

Seroprevalence of HIV Antibodies in Ogbomoso, Oyo State, Nigeria.

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Abstract: The incidence of new infections of HIV has declined globally due to increased prevention and control measures. In Oyo State Nigeria, there have been increased surveillance activities to complement control measures in recent years. This is the findings of the latest HIV sentinel epidemiological surveillance revealing the seroprevalence of HIV in Ogbomoso, Nigeria. About 515 subjects were tested for HIV antibodies in 2012. Screening tests were carried out using Determine™ HIV 1 & 2 (Abbott) and Chembio HIV 1 & 2 Stat-Pak™ rapid test kits following manufacturer's instructions. A seroprevalence rate of 0% was determined with a significantly higher participation in females 61.75% than males 38.25%. The participation rate of different age group from the highest to the lowest is as follows 20-24 years old was found to have the 40.97%, age group of 25-29 years have 25.05%, age group of 15-19 have 19.61%, age group >30 have 8.74% and lastly, the age group 2-14 years old had the lowest participation rate of 5.63%. The results from this show a zero seroprevalence rate in Ogbomoso, Nigeria. According to the results from this study it was observed that prevention and control measures have been stepped up, particularly at both the local level with more attention toward sexually active age group.

Keywords: Antibodies, Control, HIV, Ogbomoso, Prevention, Seroprevalence.

I. Introduction

Human immunodeficiency virus (HIV), the pathogen responsible for the acquired immunodeficiency syndrome with its opportunistic infections. In Nigeria, the first case of HIV/AIDS was described in 1985 in a sexually active 13 year-old girl [1,2]. The prevalence has since grown to about 5% of the population in Nigeria [3] with an estimated 140 million inhabitants [4].

Globally, the prevalence HIV is said to be declining because of health promotion activities that have directed towards preventive measures thereby reducing the number of new infections and thus providing better treatment options for people living with AIDS. However, in sub-Saharan Africa this seems not to be the case despite the concerted efforts by various governments and global partners [5]. Universal counseling and testing have been introduced as a policy in Nigeria with setting up of the National Agency for Control of AIDS (NACA) and respective state and local government AIDS control agencies [6]. National Strategic Framework by NACA recently launched to run following objectives set up from 2010 to 2015 [7]: to reach 80% of sexually active adults and 80% of the most at-risk populations with HIV voluntary counseling and testing, and to ensure that 80% of eligible adults and 100% of eligible children have access to anti-retroviral therapy (ART) by 2015 [8]. There is a believe that as time progresses more people will have access to counseling and testing in even the most rural areas of the country. Nigeria is one of the countries that have people living with HIV and the seroprevalence of each state is different from each other which make the epidemiology of HIV a complex one in the country.

Particularly for serodiagnosis and epidemiological surveillance, the rapid test kit which is based upon immunochromatographic detection of HIV antibodies by immobilized gp120 recombinant proteins on a solid matrix format like a cassette or strip [4, 9] is being used. This type of testing is highly accessible and beneficial in resource poor setting like Nigeria and has been adopted by Nigeria Federal Ministry of Health. The WHO also endorsed rapid testing and has likewise developed several universal testing algorithms for resource poor

nations, showing the sequential combination of 2 or 3 antibodies-based tests (rapid test and orELISA) to confirm HIV test results[10].

In Ogbomoso, there were few or no reports on sentinel surveillance of HIV in the population of the town as well as at-risk populations; however there is need for regular and more recent reports on the prevalence of HIV/AIDS in the population. It was with this in mind that we decided to center our objective toward determining the seroprevalence of HIV/AIDS in Ogbomoso in individuals across all age groups and both genders, in which Ogbomoso is one of the largest towns in Oyo State, Nigeria.

II. Materials And Methods

Study Site

The study was carried out at Ladoké Akintola University of Technology (LAUTECH) area, Bayaoje and Begbaji communities in Ogbomoso, Oyo State, Nigeria in 2012 and was a sentinel epidemiological surveillance. Ogbomoso is one of the largest towns in Oyo State. Ogbomoso is a low income, civil servant city with low level sanitation, poor housing and lack of potable water. There is however ongoing urban development especially around the cosmopolitan areas of the city.

Study Population

Five hundred and fifteen subjects' blood samples were tested for HIV antibodies. After consent was obtained and pre-test counseling was done blood samples were collected from only consented participants. All records of subjects were treated with the highest level of confidentiality in accordance to the Belmont report[11]. The participants are people living around LAUTECH area, Bayaoje and Begbaji, all are communities in Ogbomoso.

