ORIGINAL ARTICLE

The Trend of HIV Infection in Kano, Nigeria-A-Seven-Year Study of Adult Attendees of Aminu Kano Teaching Hospital

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Abstract

Background*: Human immunodeficiency virus (HIV) infection is a huge concern with increasing epidemic proportions The consequences are devastating in developing countries particularly in large areas of south-east Asia and sub Saharan Africa including decrease in life-expectancy, huge loss of manpower and a heavy economic and social burden . Sub-Saharan Africa has been hit harder by HIV/AIDS pandemic than any other region of the world At the end of 2006, the Joint United Nations Programme on HIV/AIDS (UNAIDS) estimated that, globally, 39.5 million people were living with HIV/AIDS, out of which 24.7 million were in sub-Saharan Africa.*

To determine the annual trend of HIV infection in Kano as well as the seroprevalence rates over the years.

Method: *This retrospective study includes all adults that are 15years and above, who are also AKTH attendees and patients referred from other hospitals in Kano, who, based on clinical suspicion, were sent to the serology laboratory of the hospital for HIV screening and confirmation between January, 1997 and December, 2003. It however, excludes all pediatrics, antenatal care clinic attendees and all blood donors screened for HIV antibodies within the period. These have been collated under various risk groups elsewhere.*

Results: *Of 9,241 subjects tested, 3,217(34.8%) were confirmed seropositive for HIV antibodies consisting of 1,908 (36.7%) and 1.441 (35.7%) males and females respectively. Analysis of results on yearly basis shows prevalence rates of 37.1% in 1997,40% in 1998 and 47.9% in 1999. However, the HIV seroprevalence rates declined to 22.6% among these subjects in 2000 before rising to the peak (48.8%) in 2002 from 30% sero-prevalence of the previous year, 2001. The prevalence rate for 2003 was 32.1%.*

Discussion: *Overall, the seroprevalence rate of 34.8% obtained in this study was high compared to the national average of 5.4%. The outcome of the study underscores the increasing HIV infection rate in Nigeria and sheds light on the increasing vulnerability of women to HIV epidemic in this region. There is need for increased awareness campaign on HIV infection in Nigeria and adoption of effective control strategies aimed at curbing the spread of HIV infection.*

Key words: *retrospective, trend, seroprevalence, HIV, epidemic.*

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INTRODUCTION

Human immunodeficiency virus (HIV) infection is a huge concern with increasing epidemic proportions[1] The consequences are devastating in developing countries particularly in large areas of south-east Asia and subSaharan Africa including decrease in life-expectancy, huge loss of manpower and a heavy economic and social burden.[2,3] Sub-Saharan Africa has been hit harder by HIV/AIDS pandemic than any other region of the world.[4] At the end of 2006, the Joint United Nations Programme on HIV/AIDS (UNAIDS) estimated that, globally, 39.5 million people were living with HIV/AIDS, out of which 24.7 million were in sub-Saharan Africa. In 2003, it was estimated that 25 million adults and children were living with HIV in sub-Saharan Africa out of which 2.2 million people have died of AIDS with about twelve million becoming orphans.[5,6]

In Nigeria, the first case of HIV/AIDS was reported in 1986.[7] Since then, there has been a rapid increase in the number of people infected with HIV.[8] The national sentinel survey reports by Nigeria's Federal Ministry of Health indicated that the national sera-prevalence rate of HIV infection increased from 1.2% in 1991/92 to 3.8% in 1993/94, 4.5% in 1997, 5.4% in 2003 and 4.4% in 2005. [9-12] The Sero-prevalence of HIV infection varies at different locations and even more differ between high-risk urban population and low risk urban population.[13,14] . Kano, where our hospital is based is a large cosmopolitan city located in the northwest zone of Nigeria. It is categorized among the high-risk urban population centers based on its large commercial activities involving diverse ethnicities and nationalities.

Although reports of HIV/AIDS in various risk groups have been collated in different locations biennially by National AIDS control programme in Nigeria, annual trend of HIV infection in adult population of Kano have

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not been ascertained. These observations formed the basis for the present retrospective study at this center.

