

FACTORS INFLUENCING HIV SEROPREVALENCE RATE AMONG PREGNANT WOMEN IN CALABAR, NIGERIA.

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ABSTRACT

Human immune deficiency virus (HIV) seroprevalence among pregnant women in Calabar was studied. The aims were to establish HIV seroprevalence rate and to identify factors which influence this rate in our pregnant women. HIV seroprevalence rate of 2.7% among antenatal women in Calabar was recorded with a vertical transmission rate of 20%. Husband and wife not living together, history of induced abortion and blood transfusion significantly increase HIV seroprevalence rate among antenatal women in our community ($P = 0.02 - 0.04$). Marital status and age seemed to increase while social class and previous pregnancy outcome did not influence the HIV seroprevalence rate in these women. The importance of screening as a necessary step towards prevention of vertical transmission should be emphasised during our antenatal health talks. Pregnant women with history of induced abortion, those who are not living together with their husbands and those with history of blood transfusion should have a one-to-one person education on this issue. Any cause that would separate wives from their husbands should be discouraged. Family planning as a means of preventing unwanted pregnancy should be encouraged and transfusion of un-screened blood should be banned in all health facilities in Nigeria.

KEY WORDS: HIV Seroprevalence; Factors, Pregnant Women; Vertical, Transmission

INTRODUCTION

The spread of HIV/AIDS in Africa has reached pandemic proportion in most parts of the continent (Biggar, 1986; Dowdle, 1985). According to a recent report, AIDS has exceeded malaria and other conditions as the leading cause of adult death in many of the hard hit African countries. Majority of AIDS orphans in the world are from Africa (USAIDS/WHO, 1998). Worse still, the prevalence of HIV/AIDS in most sub-saharan African countries is increasing rather than decreasing (Ntozi and Kirunga, 1998).

In Nigeria, like other sub-saharan African countries, heterosexual intercourse is the predominant mode of transmission of HIV/AIDS (Caldwell and Caldwell, 1993; Fawole *et al.*, 1999). This results in more females than males being infected, in a ratio of 1.4 to 1.0 (Ntozi and Kirunga, 1998). The high proportion of infected females has led to many cases of paediatric AIDS as transmission from mother to child occurs in about 25-35 per cent of pregnancies (Ntozi and Kirunga, 1998; UN/WHO, 1989).

With no specific cure for AIDS and no developed vaccines, preventive measures based on information and educational programmes remain the mainstay for tackling HIV/AIDS and its associated problems (Evelyn and Osafu, 1999). This approach has been adopted and

incorporated into our antenatal health talks in Calabar. However, HIV seroprevalence rate and the factors which influence HIV seroprevalence in our pregnant women, have not yet been studied. This work is, therefore, designed to meet this need. It is hoped that establishing these factors will help make our health talks more realistic and more meaningful to our women. This will help reduce the prevalence of HIV/AIDS in our pregnant women as well as the rate of vertical transmission to our newborn babies.

SUBJECTS AND METHODS

Calabar, where this study was carried out, is the capital of Cross River State in the south-eastern part of Nigeria. It has an estimated population of 320,862 of which 166,203 are males and 154,659 females. The inhabitants are mainly the Efiks, Quas, Ejagham, Efut, Ibibio, Annang and others - the migrant workers. They are mainly civil servants, subsistent farmers, traders and fishermen. Most of them are Christians and only a few Moslems and pagans are found.

Monogamous marriage is highly practised and only few families are polygamous. There are two hospitals: the University of Calabar Teaching Hospital (UCTH) and the State Government General Hospital, ten health centres and seven private clinics taking care of obstetric patients.

Two centres were selected for this study. UCTH and a private clinic - Faith Foundation Clinic, Calabar. These centres routinely request for HIV screening of their pregnant women. Pregnant women attending antenatal clinics in these centres between November 1995 and September 1996 who consented to be tested for HIV were recruited for this study.

After ensuring proper safety measures, and under aseptic technique about 5 millilitres of blood sample was collected from the left brachial vein of each subject in her second or third trimester of pregnancy. In the AIDS laboratory at UCTH, each blood sample was analysed for HIV antibodies using ELISA test and confirmation was carried out by Western blot technique.

The HIV positive mothers were followed up. With a pre-coded questionnaire, the socio-demographic and reproductive characteristics of these mothers were noted. The infants of these HIV positive mothers were followed up six-monthly for at least the first 18 months. This follow-up visits involved laboratory and clinical assessment.

The social classification in this study was based on the Registrar General's five point occupational scale modified to suit our environment (Etuk *et al.*, 1999). Simple proportions, rates and tables were used to analyse the results. Statistical significance was determined by Chi-square (χ^2) test and 2-tailed Fishers Exact Test. This was with the help of a computer EPI/INFO-6.

