



Original Research Article

Prevalence of HIV infection among pregnant women presenting to two hospitals in Ogun state, Nigeria

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ABSTRACT

Aim: The aim of this three-year retrospective study (2010–2012) is to determine the prevalence, trend and factors associated with HIV infections among pregnant women presenting to Olabisi Onabanjo University Teaching Hospital (OOUTH) and Redeemed Camp Maternity Centre (RCMC) both in Ogun state, south-west, Nigeria.

Background: HIV in pregnant women has become an important focus of HIV research because of its role in the spread of HIV infection, particularly, among children.

Materials and methods: A total of 4140 case records comprising 2272 at OOUTH and 1868 at the RCMC were reviewed. Of these, 3486 (84.2%) had records on HIV status. Test of association was carried out to determine factors associated with HIV infection in the two hospitals.

Results: Of 3486 ante-natal clinic attendees during the study period, 272 were confirmed HIV positive resulting in an overall prevalence rate of 7.7%. Analysis of records at the RCMC showed a prevalence of 0.41% (5/1212) while 11.5% (262/2272) was observed at the OOUTH. The prevalence was higher among older women than the younger ones. In RCMC, test of independence showed that HIV prevalence was dependent on parity and religion ($p < 0.05$) while in OOUTH, it was dependent on gravidity and parity ($p < 0.05$).

Conclusions: The overall HIV prevalence rate of 7.7% observed among pregnant women in this study was higher than the national average of 4.1%. Furthermore, HIV prevention campaigns need to be tailored towards older women as done for the younger ones in Nigeria, since prevalence was higher in the former than the latter.

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1. Introduction

HIV in pregnant women has become an increasingly important focus of HIV research because of its role in contributing to the spread of HIV infection majorly among children [1]. In 2012, UNAIDS estimated that among over 34.0 million people living with HIV/AIDS 3.3 million were children under 15 years of age while about 16.7 million were women. It was estimated that every day, nearly 7000 persons became infected and nearly 5000 of them died from the disease, generally because of inadequate access to HIV prevention care and treatment services. As of 2011, approximately 17.3

million children under the age of 18 had lost one or both parents to AIDS, and millions more were affected with a vastly increased risk of poverty, school drop-out, homelessness, discrimination and loss of life opportunities [2].

The most affected region in the global AIDS epidemic is the sub-Saharan Africa with more than two-thirds (68%) of the global population of people living with HIV in a sub-region with about 12% of the world's population [3]. Unlike other regions, women are in the majority of people living with HIV in sub-Saharan Africa (61%) while 94% of infected children also live in the region. The most important and common route of transmission of HIV in sub-Saharan Africa is through sexual intercourse which is largely heterosexual, and mother to child transmission, which is the next that accounts for over 90% of infections in children [4]. HIV infection is one of the most common complications of pregnancy with major implications for the management of pregnancy and childbirth [5]. HIV testing during pregnancy is therefore a gateway to access the care for mother and child, so as to allow the interventions or

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prevention of mother-to-child transmission, which can be possible for a woman, whose status is known during her antenatal visit. Mother-to-child transmission of HIV has been found to be a new source of HIV infection in Africa. Consequently, it has become an increasingly important focus in HIV research because of its role in contributing to the spread of infection [1,4,6].

Surveys of the prevalence of HIV among women attending antenatal care have been undertaken in different parts of the world particularly in India [7], Trinidad [1], French Guiana [8], Kenya [9], Ethiopia and Ghana [1], and in DR Congo [10]. The National HIV prevalence in Nigeria among pregnant women steadily increased from 1.8% in 1991 to 5.8% in 2001 but dropped to 4.4% in 2005 [3]. In 2010, it was estimated at 4.1% [11]. In 2011, an urban hospital-based study in Jos, north-central Nigeria revealed a prevalence rate of 8.9% [3], 7.8% in Minna [12], 11.0% in Port Harcourt [13], 3.8% in Abakaliki and Enugu [14]; and in Benin City, 5.2% of women clinic attendees in a tertiary health institution were HIV sero-positive [5].

The present 3-year retrospective study (2010–2012) is aimed at determining the sero-prevalence of HIV infection among pregnant women attending antenatal clinics at a state-owned Olabisi Onabanjo University Teaching Hospital (OOUTH), Sagamu and the Redeemed Christian Church of God owned Redeemed Camp Maternity Center (RCMC) Mowe, both in Ogun State, south-west Nigeria. While the study has provided opportunities to monitor trends in prevalence, we have sought to determine further, the risk factors of HIV among these women, with the intention to generate a baseline data to serve as a reference point for policy makers that would be of benefit to women seeking antenatal services in the two centres selected for this study and other hospitals in south-west Nigeria.

