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SEROPREVALENCE AND SOCIO-DEMOGRAPHIC FACTORS OF HIV IN PREGNANCY IN CROSS RIVER STATE, NIGERIA: A REDEFINITION FOR HIV PREVALENCE STUDIES

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ABSTRACT

The HIV Seroprevalence of 2000 consecutively selected pregnant women seen in four major hospitals of Cross River State between April and December, 1998 was determined against a background of their Socio-demographic factors. Blood samples were obtained by venepuncture following informed consent and screened for HIV antibodies using ELISA test kit (ELISA-Wellcozymes, Boroughs Wellcome, Dartford, UK). Sero-reactive samples were confirmed using the Western blot (Biorad Laboratories, Hercules, California, U.S.A). Data on the women socio-demographic factors were obtained by interview using validated questionnaire. The HIV seroprevalence of the women was 4% (80 out of 2000). The prevalence rate was higher in women 18 years or less (29.0%), followed by Single women (13.3%). Lower rate was found in women 40 years or more (1.4%). The women HIV antibody status was significantly associated ($P<0.001$) with their age, marital status and type of marital relationship. It was however, independent ($P<0.1$) of their level of education and spouses' income. The study revealed a major disparity in HIV prevalence rates among pregnant women on the basis of age, marital status and type of marital relationship. We advocate that the criteria for generalized HIV studies in Nigeria on the basis of mere presence of pregnancy be redefined to accommodate the salient risk factors we have observed in this study.

Key words: Seroprevalence; Socio-demographic; HIV, Pregnancy; Redefinition.

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INTRODUCTION

The human immunodeficiency virus (HIV) is increasingly becoming a household word globally, since it was discovered to the causative agent of Acquired Immune Deficiency Syndrome - AIDS (Georges and Georges Courboj 1990; WHO 1992a and Lande 1993). It is estimated that over 30 million people are currently harbouring the virus globally with Africa accounting for 21 million of these (Klein and Gourevtich, 1998).

In Nigeria, accurate data on the number of people infected does not exist, however, it is estimated that close to 5 million people may be infected already. (WHO, 1997). The 1997 World Health Organization (WHO) global HIV/AIDS and STDs surveillance reported an HIV prevalence of 12.6% for apparently normal Nigerian adults. The reliability of this data is still a subject of controversy (Olaosebikan, 1997).

HIV infection in pregnant women has been shown to have adverse effect on the woman herself, the foetus and newborn (Mok, 1991; ECSG. 1991; Schuman and Jobel, 1993). In Nigeria, like most African countries the virus is predominantly transmitted through heterosexual act (van de Walle, 1990; GoodGame, 1990 and Nnorom, 1995), which may account for up to 90% of the infection in the country (Nnorom, 1995). Transmission through transfusion of infected blood is estimated at 3%, while prenatal transmission and transmission by other means may account for 5 and 2% respectively (Nnorom, 1995). To date, most prevalence studies of HIV have involved selected groups at high risk of infection (Sperling et al; 1992; Chang et al; 1994 and Amaral et al; 1996). Such groups include blood donors who often are touts, who donate blood for money; attendees at STD treatment Clinics and Commercial Sex Workers (CSWs) (Sheller et al; 1990 and Nsila et al; 1991). Where pregnant women are used, the prevailing socio-economic and behavioural risk factors are not taken into consideration (Sheller et al; 1990; Klugman et al; 1991 and Mbopi - Keon et al; 1998). The findings in this group cannot therefore be generalized. To assess the seroprevalence of HIV in the low risk Cross River population of Nigeria, we have carried out this prevalence study using pregnant women as a representative of the general population that can serve as a window in the future in the area under study. We have also employed the women socio-demographic and risk factors to

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differentiate between the true low risk pregnant women and the high-risk pregnant women.

STUDY POPULATION AND METHOD

The study population was made up of two thousand pregnant women seen in four major Ante Natal Clinics (ANC) of the following hospitals: General Hospital, Calabar; Holy Family Joint Hospital, Ikom; General Hospital Ogoja and Sacred Heart Hospital, Obudu; between April and December, 1998. The women were consecutively selected neglecting their trimester of pregnancy.

On registering at the various antenatal Clinics, each woman was confidentially counselled by a trained health counsellor. Following informed consent, basic information such as age, marital status, type of marriage (e.g monogamous or polygamous) were obtained from each woman using a validated questionnaire. Finally, blood was drawn for HIV serology. Women who refused were excluded from the study, The first five hundred women registered in each study centre within the study period were sampled.

Samples were screened for HIV antibodies using ELISA test kits (ELISA-Wellcozyme, Boroughs Welcome, Dartford, and U.K). (Colombo et al; 1987; Jackson and Balfor, 1988 and WHO, 1992b). Tests were performed as instructed in the assay kits. HIV sero-reactive samples were confirmed by Western Blot (Biorad Laboratories Hercules, California, U.S.A) (Chin 1990 and Nkengasong, et al; 1992).

The HIV results of each woman was computed against her socio-demographic factors. A statistical test of significance between the women's socio-demographic factors and their HIV status was determined using the chi-square (X^2).

RESULTS

Serological evidence of HIV infection was established for 80 out of 2000 (4.0%) of the pregnant women screened. The prevalence of HIV antibodies among different age groups is shown in Table 1. Analysis of responses to the questionnaires revealed that polygamously married women had a higher HIV infection rate (13.1%) than those in monogamous marriage (3.3%). The distribution of HIV infection among socio-demographic factors such as marital status, level of education, level of income and single or co-habitation is shown on table 2.