RESULTS

During the period of study, 1,866 women booked for antenatal care in the two health facilities (1,781 in UCTH and 85 in Faith Foundation Clinic). A total of 590 pregnant women accepted the screening (566 in UCTH and 24 in Faith Foundation Clinic). This gives an acceptance rate of 32.0% for HIV screening in antenatal women in Calabar. Of the 590 pregnant women who were screened, 16 of them were HIV positive, giving HIV seroprevalence rate of 2.7% among pregnant women in Calabar.

Sixteen infants were delivered by these 16 HIV positive mothers. One infant (6.3%) was macerated still-born, one (3.6%) died within the first day of life from severe birth asphyxia. Four infants were lost to follow-up due to change of addresses. The remaining 10 children who were followed up for at least 18 months showed the following results:

by 6 months all were HIV sero-positive;
by 12 months 6 remained HIV sero-positive, while four had become HIV sero-negative;

by 18 months only two remained HIV sero-positive.

This gives a vertical transmission rate of 20.0%.

Table I shows the socio-demographic characteristics influencing HIV seroprevalence rate among pregnant women. HIV seroprevalence rate was highest among women aged 20-30 years, when compared with women of other age groups. However, this was not statistically significant ($P = 0.368$). Although marital status did not statistically seem to influence HIV seroprevalence rate ($P = 0.0905$), a 3.5% of unmarried women infected is higher than 2.6% of the married ones. Social class did not influence the HIV seroprevalence rate in this study ($P = 0.699$). Husbands not living with their wives significantly influence the HIV seroprevalence rate in this study ($P = 0.035$).

Table II shows the reproductive characteristics influencing HIV seroprevalence among our pregnant women. Parity, history of abortion, history of previous still-birth and previous history of neonatal death did not influence the seroprevalence rate of HIV in our antenatal women ($P > 0.05$). However, history of induced abortion significantly increased the seroprevalence rate of HIV in these women ($P = 0.028$).

Table III shows the influence of blood transfusion on HIV seroprevalence rate among our pregnant women. History of blood transfusion significantly increase the seroprevalence rate of HIV in these women ($P = 0.023$) but the frequency of blood transfusion did not seem to influence the HIV seroprevalence rate.

DISCUSSION

This study records HIV seroprevalence rate of 2.7% among pregnant women in Calabar. This falls within 0.2% to 8.2% reported by other workers in Nigeria (National AIDS/HIV/STD Control Programme, 1995). However, this rate may not reflect the true situation in our community in view of the low rate of acceptance for screening (32.0%) shown by this study. The most at risk patients are most likely to refuse screening for fear of stigmatisation. The study also gives a vertical transmission rate of 20%. This is not far from 25-35% reported by others (Ntozi and Kirunga, 1998; Dabis *et al.*, 1995). This unfolds the fact that the prevalence of HIV infection in pregnant women carries a heavier burden than it is in the general population. The pregnant women can spread the disease like every other infected woman but in addition, the unborn child stands a risk of contracting the infection from the mother. The babies of these infected mothers who escape

this infection may die from diarrhoea and other infections because of avoidance of breastfeeding (Walley *et al.*, 2001).

HIV seroprevalence rate, as shown by this study is highest among women aged 20-30 years though not statistically significant. This agrees with the report that the hardest hit groups are those women in their peak child-bearing years (Chin, 1990). This is not surprising as these are women in their sexually active years and

HIV/AIDS in Africa is primarily transmitted through heterosexual contact (Fawole *et al.*, 1999).

Majority (87.5%) of the HIV positive women in this study were married. Although only two (12.5%) unmarried women were HIV positive, the seroprevalence rate in this group (3.5%) was higher than 2.6% among the married ones. That unmarried women are more likely to have multiple sexual partners, an important predisposing factor to HIV infection (Allen *et al.*, 1991), may explain

Table 1: Socio-Demographic Characteristics Influencing HIV Seroprevalence Rate Among Pregnant Women

Variable	HIV positive Pregnant Women (%) n = 16	HIV negative Pregnant Women (%) n = 574	Total (%)	P-Level
Age				
< 20	0 (0.0)	37 (100.0)	37 (100.0)	0.368
20 - 30	15 (3.4)	428 (96.6)	443 (100.0)	
31 - 40	1 (0.9)	108 (99.1)	109 (100.0)	
> 40	0 (0.0)	1 (100.0)	1 (100.0)	
Marital Status				
Married	14 (2.6)	519 (97.4)	533 (100.0)	0.905
Unmarried	2 (3.5)	55 (96.5)	57 (100.0)	
Social Class				
1	0 (0.0)	20 (100.0)	20 (100.0)	0.699
2	1 (2.0)	50 (98.0)	51 (100.0)	
3	2 (1.8)	109 (98.2)	111 (100.0)	
4	4 (4.6)	83 (95.4)	87 (100.0)	
5	9 (2.8)	312 (97.2)	321 (100.0)	
*Husband's Place of Residence				
Calabar	13 (2.3)	549 (97.7)	562 (100.0)	0.035
Outside Calabar	3 (10.7)	25 (89.3)	28 (100.0)	

* Statistically significant.

