

Seroprevalence of Human Immuno Deficiency Virus (HIV) among Blood Donors in Tertiary Health Care Centre in Taraba State, Nigeria

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Abstract

Introduction: Nigeria has 3,400,000 of HIV population in the world with about 2.5 - 3.0 million cases HIV-2 cases among general and blood donor population here also been reported mostly from various region. This single Centre study was carried to observe the HIV/ HIV2 prevalence among blood donor in federal Medical Centre Jalingo, Taraba State. Blood transition is one of the known therapeutic intervention that is common in clinical practice. It is important to screen all intending blood donors for HIV infection before bleeding them for donation. The aim of this study was to determine the trend of HIV prevalence among blood donors and the risk of acquisition of HIV infection through blood transfusion in a tertiary health care centre in Jalingo, Taraba State, Nigeria.

Methodology: A retrospective study was conducted in tertiary health care Centre in Jalingo blood bank through the year 2014 - 2018. 3346 blood donor were tested for the detection of HIV infection by using ELISA technique. Data were collected from the record and analyzed using Microsoft excel sheet for trend of HIV seroprevalence among blood donor then.

Results: The result of the study shows that the seroprevalence among Human Immuno deficiency virus blood donors from 5.3% in 2014 to 2.5% in 2018. The age group 15 - 24 has highest prevalence of HIV followed by age group 25 - 34 while the 55 - 65 has the lowest prevalence of HIV infection.

Conclusion: The study shows that the prevalence of HIV among donor is still high and studying setting needs consistent monitoring to evaluate prevention and careful strategies to reduce the burden of transfusion-transmissible infection despite the decreasing trend among donors. Long term surveillance of blood donors can provide information on the cause of the HIV.

Keywords: *Blood Donors; HIV; Seroprevalence; Taraba State*

Introduction

Human immunodeficiency virus has continue to create a great concern to clinical and public health practice since it was discovered that one of the means of contacting HIV is through blood transfusion Human immunodeficiency virus destroys white blood cells that are essential to the body's immune system by attacking them and this lead to the cause of acquired immunodeficiency syndrome(AIDs). HIV/ AIDS are one of the most rampant and recognized infectious diseases in the world today. It contributes significantly to the number death and economic burden of the country.

In year 2005 more than forty million people living with HIV and 3 million died of AIDS related disease worldwide. Each day a total of 14,000 people are infected with HIV half of them fall between ages 15 - 24. The greatest number of HIV infection and death was recorded in Sub Saharan Africa [1]. 23 million people are living with HIV as indicated statistically [2] out of these, Nigeria account for about 3,400,000 people living with HIV while adult prevalence rate 3.4. AID related deaths are 210,000.

HIV/AIDS epidemic remains a public health problem that must be given priority attention in Nigeria. The country with the second highest number of people living with HIV after South Africa is Nigeria. The prevalence was 1.8% in the 1991 and reached it peak in the year 2001 at 5.8% and declined by 2.4% within ten years, In the 2011 alone 388,864 people are infected with HIV disease in Nigeria [3]. The prevalence rate of HIV/AIDs was 3.4% as reported by a survey conducted by federal government of Nigeria for 2012 National HIV/AIDs and reproductive health survey (NAPHS pulse), The same was also reported in a national sentinel survey report which shows that for the 25 years period from 1996 when AIDs was first reported in Nigeria till December 2011 a total of 3,459,363 people now live with HIV.

In 2011, 388,864 new infections occurred while a total of 217,148 AIDS related death also occurred [3]. The epidemic of HIV/AIDs poses a big challenge to the health and development in and its impact will erode the developmental goals of the country and destabilize the vision of the Nigeria. The acquisition of HIV infection occurs through unprotected sexual intercourse with an infected person, transfusion of contaminated or infected blood or blood product from infected mother to the unborn child and sharing of unsterilized injection, equipment that has been used by someone who is infected. About 10% of new HIV infection is transmitted through mother to child transmission and other HIV risk behavior such as circumcision and incision of tribal marks [5].

The prevalence of HIV among blood donors differs between countries and regions depending on several factors such as the general HIV awareness, education of the public regarding blood donation, the section of donor screening [4]. The prevalence of HIV among blood donors high income countries is as low as (0.001%) while it may be higher than 0.5% in low income countries. since there is no curative treatment for HIV/AIDs, emphasis has been placed on prevention of infection and transmission with the advent of HIV/AIDs in 1981 different prevention approached have been employed with respect to the prevailing route of transmission in a particular environment. Essentially in places such as health facilities with blood banking service, one of the major efforts in the prevention of HIV transmission is the mandatory prescreening of blood and blood product for HIV and other infectious disease before transfusion.