2. Methods

2.1. Study site, design and target population

This study is aimed at determining the sero-prevalence of HIV among antenatal care attendees in Ogun state, Nigeria. Two hospitals namely: Redeemed Camp Maternity Centre (RCMC), Redemption Camp, Mowe and Olabisi Onabanjo University Teaching Hospital (OOUTH), Sagamu were selected for the study. The RCMC is owned and managed by the Redeemed Christian Church of God (RCCG), the largest Pentecostal outfit in Nigeria and one of the fastest growing Church Missions in the world. It is mainly patronized by Christians who reside within and outside the camp and also services other people around the larger community where it is situated. During special programmes of the church, usually held every month, the centre receives more patronage. Conversely, the OOUTH is a state-owned teaching hospital, which is readily accessible to the general public of different backgrounds.

The three-year retrospective study is carried out by extracting information from the individual case records of all antenatal clinic attendees in the two hospitals. Information on all the patients over the period is retrieved from their individual case records. The extracted information are on the HIV status vis-à-vis their demographic details such as age, marital status, religion, employment status, gravidity and parity. Routinely, pregnant women presenting to both hospitals are expected to undergo HIV testing using Determine[®] diagnostic kit while STATPAK[®] is used as a complimentary kit in case of discordant results; Unigold[®] is used as a tie-breaker.

2.2. Data entry and statistical analysis

Data generated from the case records were inputted and analyzed using the Statistical Package for Social Science (SPSS), Version 14.0. Patients without information on HIV status were excluded

from the study. The descriptive analysis is done using frequency tables for both hospitals. Chi-square test has been used to assess independence between the HIV status and demographic variables. All *p*-values less than 0.05 are considered significant to the prevalence of HIV infection.

2.3. Ethical consideration

The Ethical Review Committee of OOUTH and the Medical Director of the RCMC approved the retrospective study. Collection of data was done in both hospitals under the supervision of relevant staff members. Patients names are replaced with numbers to ensure confidentiality.

3. Results

In the two hospitals used for this study, a total of 4140 records comprising of 1868 at RCMC and 2272 at OOUTH were reviewed. Of these, 3486 (84.2%) had records of HIV status among others, while the remaining 654 (15.8%) had no such record. All those without record on HIV status were from the RCMC study site. Those without this information were considered as having incomplete records and were therefore, excluded from the study. In Table 1, the frequency distributions of HIV prevalence based on trend and socio-demographic details of the patients in the two hospitals and for the combined data are presented. The table shows that at RCMC, there were no records of HIV sero-positive cases in 2010 and 2011 until 2012, when 5 (0.9%) cases were recorded yielding a prevalence of 0.41% out of the total of 1214 case records reviewed for the three years. Conversely, of the total of 2272 records available at OOUTH, 262 (11.5%) were HIV positive with the highest prevalence of 14.8% occurring in 2011. Between 2010 and 2011, there was an increase of 4.9% in the prevalence rate which reduced by 4.3–10.5% in 2012. Overall, there was a gradual reduction in the HIV prevalence rate when data from both hospitals were combined (Table 1).

Table 1 also shows that, overall, the majority of the pregnant women (52.4%) were between ages 20 and 30 years and 69.4% were multigravida. Data on employment status, marital status and religion were only available at the RCMC and they showed that majority of the women were married (99.6%), employed (86.0%) and, as expected, Christians (97.4%). From the RCMC, findings showed that, whereas there were no case recorded among women less than 20 and greater than 40 years, the highest prevalence was among those aged between 31 and 40 years (0.5%). Women who were multigravida (0.6%), employed (0.5%) and married (0.4%) had higher prevalence rate than those who were primigravida, unemployed and single respectively. The religious status showed a higher prevalence of HIV infection among Muslims (4.5%) compared with Christians (0.3%) despite the huge population of the latter. Findings from OOUTH showed that women aged 31–40 years had the highest prevalence rate of 12.2% while a prevalence of 12.7% was observed among the multigravida and those who had had more than one child before the current pregnancy. As it was at OOUTH, the highest prevalence for both locations were among women aged 31–40 years (7.9%), multigravida (8.6%) and those who had had more than a child (10.1%). Comparing the two locations, the results showed a higher prevalence of 11.5% at OOUTH as against 0.41% at the RCMC. The overall HIV prevalence for both hospitals within the study period was 7.7% (Table 1).

3.1. Test of independence

Table 2 shows the results of findings from test of association between HIV status and the women's demographic characteristics. For the RCMC, results show that HIV status is significantly dependent on parity and religion of the women ($p < 0.05$) while

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