

Prevalence of HIV Infection in Blood Donors in Western Uttar Pradesh- A 5 year Experience

Kafil Akhtar, S.H. Arif, Ghazala Mehdi, Rana Sherwani,
Veena Maheshwari and Nazma Haider

Department of Pathology Jawaharlal Nehru Medical College,
Aligarh Muslim University, Aligarh, India.

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Despite the availability of improved donor screening technologies and viral inactivation procedures, the risk of transmission of transfusion transmissible infections (TTIs) still remains a major concern. Constant monitoring and retrospective analysis of the incidence of TTIs, notably hepatitis B virus (HBV), hepatitis C virus (HCV), human immunodeficiency virus (HIV), and syphilis among voluntary blood donors becomes essential to evaluate the prevalence of TTIs in the population. The current study looks at the prevalence of HIV infection amongst healthy blood donors coming to Blood Bank, J N Medical College Hospital, AMU, Aligarh during the period 2006-2010. All blood donations (voluntary or replacement) collected over this period were included. Samples were screened for anti-HIV antibody (HIV Microlisa, J Mitra & Co.) by a commercial microplate ELISA method, to determine the seropositivity of HIV infection in the donors. Of the 53422 units of blood collected over a 5- year period, 24040 (45%) were from voluntary and 29382 (55%) from replacement donors. Majority of the donors belonged to the age group of 18-40 yrs. Among the donors, 130(0.24%) were positive for anti-HIV antibody, of which 121(93.1%) were males and 09 (6.9%) were female donors. The comparative seropositivity of voluntary and replacement donors were 110(84.6%) replacement donors and 20(15.4%) voluntary donors. Motivation and recruitment of potential local blood donor population would lead to an effective voluntary system. Stringent screening of donors for transfusion transmissible infections is crucial to ensure safe supply of blood and blood products in a well-coordinated blood transfusion service with good quality control.

Key words: Blood donors, HIV infection, Prevalence.

Human immunodeficiency virus (HIV) establishes a chronic and latent infection in the body that induces extensive damage to the immune system through virus related as well as indirect

pathogenic mechanisms.¹ HIV infected individuals show not only a quantitative depletion of CD4+ T cells but also an overall immune dysregulation. HIV is easily transmitted through infected blood, unsafe injections and equipments. Highly active antiretroviral therapy (HAART) is well known to prolong the survival of HIV-infected individuals.²

The transfusion of blood and blood products is a life saving measure but at the same time, the transfusion of infected blood or one of its

* To whom all correspondence should be addressed.
E-mail: drkafilakhtar@gmail.com

components carries a significant risk of the transmission of many blood transmitted diseases like Human Immunodeficiency Virus (HIV), Hepatitis-B virus (HBV), Hepatitis-C Virus (HCV), syphilis and malaria which do not have any specific treatment and are potentially life threatening.

The diagnosis of the HIV infection depends upon the demonstration of the antibodies to HIV or the direct detection of HIV or its components. The antibodies to HIV generally appear in the circulation 2 to 12 weeks following infection with the virus.

We at Blood Bank of Jawaharlal Nehru Medical College Hospital, AMU, Aligarh studied the HIV prevalence in donors in the last 5 years.

MATERIAL AND METHODS

The present study was conducted in replacement and voluntary donors attending the Blood Bank of Jawaharlal Nehru Medical College Hospital, AMU, Aligarh from January 2006 to December 2010. All the donors were declared fit to donate after thorough clinical history and examination. Thereafter 5-10 ml of blood was withdrawn with a 10 ml disposable syringe and subjected to screening for detection of antibodies to HIV 1 and/or HIV-2 by Microlisa-ELISA (J Mitra and Co.) and the absorbance read at 450 nm.

RESULTS

Majority of the donors were young males in the age group of 30-40 years (60%), followed by 30% donors in the age group of 21-30 years.

Of the 53422 units of blood collected over a 5-year period, 24040 (45%) were from voluntary and 29382 (55%) from replacement donors. Among the donors, 130 (0.24%) were positive for anti-HIV antibody, of which 121 (93.1%) were males and 09 (6.9%) were female donors. The comparative seropositivity of voluntary and replacement donors were 110 (84.6%) replacement donors and 20 (15.4%) voluntary donors.

Year-wise HIV positive cases among blood donors were assessed. There were 16 positive cases per 9820 donations (0.16%) in the year 2006. There was a slight increase in HIV positive cases in the year 2007, i.e 21 positive cases per 9940 donations (0.21%). The number of HIV

positive cases further increased to 25 positive cases per 10084 donations (0.25%) and 30 HIV positive cases per 10300 donations (0.29%) in the year 2008 and 2009 respectively. In the year 2010, there were 38 HIV positive cases per 13278 donations (0.29%) (Table-1).

The study revealed very few female HIV positive case during the entire period of study, 9 cases (6.9%). An interesting but alarming finding in our study was that 100% HIV positive cases were young adults. The majority of cases i.e. 121 (93.1%) were in the age group of 21-30 years, followed by 7 cases (5.4%) in 31-40 years age group. There were 2 cases (1.5%) in the late second decade (Table-2).

Table 1. Year-wise prevalence of HIV positive cases

Year	Total No. of Donors	No. of Positive Cases	Percentage
2006	9820	16	0.16
2007	9940	21	0.21
2008	10084	25	0.25
2009	10300	30	0.29
2010	13278	38	0.29

Table 2. Age-wise distribution of HIV positive cases

Age in years	Total No. of Cases	Percentage
10-20	02	1.5
21-30	121	93.1
31-40	07	5.4

DISCUSSION

Though recognised as an emerging disease only in the 1980s, AIDS by now has been established throughout India. During the year 2005, the number of HIV positive cases rose to 5.2 million.¹ The situation looks more dreadful when we broaden our outlook globally. The south-east Asian region saw the number of HIV/AIDS positive patients rising to 7.2 million in December, 2006.¹ Gupta and Shah have reported 0.28% HIV positive cases in their study in a tertiary care hospital.³

AIDS epidemic has become one of the most serious challenges faced by the country since independence. Since the first case was reported in

1986 in Chennai, the capital of the South Indian State of Tamil Nadu, HIV has spread rapidly from urban to rural areas and from high risk groups like prostitutes, IV drug users and truck drivers to the general population.⁴ Heterosexual transmission is driving India's HIV/ AIDS epidemic. This route accounts for approximately 85% of the HIV infections in the country; the remaining 15% are accounted to other routes such as blood transfusion and injecting drug use.⁵

In India, knowledge about HIV is still scant and incomplete. In a 2004 maternal behavioural study of nearly 85,000 people, only 75% of the respondents had heard of AIDS and awareness was particularly low among rural women in Bihar, Gujarat and West Bengal.⁶

Though there is no significant increase in HIV infections in the country and India continues to be in the category of low prevalence countries with overall prevalence of less than 1 percent, greater impetus should be given towards surveillance and behavioral study on young people as the epidemic continues to shift towards younger individuals.

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