Data Collection

A sero-epidemiology sentinel surveillance study was conducted in 2012 using structured questionnaire. Random sampling method was used for data collection and subjected to statistics analysis. The total samples included all the participants that consented to participate during the study period. Prior to blood collection, the participants were required to answer questionnaire. After consent was obtained and pre-test counseling was done, and the questionnaire was completed. Blood sample was collected in sterile tubes without anticoagulant from each study participant using a vacutainer needle. Serological examination was conducted on each sample.

Screening for HIV Antibodies

Testing of blood samples was done following Federal Ministry of Health (FMoH) testing Algorithm, using Determine HIV1/2™ Abbott, and Chembio HIV1/2 Statpak™. The screening for HIV antibodies was carried out using parallel double rapid HIV antibody tests; Chembio HIV-1/2 Stat-Pak® (by Chembio Diagnostics Systems, Inc. Medford, New York 11763 USA) and Abbott Determine HIV-1/2® test kit (by Abbott Japan Co., Ltd. Minto-Ku, Tokyo, Japan) according to the manufacturers' instructions. A seropositive test means observable seroreactivities in HIV with both test kits. Discordant results and seroreactivities to a single kit were recorded as seronegative.

The test kit is a qualitative, lateral flow immunoassay for the detection of HIV antibodies; the membrane is pre-coated with anti-HIV antibodies on the test line region of the strip. During testing, the serum or plasma specimen reacts with the particle coated with the anti-HIV antibody. The mixture migrates upward on the membrane chromatographically by capillary action to react with anti-HIV antibodies on the membrane and generate a colored line. The presence of this colored line in the test region indicates a positive result, while its absence indicates a negative result. To serve as a procedural control, a colored line will always appear in the control line region indicating that proper volume of specimen has been added and membrane wicking has occurred. The interpretation of test results was performed according to the manufacturer's specifications.

III. Results

During the study period, a total of 515 blood samples were tested for anti-HIV antibody with an age range of 2yrs - >30yrs. A seropositivity rate of 0% (n=0) was obtained with no statistically significant difference in seropositivity in relation to gender and age. Table 1 shows the seroprevalence in relation to gender while 318 out of total of 515 were females tested for HIV antibodies. 197 out of total of 515 were males tested for HIV antibodies. Seroprevalence of 0% was found in the total population. Table 2 shows the seroprevalence in relation to the age group. In this research study, age group 20-24 had the highest rate of participation and HIV seroprevalence of 0%, followed by the age group 25-29, 15 - 19, >30 and lastly, age group 2 - 14, all had the 0% seroprevalence of HIV.

Table 1: Seroprevalence of HIV in Relation to Gender

Sex	No Tested (%)	No positive for HIV (%)
Male	197 (38.25)	0(0%)
Female	318 (61.75)	0(0%)
Total	515 (100)	0(0%)

Table 2: Seroprevalence of HIV in Relation Age Group

Age Range (Years)	No Tested (%)	No positive for HIV (%)
2 -14	29 (5.63)	0(%)
15 - 19	101 (19.61)	0(%)
20 - 24	211 (40.97)	0(%)
25 – 29	129 (25.05)	0(%)
30+	45 (8.74)	0(%)
Total	515 (100)	0(%)

IV. Discussion

One of the major health problem that is threatening human population in our time is HIV/AIDS pandemic. This current study reviews the seroprevalence of HIV antibodies in 515 subjects mostly residing in Ogbomoso and its environs, located in Oyo State, South west Nigeria. An overall seroprevalence rate of 0% was observed in our study. This is lower comparing to a study done recently at Ibadan with a rate of 9% [12,13]. This seroprevalence rate is also lower than the national prevalence rate of 4.0% reported for Oyo State in 2010 [14]. In other States of Nigeria with similar population distributions such as in this study, prevalence rates are comparably higher. For instance, a seroprevalence rate of 3.5% was previously reported for Enugu, Nigeria [15] and 10.0% among blood donors in Benin City, Nigeria [16]. The relatively zero seroprevalence rate in this study might be attributed to both the increase in case detection and the expansion of coverage areas for HIV counseling and testing over the years. The seroprevalence of HIV infection among Ogbomoso population provided information on the amount of the infection in the society. It has emphasized the need of continuous epidemiological surveillance that would help in decision policy making.

It seems that the seroprevalence of this infection is lower than that was reported by previous workers. This suggests that the disease control measures of the Federal Government of Nigeria and Non-governmental Organizations (NGO) are making a positive impact in the spread of this viral infection. This suggests that infection control is addressing the needs of the members of the community.

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