Analysis of data obtained using chi square (X^2) revealed that there was no statistically significant difference between the women's level of education, income and HIV infection rate. However, a significant statistical association was found between HIV antibodies prevalence and the women's age, marital status and type of marriage.

DISCUSSION

Women are particularly more vulnerable to HIV infections due to the receptacle nature of their genitalia, which permits ejaculated semen to remain for a longer time (Mariasy and Radlett, 1990; Forrest, 1991; Schuman and Sobel, 1993). In Nigeria, like most African countries this factor is further enhanced by the predominantly heterosexual mode of transmission of the virus (Chang and Shallo 1994 and Nnorom, 1995).

Pregnant women generally represent a low risk group and their HIV prevalence is usually taken to represent the general population (Davidson, 1989 and Motti et al, 1990). The Nigeria AIDS Control Programme (NACP) nationwide HIV sentinel sero-survey established the national HIV prevalence for

TABLE 1

DISTRIBUTION OF HIV ANTIBODIES AMONG DIFFERENT AGE GROUPS OF PREGNANT WOMEN

AGE (YEARS)	TOTAL NO. OF WOMEN TESTED (%)	NO. OF WOMEN POSITIVE (%)
≤ 18	62	18 (29.0)
19 - 24	506	28 (5.5)
25 - 29	574	18 (3.1)
30 - 34	412	8 (1.9)
35 - 39	306	6 (1.9)
≥ 40	140	2 (1.4)
TOTAL	2000	80 (4.0)

TABLE 2
DISTRIBUTION OF HIV ANTIBODIES AMONG DIFFERENT SOCIO-DEMOGRAPHIC GROUPS OF PREGNANT WOMEN

Variable	Number in Category	% in Category	No. with HIV antibody (%)	Statistical Relationship (X^2)
Marital Status (N=2000)				
Married	1652	82.6	51 (3.0)	
Single	166	8.3	20 (12.0)	P < 0.001
Separated	148	7.4	2 (1.3)	
Widowed	34	1.7	7 (20.5)	
Highest level of Education (N=2000)				
Illiterate	418	21.4	18 (4.3)	
Completed Primary School	540	27.0	22 (4.0)	
Completed Secondary Education	812	40.6	31 (3.8)	
Had Post Secondary Education	230	11.5	9 (3.9)	P > 0.1
SPOUSE INCOME PER MONTH (₦)				
< 4000	408	20.4	16 (3.9)	
4000 - 6000	532	26.6	21 (3.9)	
6000 - 8000	731	36.5	30 (4.1)	
10,000 - 12,000	204	10.2	7 (3.4)	P > 0.1
> 12,000	123	6.1	5 (4.0)	
UNKNOWN	2	0.001	0	
Type of marriage				
Monogamous	1490	74.5	50 (3.3)	
Polygamous	168	8.4	22 (13.1)	P < 0.001
Live Alone	238	11.8	6 (2.5)	
No Current Partner	106	5.3	2 (1.8)	

₦83.00 = U. S. $1.00 (Based on 1998 Average Exchange Rates)

pregnant women and Commercial Sex Workers (CSWs) as 1.2% and 17.5% respectively in 1992 (Asagba, 1992).

In a similar survey conducted in 1994 the NACP found a prevalence of 3.8% and 21.3% for pregnant women and CSWs respectively (Nnorom 1995). Our observation of a prevalence rate of 4% among pregnant women of Cross River State agrees with the National AIDS Control Programme report of 1994 (Nnorom, 1995).

In our study, socio-demographic and risk factors such as age, marital status and type of marriage were found to be the major determinants of the women HIV status. Their sero-positivity were all statistically significantly associated, ($P<0.001$) with all the factors examined except the women level of education and spouse's income. Women aged 18 years or less exhibited a comparatively higher prevalence (29.0%), as compared to women 35 years and over (1.7%).

The significantly high HIV sero-prevalence found among single pregnant women (12.0%) and widowed pregnant women (20.5%) as compared to married pregnant women (3.0%) may be attributed to the increased sexual promiscuity that would be likely in the single and widowed pregnant women. These two groups of women may not have moral restrictions to sexual partners. This strongly suggests the need for the inclusion of demographic factors such as marriage in all prevalence studies of pregnant women before such prevalence studies can be considered as representative of the general population.

Culturally, the area under study permits polygamy aimed at increased procreation for agricultural labour force. The working class

proleterates also marry more that one wife keeping one in their working stations and the others in the village for farming. The latter wives are usually much younger than their husbands, creating room for extra-marital relationship with consequent contraction of HIV infections. This may thus explain the higher prevalence of HIV antibodies observed among polygamously married pregnant women.

The statistically significant prevalence of 13.1% found in women involved in polygamous relationship as compared to 3.3% among women in monogamous marriage exposes the risk of polygamy to HIV infections.

CONCLUSION

The seroprevalence of infection with HIV in this representative group of pregnant women in Cross River State was 4.0%. Age, marital status and type of marital relationships were all significant determinants of the women seropositivity. There is therefore gross need for HIV prevalence studies of pregnant women as representative of the general population at low risk to be based against a background of socio-demographic/behavioural ristk factors of the women.

Polygamously married pregnant women, single, divorced and widowed pregnant women and others eighteen year old, or less all had significantly higher HIV prevalence than other groups of pregnant women. We recommend that these factors should be included in HIV prevalence studies of pregnant women.

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