Table 2: Reproductive Characteristics Influencing HIV Seroprevalence Among Pregnant Women

Variable	HIV positive Pregnant Women (%) n = 16	HIV negative Pregnant Women (%) n = 574	Total (%)	P-Level
Parity				
0	4 (2.7)	142 (97.3)	146 (100.0)	0.539
1 - 4	9 (2.4)	373 (97.6)	382 (100.0)	
> 5	3 (4.8)	59 (95.2)	62 (100.0)	
History of Abortion				
Yes				0.15
No	9 (4.2)	204 (95.8)	213 (100.0)	
* Type of Abortion				
Induced				0.028
Spontaneous	9 (6.7)	125 (93.3)	134 (100.0)	
No Abortion	0 (0.0)	79 (100.0)	79 (100.0)	
History of Previous Stillbirth				
Yes	0 (0.0)	28 (100.0)	28 (100.0)	1.000
No	16 (2.8)	546 (97.2)	562 (100.0)	
Previous History of Neonatal Death				
Yes	0 (0.0)	57 (100.0)	57 (100.0)	0.386
No	16 (3.0)	517 (97.0)	533 (100.0)	

* Statistically significant.

Table 3: Seroprevalence of HIV Among Pregnant Women According to Blood Transfusion Factors

Variable	HIV positive Pregnant Women (%) n = 16	HIV negative Pregnant Women (%) n = 574	Total (%)	P-Level
*History of Blood Transfusion				
Yes	4 (8.5)	43 (91.5)	47 (100.0)	0.023
No	12 (2.2)	531 (97.8)	543 (100.0)	
Frequency of Blood Transfusion				
1	2 (6.9)	27 (93.1)	29 (100.0)	0.810
2 - 6	2 (11.8)	15 (88.2)	17 (100.0)	
7 - 12	0 (0.0)	1 (100.0)	1 (100.0)	

* Statistically significant.

this. Social class does not seem to influence HIV seroprevalence status in this study. This is probably because heterosexual sex, the major mode of transmission is practised by all classes of people.

Husband living in a different town from where their wives live, significantly increase the HIV seroprevalence rate ($P = 0.035$). While 10.7% of women whose husbands live outside Calabar were HIV infected, only 2.3% of the women whose husbands live in Calabar were HIV positive. It is possible that in the absence of their wives husbands have other sexual partners, a practice not abhorred at all by the culture here. Even the wives themselves after prolonged absence of the husband may be tempted to start having other sexual partners. In whichever way, these women are exposed to HIV infection.

Mortality rate among babies born to HIV positive mothers is usually higher than those of babies born to their HIV negative counterparts (Lallenant *et al.*, 1989; Ryder *et al.*, 1989). It is, therefore, surprising that none of the HIV positive mothers in this study had history of either stillbirth or previous neonatal death. That majority of the women in the study were having their first babies may explain this.

History of abortion did not seem to influence the HIV seroprevalence rate in this study. However, nine out of the 16 HIV positive women (56.3%) in the study gave a history of induced abortion but none of the women with history of spontaneous abortion was HIV positive ($P = 0.028$). The use of unsterile surgical instrument is a known way of transmitting HIV infection (Bere and Sunada, 1993). Abortion is not legalised in Nigeria, consequently, women frequently resort to clandestine and dangerous methods of pregnancy termination that result in high rate of infection including HIV. Besides, women who go for induced abortion are likely to be women with multiple sexual partners which favours HIV infection.

Blood transfusion is another significant

risk factor associated with HIV infection in these pregnant women ($P = 0.023$). This is surprisingly not dependent on the frequency of blood transfusion. The likelihood of infection after exposure to infected blood is more than 90% (Chin, 1992). Due to high cost of screening kits and equipment, some health facilities in developing countries still transfuse blood without screening for HIV. Some resort to transfusing blood from patient's relatives, which is not in any way safe (Asindi and Ibia, 1992). Even when the blood is screened, there is still a chance of transmitting the infection if the infected donor is bled during the window period (Nigerian Medical Association, 1991).

In conclusion, HIV infection in pregnant women carries a heavier burden than it is in the general population. Its seroprevalence rate among pregnant women in Calabar is 2.7% with a vertical transmission rate of 20%. Husband and wife not living together, history of induced abortion and blood transfusion significantly increase HIV seroprevalence rate among pregnant women in our community. Marital status and age also seem to increase while social class and previous pregnancy outcome do not influence the HIV sero-prevalence rate in Calabar. To stem this tide, we recommend that in our education and counselling of antenatal women on HIV/AIDS, the importance of screening as a necessary step towards preventing vertical transmission should be emphasised. Pregnant women with history of induced abortion, those who are not living together with their husbands and those with history of blood transfusion should have a one-to-one person education on this issue. Any cause that would separate wives from their husbands should be strongly discouraged. Family planning as a means of preventing unwanted pregnancy should be encouraged. Above all, transfusion of unscreened blood should be banned and the ban enforced in all health facilities.

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