

HIV-Sero-prevalence trend among blood donors in Federal Area of Pakistan

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Abstract

Although blood transfusion is one of the known therapeutic interventions that cuts across a number of clinical disciplines. It is necessary to test all intending blood donors for HIV infection before donation. The aim of this study was to determine the prevalence of HIV among blood donors at PIMS Blood Bank, Islamabad, Pakistan. A retrospective study was conducted in PIMS Blood Bank through the year 2019. Sera from blood donors were tested for the detection of Anti HIV by using Abbott ELISA. Data were abstracted from records and analyzed using Microsoft Excel sheet. From the total of 18500 screened blood samples collected, the prevalence of HIV in blood donors in the blood bank was 0.001% in the 2019 from January to July. The age groups 15-24 and 35-44 were the highest prevalence and the age group 45-54 was the lowest prevalence of HIV infection. The prevalence of HIV among male was higher than in female donors. The trend of HIV infection was decreasing for both male and female blood donors. The prevalence of HIV infections among blood donors is still high in this study setting, and needs constant monitoring to evaluate prevention and control strategies to reduce the burden of transfusion-transmissible HIV infections.

Keywords: Blood donor, HIV, seroprevalence, Pakistan.

Introduction:

HIV has continued to create a great challenge to transfusion medicine, especially in Asia a huge percentage of HIV transmission had been correlated with blood transfusions.¹ Since the detection that HIV is transmitted through blood transfusion it became necessary to test all intending

Blood donors for HIV infection before they are transfused to ensure the safety of all blood and blood products to the recipients. In past, millions of people were living with HIV accounting for nearly 70% of the global total. In the same year, there were an estimated 1.6 million new HIV infections and 1.2 million AIDS-related deaths.

In 2013, there were an estimated 793,700 people living with HIV. HIV adult prevalence is anticipated to be 1.5% in 2011, the year in which the last Ethiopian Demographic Health Survey (DHS) was conducted. However prevalence varies according to age, sex,

gender and geographical location.⁴

Therefore, the aim of this study was to provide information about the trend of HIV seropositivity among the blood donors at PIMS blood bank over the study period and this would allow comparison of the seropositivity over the course of time. The finding could also be used to update intervention programs which focus on the prevention and control of HIV/AIDS.

Methods

A retrospective study was conducted at PIMS Blood Bank during January to July 2019 by reviewing the log book's data. This was a retrospective study conducted in PIMS Bank Center. The study population was all blood donors who donated blood at PIMS Blood Bank. The participants were those who weighed not less than 50 kg and were age of greater than or equal to 18 years old. A total of 18500 approximately blood donors' records were reviewed and included in the study. Serum samples were tested for HIV using fourth Abbott Enzyme Linked Immunosorbent Assay (ELISA)

(HIV1/2:). All the tests were done following the manufacturer’s instructions.

Data on socio-demographic variables, laboratory test results were collected from registration book of PIMS Blood Bank using data extraction format. Data were cross-checked for completeness. The data was cleaned, edited and entered into computer and analyzed using Microsoft Excel sheet and the results were present- ed in tables and paragraph.

Ethical approval

Ethical clearance was obtained from Blood Bank administration before the commencement of data collection. Confidentiality of the in- formation was

ensured as codes instead of the names of the subjects were registered on the data collection format.

Results

During the 7 month period, 18500 individuals donated blood and screened for HIV infections. From the total donors, (89.1%) and (11.9%) were male and female donors respectively. More men participated in the survey than women, with a male-to-female gender ratio of 4.01. The finding of this study showed that there were 476 HIV positive blood donors. Therefore, the overall prevalence of HIV infection in blood donors was found to be 5.1% in the five consecutive years (Table1).

Fig.1 Trend of HIV prevalence among blood donors atPIMS Blood Bank from January 2019- June 2019

Table 1: Trend of HIV prevalence among blood donors at PIMS Blood Bank

Month	No ofUnits screened	HIV positive	
		N	%
January	1432	75	5.2
February	1538	112	7.3
March	1720	136	7.9
April	1924	89	4.6
May	2770	64	2.3
June			
Total	9384	476	5.1

The trend of HIV infection has increased from January to June. Considering age, the age groups 15-24 and 25-34 had the highest contribution and the age group 55-65 the lowest contribution of HIV infection (Table 2 and 3)

Table 2: Infection with HIV among blood donors at PIMS Blood Bank by age groups

Group	Month						Total
	Jan	Feb	March	April	May	June	%
15-24	33	48	66	25	26	198	41.6
25-34	19	47	46	48	30	190	40
35-44	14	13	14	15	8	64	13.4
45-54	7	2	9	1	-	19	4
55-65	2	2	1	-	-	5	1
Total	75	112	136	89	64	476	100

Table 3: Prevalence of HIV among age group at PIMS Blood Bank from January-June 2019.

Age	Total donors	HIV positive	Prevalence
15-24	2938	198	6.75
25-34	4355	190	4.36
35-44	1023	64	6.25
45-54	865	19	2.20
55-65	206	5	2.43
Total	9384	476	5.1

As indicated in table 4 the prevalence of HIV among female blood donors (7.9%) was higher than among male donors . The trend of HIV infection was increasing for both male and female blood donors.

Table 4: Distribution of HIV positive blood donors by gender at PIMS Islamabad

Gender	HIV(+ve)				
	Monthly donors				
Total	Male Donors		Female donors		
		Male N (%)		Male N (%)	Female N (%)
January	1432	1194	238	54 (4.5)	21(8.8)
Februar y	1538	1201	337	76(6.3)	36(10.7)
March	1720	1373	347	98(7.1)	38 (11.0)
April	1924	1502	422	61(4.1)	28(6.6)
May	2770	2244	526	40 (1.8)	24(4.6)
June					
Total	9384	7514	1870	329(4.4)	147 (7.9)

Discussion

Blood transfusion is considered as a potential risk factor for transmission of viruses which are considered to be life-threatening and have a global public health importance such as HIV. In this study, the overall prevalence of HIV infection was 30 (0.001%) . A decreasing trend in HIV sero prevalence among blood donors was reported from Islamabad, Rawalpindi¹⁴ Our study reported higher prevalence of HIV infection compared to previous studies done in Pakistan, Such differences in sero prevalence rate might be due to some differences in risk behaviors, geographical variation, educational programs, preventive measures, public awareness, condition of epidemic, donor selection criteria and selection procedure, sensitivity and specificity of screening technologies employed in blood transfusion centers of those countries by performance characteristics of test kits as well as diagnostic algorithms used in each study.

Sex specific prevalence of HIV infection was higher for males than for females. The difference between the two sexes was consistent with other studies that showed a higher prevalence among males. yet the age specific prevalence was highest among the

age group 15-24 years followed by those who were 25-34 years. The higher rate of sero prevalence in these age groups might be attributed to their being more sexually active.

Conclusion

The prevalence of HIV infections among blood donors is still high in this study setting, and needs constant monitoring to evaluate prevention and control strategies. To reduce the possible risk of infections, provision of strict criterion in recruitment of blood donors by promoting the culture of voluntary blood donations, screening of blood and blood products for these pathogens using sensitive laboratory test kits are imperious. Creating community awareness about the mode of transmission and prevention of HIV infection should be strengthened by giving health education. Moreover, conducting further community-based studies to identify societal risk factors exposing communities for blood-borne infections and developing population-specific interventions to interrupt transmission are valuable in recruiting potential volunteer non-remunerated blood donors.

Conflict of interests

We, the authors, declare that there is no

competing interest financially or non-

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