SUBJECTS AND METHODS

This retrospective study includes all adults that are 15years and above, who are also AKTH attendees and patients referred from other hospitals in Kano, who, based on clinical suspicion, were sent to the serology laboratory of the hospital for HIV screening and confirmation between January, 1997 and December, 2003. It however, excludes all pediatrics, antenatal care clinic attendees and all blood donors screened for HIV antibodies within the period. These have been collated under various risk groups elsewhere.

After obtaining informed consent, the screening proceeded with observation of standard aseptic procedures and universal safety precautions[15] in samples collection, storage and processing. Confidentiality was maintained in the release of results. Briefly, 10ml blood specimen was collected from each subject, centrifuged at 3000 rpm for 10 minutes and serum samples obtained. The serum samples were first screened for the presence of HIV antibodies using ELISA technique with Genescreen (Sanofi, Pasteur). All initial reactive samples were re-tested with another ELISA test kit (Biorad, USA) for the purpose of eliminating those samples presenting false reaction at initial stage. Serum samples that were positive by the second ELISA technique were then confirmed using Immunoconfirm (Orgenics, Israel) or Western blot (Biotech, Ireland) depending on which of the test kits was available during the testing period. The manufacturer's guidelines were methodically followed. All subjects were provided with pre- and post-test counseling. Supportive care was given in HIV sero-positive cases. The data obtained was then analyzed to highlight the over all sero-prevalence rate and yearly distribution of HIV infection in males and females of the subjects tested. Chi-square statistic (p=0.01) was used in the analysis of the results obtained.

RESULTS

A total of 9,241 subjects made up of 5,199 (56.3%) males and 4,042 (43.7%) females (tables I and II) were screened for HIV infection during the seven-year (1997-2003) study period. Of these figures, a total of 3,217 or 34.8% tested positive for HIV antibodies (table I) comprising 1,908 (36.7%) and 1,441 (35.7%) males and females respectively (table II).

Table I shows the annual trend of HIV sero-positive cases among the subjects tested. In 1997, the prevalence rate was 37.1%. The figure increased to 40% in 1998, and 47.9% in 1999. However, there was a decrease (22.6%) in HIV sero-prevalence among the subjects in 2000. Again it increased to 30% in 2001 and attained the peak (48.8%) in 2002. The sera-prevalence rate of 32.1% was recorded in 2003. The differences were statistically significant (X^2= 16.8, df=6,P-value=0.01).

Table I: Yearly seroprevalence rate of HIV infection in adult subjects tested at AKTH 1997-2003.

Year	Total No tested	Total No Positive (%/yr.)
1997	348	129 (37.1)
1998	652	261 (40)
1999	657	315 (47.9)
2000	1/480	335 (22.6)
2001	1,775	533 (30)
2002	1,516	740 (48.8)
2003	2,813	904 (32.1)
Total (%)	9,241	3,217

X^2=16.8 df=6 Pvalue =0.01

Table II indicates the annual prevalence rates in men and women screened from 1997 to 2003. Analysis of results shows cumulative average of sero-prevalence rates of 36.7% and 35.7% for men and women respectively. Results obtained on yearly basis during the seven years study period show that the sero-prevalence rates in women were higher in five years viz: 37.8% versus 36.7%, 1997; 50.6% versus 46.4%, 1999; 36.7% versus 28.8%, 2000; 50.4% versus 47.6%, 2002; 34.8% versus 30%, 2003 as compared to two years: 40.4% versus 39.4%, 1998; 40.8% versus 21.9% 2001 in men. The differences were found to be statistically significant (X^2 =34.8, df = 18, P - value = 0.01).