Methodology

A retrospective study was conducted at the blood bank of Tertiary health Centre in Jalingo, Taraba State Nigeria during January to May 2019, Data was obtained from the records between 2014 - 2018 data. This was a retrospective study conducted with a population of blood donors who donated blood with the stated year 2014 - 2018. The participants were those who volunteer to donate blood and lies between age's 18 years - 65 years old. From the data obtained 3346 blood donors records were reviewed and included in the study. All donors were subjected to a pretest counseling which was done by qualified staff trained to screen donor for blood and consent for infectious testing was obtained from all donors at the time of pretest counseling prior to blood donation.

The donor sample were collected and were tested using the ELISA kit and using the same sample obtained from the donor at the time of blood donation and if the donor was found reactive the sample was subjected to Western blood test using HIV22 Gelab kit. All Western blood result were interpreted using WHO criterion.

Data on socio-demographic variables, laboratory test result were collected from the records of the blood bank. The data was reviewed, edited and entered into computer and analyzed using Microsoft excel sheet as the result were presented in tables and paragraph.

Ethical approval

Ethical clearance was obtained from Tertiary health care Centre in Jalingo, Taraba State Nigeria which was sent to the administrator of the blood bank by the management of the hospital. All personal details of the subject were removed and could not be linked with the identity of any individual.

Result

During the 5 years period of 2014 - 2018, 3346 individual donated blood and screened for HIV infection which comprise of 2951 male and 395 female donors indicating the prevalence of HIV of male donor (4.6%) while the female donor at (7.9%).

| Years | No of donors screen | Gender | | Gender HIV +ve | |
|-------|---------------------|-------------|------------|----------------|------------|
| | | Male (%) | Female (%) | Male (%) | Female (%) |
| 2014 | 432 | 342 (79.2) | 90 (208) | 15 (65.2) | 8 (34.8) |
| 2015 | 525 | 467 (88.9) | 58 (11.1) | 29 (82.9) | 6 (17.1) |
| 2016 | 706 | 656 (92.1) | 50 (7.1) | 46 (88.5) | 6 (11.5) |
| 2017 | 923 | 869 (94) | 54 (6) | 35 (89.7) | 4 (10.2) |
| 2018 | 760 | 517 (81.2) | 143 (18.8) | 12 (63.2) | 7 (368) |
| Total | 3,346 | 2951 (88.2) | 395 (11.8) | 137 (4.6) | 31 (7.9) |

Table 1: Distribution of HIV positive by gender from 2014 - 2018.

The study also revealed that among the 168 donors were HIV positive, the overall prevalence of HIV infection among the donor was found to be 5% in the five consecutive years, HIV infection among the female donor was higher (7.8%) higher than that of male donor at (4.6%) the trend of HIV seropositive decreases in both male and female.

