *Lancet*. 1987;1:160-1. [PubMed] [Google Scholar]
- Simoes EA, Babu PG, Jeyakumari HM, John TJ. The Initial detection of Human Immunodeficiency virus 1 and its subsequent spread in Prostitutes in Tamil Nadu, India. *J Acquir Immune Defic Syndr*. 1993;6:1030-4. [PubMed] [Google Scholar]
- Steinbrook R. HIV in India - A Complex Epidemic. *N Engl J Med*. 2007;356:1089-93. [PubMed] [Google Scholar]
- Chandrasekaran P, Dallabetta G, Loo V, Rao S, Gayle H, Alexander A. Containing HIV/AIDS in India: the unfinished agenda. *Lancet Infect Dis*. 2006;6:508-21. [PubMed] [Google Scholar]
- Smallman-Raynor M, Cliff A. The spread of human immunodeficiency virus type 2 into Europe: A geographical analysis. *Int J Epidemiol*. 1991;20:480-9. [PubMed] [Google Scholar]
- Chattoraj A, Behl R, Kataria VK. Infectious disease markers in blood donors. *Med J Armed Forces India*. 2008;64:33-5. [PMC free article] [PubMed] [Google Scholar]