

Seroprevalence of HIV Among Blood Donors, Antenatal Women and Other Patients in a Tertiary Hospital in Nigeria

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HIV/AIDS continues to remain a nightmare in the developing nations of the world especially in Nigeria, where about 2.9 million people are living with this problem. This study aimed at determining the sero-prevalence of HIV among both patients and blood donors at the Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria. Samples were collected between January 1st, 2005 and December, 31st 2006 and were screened using two rapid test kits, with two different principles (enzymatic and agglutination). Samples positive to the two methods were taken as truly sero-positive. The seropositive rate among blood donors, antenatal women, in- and out patients were, 3.2%, 6.9% and 17.5% respectively. There were five cases of positivity to both HIV I and II. Antenatal women between the ages of 26-35 were found responsible for 5.3% of the total positivity among antenatal women. Though, there is high prevalence rate among in- and out-patients, many of these were screened based on manifestation of clinical symptoms. However, more is to be done in the area of prevention of this disease, since no cure is yet found.

Key-Words: HIV, blood donor, antenatal, Sagamu, Nigeria.

In recent years, Acquired Immune Deficiency Syndrome (AIDS) has emerged as the greatest threat to human existence. It was projected that the number of people with HIV might increase from 40million now to 60million by 2015. Sub-Saharan Africa is the region that is most affected with devastating effect on life and socio-economic activities. This region harbours 68% of people living with HIV and recorded 76% of HIV related deaths in 2007 [1-4].

Many of the countries in this region, like Zambia, Senegal, South Africa and Cote D'Ivoire has developed strategies with the assistance of international communities to prevent and lower the rate of infection.

Nigeria has a great deal of influence in Africa, particularly in West Africa, been the most populous country in West Africa and with 1 in 6 African being a Nigerian [5].

Although, HIV prevalence is much lower in Nigeria than in Zambia and South Africa, it is estimated that about 2.9million Nigerians, lived with HIV/AIDS in 2005. This disease, has however affected Nigerian society and it's economy negatively [4,5].

In 2005, it was estimated that there were 220,000 deaths from AIDS and 930,000 AIDS orphans living in Nigeria. There has also been an alarming increase in the number of HIV positive children in recent years, most of whom are likely to have contracted it from their mothers [5].

Nigeria has a population of about 140million and the first case of AIDS identified in Nigeria was in 1986. HIV prevalence rose from 1.8% in 1988 to 5.8% in 2001, dropped to 5.0% in 2003 and now 5.6%. Nigeria has 36 states, thirteen of which has and HIV prevalence of over 5%, though ranges from 1.2% in Osun State to as high as 12% in Cross River State [5,6].

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In Ogun State, where this institution is located, the prevalence rose from 1.5% in 2003 to 3.6% in 2006, even though this was attributed to increase in infrastructure that has a positive effect on the socio-economic status of people in the state and the influx of people from neighbouring states [7].

Blood transfusions are responsible for about 10% of all HIV infection in Nigeria. This is often as a result of high demand for blood transfusion due to Road Traffic Accidents (RTA), anaemia resulting from chronic malaria attacks, surgical interventions and blood loss during childbirth [5].

An increasing number of women of child bearing age, throughout the world are becoming infected with HIV and their children are getting infected during delivery or breastfeeding [8].

There is a policy for all women for antenatal care to be screened for HIV infection among other tests in Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria.

Heterosexual behaviour of Nigerians, despite the discovery of HIV and other STI's has not changed. Some 80% of HIV infections in Nigeria are transmitted by this method [5].

This necessitated the screening of patients with Pyrexia of Unknown Origin (PUO) among other symptoms associated with HIV/AIDS after thorough counseling in the hospital.

Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria is a state owned Teaching Hospital that not only serves as a referral centre for all other hospitals within the state but also for other neighbouring states that sees the hospital charges as more bearable. It has a large trauma center and renders services in all major departments of medicine.

This study was designed to assess the sero-prevalence of HIV among blood donors, antenatal patients, in- and out-patients of Olabisi Onabanjo University Teaching Hospital, Sagamu as determined by their laboratory results. This will also give basal information for assessing control measures being advocated in the hospital.