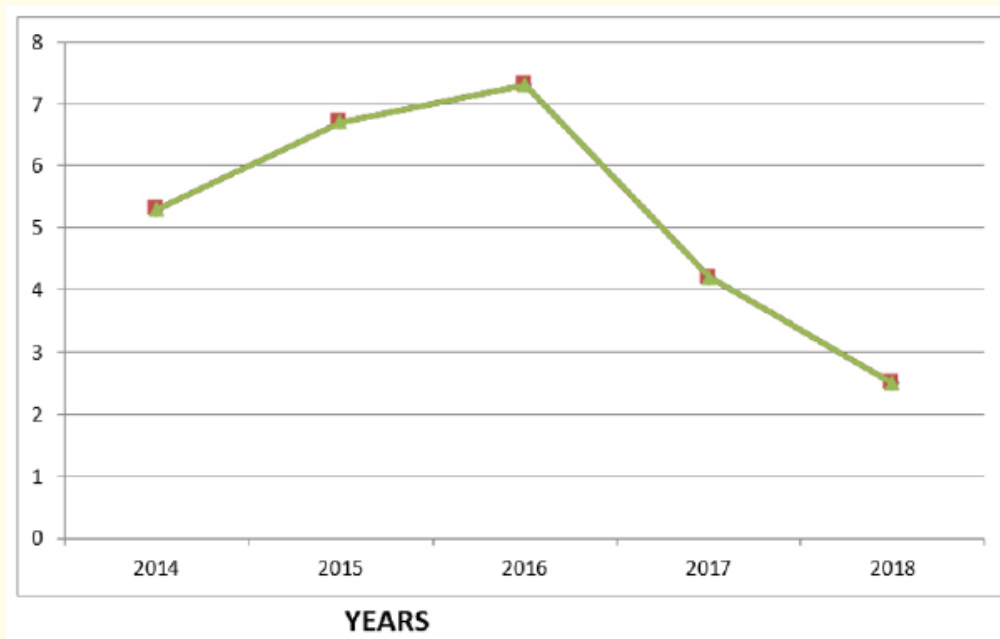


Figure 1: Trend of HIV prevalence among donors from 2014 - 2018.

| Year | No unit of donors screened | HIV +ve (%) |
|-------|----------------------------|-------------|
| 2014 | 432 | 23 (5.3) |
| 2015 | 525 | 35 (6.7) |
| 2016 | 706 | 52 (7.3) |
| 2017 | 923 | 34 (4.2) |
| 2018 | 700 | 19 (2.5) |
| Total | 3,346 | 168 (5%) |

Table 2: Trend of HIV seroprevalence among donors from 2014-2018.

The trend of HIV infection from 2014 - 2018 considering the age, the age group 15 - 24 and 25 - 34 had the highest number of HIV +ve donors and among the donor the group 15 - 24 has the highest number of HIV positive donor within the five years considered for this study which might be as a result of active sex age as shown in table 3 and 4.

| Group | Year | | | | | Total | |
|---------|------|------|------|------|------|-------|------|
| | 2014 | 2015 | 2016 | 2017 | 2018 | N | % |
| 15 - 24 | 10 | 9 | 21 | 17 | 8 | 65 | 38.7 |
| 25 - 34 | 6 | 14 | 12 | 14 | 7 | 53 | 31.5 |
| 35 - 44 | 5 | 7 | 11 | 6 | 2 | 31 | 18.5 |
| 45 - 54 | 2 | 4 | 6 | 2 | 1 | 15 | 9 |
| 55 - 65 | 0 | 1 | 2 | - | 1 | 4 | 2.3 |
| Total | 23 | 35 | 52 | 39 | 19 | 168 | 100 |

Table 3: Infections with HIV among blood donor by group from 2014 - 2018.

| Age | Total no donor | HIV +ve | Prevalence (%) |
|---------|----------------|---------|----------------|
| 15 - 24 | 956 | 65 | 6.8 |
| 25 - 34 | 1019 | 53 | 5.2 |
| 35 - 44 | 517 | 31 | 6.0 |
| 45 - 54 | 714 | 15 | 2.1 |
| 55 - 65 | 138 | 4 | 2.9 |
| Total | 3340 | 168 | 5.0 |

Table 4: Prevalence of HIV among age group from 2014 - 2018.

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 188 (5.0%) but showed decreasing trend from 2014 - 2018. As reported by [5,6].

The prevalence of HIV is lower when compared with previous studies done in Ethiopia [7]. This study also reported higher prevalence of HIV infection compared to previous study [8]. The difference in seroprevalence rate might be due to difference in risk behavior, geo-

graphical variation, educational programs, preventive measures, public awareness, condition of epidemic, donor selection criteria and sensitivity and specificity of screening methodology adopted in the blood transfusion Centre used.

The prevalence of HIV infection among the male donor was 4.6% and 7.9% for female. The difference between the two gender the same with other studies that shows higher prevalence among female [10], while the prevalence among age groups 15 - 24 years followed by those who were 25 - 34 years has the highest rate of seroprevalence. These might be attributed to being the sexually active age group.

Conclusion

The prevalence of HIV among blood donor is high in this study setting, Therefore it remains a threat to be to be wary of in the aspect of clinical practice of blood transfusion. Implementation of regular monitoring practice is important in blood transfusion practice so that HIV transmission can be controlled or prevented. Improved Educative community awareness about the mode of transmission and prevention of HIV infection should be emphasized by giving health education. It is expected that the government will create a unit of health management with empowered trained officers to monitoring the adhering to the stipulated norms of quality parameters to prevent the transmission of HIV infection through blood transfusion.

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