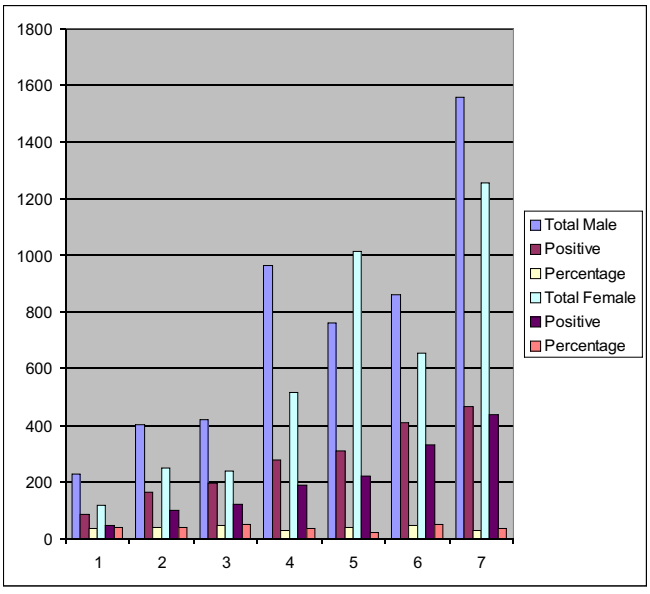
Table II: Yearly sero-prevalence rate of HIV infection in adult males and females-screened at AKTH, 1997-2003.

AGE IN YEARS	TOTAL NO OF MALES TESTED	TOTAL POSITIVE (% POSITIVE)	TOTAL NO OF FEMALES	TOTAL POSITIVE (% POSITVE)
1997	229	84 (36.7)	119	45 (37.8)
1998	403	163 (40.4)	249	98 (39.4)
1999	420	195 (46.4)	237	120 (50.6)
2000	965	278 (28.8)	515	189 (36.7)
2001	762	311 (40.8)	1013	222 (21.9)
2002	861	410 (47.6)	655	330 (50.4)
2003	1,559	467 (30)	1,254	437 (34.8)
Total(%)	5,199	1,908 (36.7)	4,042	1,441 (35.7)

P value of 0.01

X^2 =34.8 df=18 pvalue= 0.01

Yearly sero-prevalence rate of HIV infection in adult males and females-screened at AKTH, 1997-2003



DISCUSSION

The results from this study buttress the high sero-prevalence rates of HIV infection among hospital patients in sub-Saharan Africa. The increasing rates of HIV seropositive persons elsewhere in Africa and other developing regions of the world [3,16] agree with the trend observed in the present study. The high prevalence rates (above 20%) recorded from 1997 to 2003 as compared to lower rates reported elsewhere in Nigeria[14] may be because our centre is located in high prevalence urban city.

Overall, the seroprevalence rate of 34.8% obtained in this study was high compared to the national average of 5.4%.[12] It was however, comparable to the result of 37% obtained by Ejele and Ojule (1998)[17] in Port Harcourt, Nigeria. On the whole, the cumulative average of HIV seropositive men was slightly higher (36.7%) than women (35.7%). This was in agreement with earlier published reports in Nigeria.[17,18] However, analysis of results on yearly basis from 1997 to 2003 revealed

higher seroprevalence rates among women in five years in 1997, 1999, 2001, 2002, and 2003 as compared to higher seroprevalence rates observed in men in the remaining two years, 1998 and 2001. These differences were statistically significant (p=0.01). This outlook corroborated the reports from else where[6] including South Africa[19] indicating similar trend in those locations. The reports further identified women as the most vulnerable group in subSaharan Africa with fastest growing rates of HIV infection. Reports suggested that the complex interaction of material, social, cultural and behavioral factors might have contributed to this phenomenon.

The outcome of this study underscores the increasing HIV infection rate in Nigeria and sheds light on the increasing vulnerability of women to HIV epidemic in this region. There is need for increased awareness campaign on HIV infection in Nigeria and adoption of effective control strategies aimed at curbing the spread of HIV infection. Greater efforts should be directed at female education so as to achieve maximum results in the epic fight against the HIV scourge. Although recent sentinel survey show a downward trend in the overall prevalence of HIV infection in the country, the trend being analyzed are those of earlier years before this declining of prevalence rate in 2005-2007.

In conclusion, the trend of HIV infection based on our study shows an upward rise among hospital attendees and it corroborates the same upwards rise in the years under review. However, these are hospital data and are biased because they people that are suspected of having such disease.

INTEREST: Dr Emmanuel Nwokedi's research interests are in the epidemiology, Lab diagnosis and Management of Infectious Diseases including HIV/AIDS, Tuberculosis, Leprosy, STIs/Genito-Urinary Medicine (GUM), HBV and HCV.

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