Material and Methods

About 5mLs of blood sample was withdrawn from each of the 2,828 prospective blood donors, 739 antenatal patients and in- and out-patients with provisional diagnosis of HIV infection who attended Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria between January, 2005 and December, 2006. During this period, a total of 92,121 patients attended this hospital for various medical complains and treatment.

Inclusion criteria for blood donors include a Packed Cell Volume (PCV) of 40% and above, 50kg minimum body weight and 18 years minimum age. Participants were orally interviewed as regard their medical history e.g. recent surgery, pregnancy, heart and lung diseases and frequency of blood donation.

The sera from the samples were separated and assayed using rapid ELIZA kit (Immuno Comb II, HIV I and II Bispot by Origenics, Isreal) and Capillus HIV-1/HIV-2 (produced by Trinity Biotech) listed among the National Algorithm 1 for HIV rapid testing. The two rapid test kits use different principles of action. Only samples positive by these two methods were reported as sero-positive. Discordant results were repeated 3 months later.

Results

A total of 7,892 patients were screened between January, 2005 and December, 2006. Table 1 shows the distribution of HIV infection among the major groups in the study. A total of 2007 patients were screened in the medical wards of the hospital with 26.0% seropositivity recorded. Among the out-patients, 19.9% positivity was recorded while 17 cases (2.7%) were reported in the surgical wards.

Twenty-one out of the 483 voluntary donors were sero-positive while blood procured from private laboratories had 1.3% positivity. This is demonstrated in Table 2.

Most of the seropositive subjects among the antenatal women were within the ages of 26-35 which was responsible for 5.3% of the total positive cases recorded for all antenatal cases. However, subjects within age group 15-20 had no positive case reported (Table 3).

Five cases of positivity to HIV I and II mainly from the medical wards (4) and antenatal clinic (1) were found.

Discussion

More than 20million deaths including over 2million recorded in 2007 have been documented since the discovery of HIV/AIDS [3,9]. Physical assessment alone cannot be used to diagnose HIV infection, and the practice of hiding from patients, their retroviral status by private hospitals now vested the responsibility of diagnosis and counseling solely on government hospitals especially the teaching hospitals like ours.

In our study which spanned over 24 months, we were able to screen 7,892 patients and blood donors, with 27.5% sero-positive. This is quite alarming when compared with the national prevalence of 5.0% and 3.5% in Ogun State, where

the institution is located. The prevalence rate in adult in the whole of sub-Saharan Africa is 6.1% [3,5,7]. However, the fact that this hospital serves as a referral centre to many hospitals and communities around might be responsible for this high percentage of seropositivity.

Creation of awareness through radio jingles and print media of available assistance might move patients with probable symptoms to seek medical care. This in turn will lead to diagnosis of new cases.

The act of bleeding blood donors based on physical assessment only, a practice common to private hospitals [1] is not good enough. From our study, 3.2% of blood donors were seropositive with 2.1% of this coming from patients' relatives who have passed the preliminary medical history interview and PCV check. These are apparently healthy individuals in the community with normal social activities (including sexual) that can further the spread of the virus.

It has been reported that blood transfusion is responsible for 10.0% of all HIV infections in Nigeria [5,10]. In Lagos, 4% of blood donors were HIV positive, while 0.87% were recorded in Ife, all in the South Western part of Nigeria and as low as 0.148% in Brazil [1,10,11].

In a similar study carried out by Sule-Odu et al. (1999) in the same institution, 2.2% positivity was reported among blood donors. A co-infection of HIV with HBV was also reported by Ola et al. (2005) [12,13]. This current study shows an increase (3.2%) which might be a reflection of the situation within the community.

The 0.3% positive cases from private laboratories were particularly disturbing. These were presumed screened negative, which most private hospitals used directly on their patients. This further confirmed the observation of Sule-Odu et al. (1999) that because of cost of screening, most laboratories result to sharp practices. These include using expired test kits or screen their paid donors once even though they are bled as many as six times a year [12]. The sero-positive donors are not often told about their HIV status. They are often rejected on other reasons such as low PCV or they are told they have hepatitis infection but not HIV. This practice negates the efforts at curbing the spread by early intervention among positive subjects as they can unknowingly be spreading the infection through other routes apart from blood donation. Female donors accounted for 4% of the donors screened in this study with 15 sero-positives recorded. Most of these were single ladies whose social behaviour may contribute to the spread of HIV within the community. Joes et al. (2006) reported that HIV prevalence among blood donors in Brazil was found to be significantly higher among single and divorced individuals, a shared fact by Cowan et al. (1996) [11,14].

The potential consequences of undiagnosed HIV in pregnancy can be tragic. Vertical transmission among other things is responsible for about 10% of HIV infection in Nigeria [5]. National Institute of Health, United States' clinical trial showed that antiretroviral medication provided to HIV positive

Table 1. Distribution of HIV infections among the studied communities of the hospital.

Department	No Tested		Seropositive		Total Tested	Total Pos	% Pos
	M	F	M	F			
Donors	2715	113	74	15	2828	89	3.2
Antenatal	-	739	-	51	739	51	6.9
Medical Wards	1257	732	195	327	2007	522	26.0
Paediatric Ward	501	220	19	06	721	25	3.5
Out Patients	907	59	176	16	966	192	19.9
Surgical Wards	471	160	05	12	631	17	2.7

Table 2. Source of blood screened for transfusion.

Donor Types	No Screened	No Pos.	% Positivity
Relative Donors	1708	59	2.1
Paid Donors	95	2	0.1
Voluntary Donors	483	21	0.7
External Sources	452	7	0.3
Total	2828	89	3.2

Table 3. Age of distribution of the antenatal women screened.

Age (yrs.)	No Screened	No Pos.	% Positivity
15-20	18	0	(0.0)
21-25	104	9	(1.22)
26-30	211	18	(2.44)
31-35	315	21	(2.84)
36-40	56	2	(0.27)
41-46	35	1	(0.14)
Total	739	51	6.9

pregnant women during pregnancy, labour and delivery and to the newborn during the first weeks of life dramatically reduced the risk of vertical transmission of HIV [15]. Other studies actually confirmed a reduction in transmission from 25% to 8% or even less [16]. Hence, it became a policy in Olabisi Onabanjo University Teaching Hospital that all pregnant women, regardless of the absence or presence of risk factors are recommended for an HIV test as an integral part of their antenatal care.

In this study, 6.9% sero-positivity was recorded among the antenatal cases with women within ages 26-35 being responsible for 5.3% of the total positivity. This is similar to 7.3% recorded at Port Harcourt but far higher than 0.4% recorded in an India hospital [8,17]. One major reason for this might be that these women have promiscuous husbands. Heterosexual act is responsible for 80% of HIV infections in Nigeria. This is in contrast to what prevail in developed countries where the spread is mainly through homosexuality and injectables [8,17]. The zero positivity recorded among ages 15-20 agrees with some other works [8]. These groups might not really be so-exposed. Probably, their first contact with men might be responsible for the pregnancies.

However, all seropositive antenatal cases were counseled as regard breastfeeding and subsequently referred to special study unit that administered the appropriate treatment.

The 26.0% seropositive cases recorded in the medical wards of the hospital, thought high, may not necessarily be significant or give a representation of the populace. This is because, the patients were screened on suspicion because they presented with signs and symptoms suggestive of HIV infection/AIDS. Ola et al. (2005) showed in their study that HIV and HBV are common among adult Nigerian patients on admission at Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria [13].

The 192 seropositive cases from the out-patient department further stress the need to embrace the Voluntary Counseling and Testing (VCT) of the Federal government of Nigeria. Some of these patients came with complains that clinicians viewed as secondary to HIV infection or could be co-infective with HIV such as pulmonary tuberculosis and persistent fever. However, these seropositive patients were referred to the special study unit for follow up.

Vertical transmission was responsible for 3.1% of the total paediatrics' infection. This emphasizes the need for pregnant women to register in a reputable hospital where

all necessary investigations including HIV screening could be done.

Conclusion

The positivity rate (27.5%) from this study showed that much need to be done in terms of prevention of this infection. The National Blood Transfusion Services should double their efforts so as to cover both private and tertiary health services that might require blood transfusion for their patients. It is obvious from the results of this study that an increase in the rate of HIV infection in this environment is imminent. It is therefore suggested that all hospitals be compelled to among other tests and after due counseling, screen all antenatal cases, advocate VCT as these measures will not only lead to diagnosis of new cases but might equally reduce vertical transmission.

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