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Original Article

Awareness and knowledge of mother-to-child transmission of HIV among mothers attending the pediatric HIV clinic, Kano, Nigeria

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Abstract

Background: Nigeria accounts for about 10% of all HIV/AIDS cases in the world. Globally women constitute 48% of adults infected with HIV; in Nigeria, they constitute 57%. There is an increase in the number of children infected with HIV in recent years as the number of HIV-positive women has increased. However, more than 90% of HIV infections in children aged less than 15 years are due to mother-to-child transmission of HIV.
Objective: To evaluate the awareness and knowledge of mother-to-child transmission of HIV, HIV/AIDS and the methods to prevent mother-to-child transmission of HIV.
Methods: This is a descriptive study. The study was carried out at the pediatric HIV clinic of Aminu Kano Teaching Hospital from 1st July 2006 to 30th December 2006. Mothers included in the study were mothers in first contact with HIV facilities, which was at our center, before any form of counseling. The instrument used was a questionnaire designed to assess awareness of the mothers about HIV/AIDS, evaluate their knowledge of possible routes of transmission and measures to prevent vertical transmission.
The questionnaire was then pre-tested for comprehensibility, appropriateness of language, sensitivity of questions and average duration of administration.
Results: A total of 164 mothers brought their children for treatment to the pediatric HIV clinic. The level of awareness about HIV/AIDS among mothers was very high (100%), and the main sources of information were radio (48.8%) and television (37.8%). Ninety-one percent of mothers were aware of mother-to-child transmission of HIV. Transplacental route (41%) was the commonly identified route of transmission. The level of knowledge and perceptions of mother-to-child transmission of HIV is inadequate.
Conclusion: There is a need to scale up education about mother-to-child transmission of HIV in our health facilities.

Keywords: Awareness, mother-to-child transmission, prevention

Résumé

Arrière-plan: Nigeria représente environ 10% de tous les cas de VIH/SIDA dans le monde. Dans le monde des femmes représentent 48% des adultes infectés par le VIH au Nigeria. Il y a une augmentation le nombre d'enfants infectés par le VIH au cours des dernières années que le nombre de Femmes positives VIH ont augmenté. Cependant, plus de 90% des infections à VIH chez les enfants âgés de moins de 15 years sont dues à la mère à enfant transmission du VIH.
Objectif: Pour évaluer la prise de conscience et connaissance de la mère à enfant transmission du VIH, le SIDA et les méthodes de prévention de la mère à enfant transmission du VIH.
Méthodes: Il s'agit d'un étude descriptive. L'étude a été effectuée à la clinique du VIH pédiatrique de Hôpital d'enseignement de Kano Aminu depuis le 1er juillet st 2006 à décembre 2006. Mères incluses dans l'étude ont été les mères au premier contact avec le VIH installations dans notre centre avant toute forme de counseling. L'instrument utilisé était une questionnaire destinée à évaluer la prise de conscience de la mère sur le VIH/SIDA, évaluer leurs connaissances des itinéraires possibles de transmission et de mesures visant à prévenir la transmission verticale.
Le questionnaire a été ensuite testée. pour la pertinence de la compréhensibilité du langage, sensibilité des questions et durée moyenne de l'administration.

Résultats: Un total de 164 les mères apportent leurs enfants pour le traitement en clinique pédiatrique du VIH. Le niveau de sensibilisation du VIH/SIDA chez les mères était très élevé (100%) et la principale source des informations étaient radio (48.8%) et de télévision 37.8%. Quatre-vingt-un pour cent des les mères étaient au courant de la mère de transmission de l'enfant de la route du VIH Transplacental (41%) a été l'itinéraire couramment identifiée de la transmission. Le niveau de connaissance et les perceptions de la mère à enfant transmission du VIH est insuffisante.
Conclusion: Il y a le besoin de redimensionner l'éducation à la santé au sujet de la mère de transmission de l'enfant dans notre établissements de santé.

Mots clés: Prise de conscience, mère à enfant transmission, de prévention

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Introduction

Nigeria accounts for about 10% of all HIV/AIDS cases in the world.[1] Globally, women constitute 48% of adults infected with HIV; in Nigeria, they constitute 57%. The prevalence is highest among productive young people between the ages of 20 and 29 years, with 60% of new infections occurring in the 15-25 years age group.[2,3] Heterosexual transmissions account for 80% of all infections.[4] The pandemic is having a serious effect on the reproductive health of women in Nigeria.

There is an increase in the number of children infected with HIV in recent years as the number of HIV-positive women has increased.[1] More than 90% of HIV infections in children aged less than 15 years are due to mother-to-child transmission of HIV.[5] In many developed countries, testing, antiretroviral therapy and infant-feeding modifications have been used to eliminate mother-to-child transmission of HIV.[6,7] In countries in Sub-Saharan Africa, HIV continues to be a problem due to lack of information, testing services and antiretroviral therapy.[1] The high prevalence of mother-to-child transmission has reversed the gains of the child survival strategy in the region. There is an urgent need to combat this menace.

The "Prevention of Mother-to-Child Transmission of HIV" service was started in October 2003 at Aminu Kano Teaching Hospital, Kano. Following the designation of this center as a service center for the program of prevention of mother-to-child transmission, a committee was formed, which involved pediatricians, obstetricians, nurses, pharmacists, public health physicians and counselors to run the program. It is therefore pertinent to determine the knowledge and awareness about HIV/AIDS and mother-to-child transmission among mothers attending the pediatric HIV clinic. The information obtained will influence the counseling and education of patients and the community about HIV/AIDS. This will further decrease mother-to-child transmission of HIV/AIDS.

Materials and Methods

The study was carried out at the pediatric HIV clinic of Aminu Kano Teaching Hospital, Kano, from 1st July 2006 to 30th December 2006. Mothers included in the study were mothers in first contact with HIV facilities, which was at our center, before any form of counseling. The pediatric HIV clinic works twice a week (Mondays and Fridays). The instrument used was a questionnaire designed to assess awareness of the mothers about HIV/AIDS, evaluate their knowledge of possible routes of transmission, particularly mother-to-child transmission, and measures to prevent vertical transmission from mother to child. It included socio-demographic information such as age, marital status and level of education. Questions were asked on whether they were aware of HIV/AIDS, the routes of transmission of HIV, the possibility of HIV coexisting with pregnancy and transmission to the infants, the timing of transmission from mother to child, measures to prevent mother-to-child transmission; and whether they felt that a healthy person could be infected with HIV. The questionnaire was then pre-tested for comprehensibility, appropriateness of language, sensitivity of questions and average duration of administration. The interviewers were pediatric resident doctors who were trained in interviewing techniques, they were aware of the eligibility criteria of respondents and were capable of providing a detailed explanation of each question in the local language in case English was not understood by the subjects. Ethical approval was obtained from the ethical committee of the Aminu Kano Teaching Hospital, Kano.

Sample size

The sample size was calculated from the expression $n = z^2 (100 - p)/ pd^2$, where z is a standard normal deviate, usually set at 1.96. The confidence level was specified as 95%, and the tolerable error margin (d) was 5%. Specifications for p were determined based on the study objectives. The largest sample size that satisfied all objectives was used and a sample of 128 respondents was needed ($P = 91$, which

was the prevalence of awareness of coexistence of HIV and transmission to infants in a similar study). The sample size was adjusted to compensate for a nonresponse rate of 20%. The final, minimum sample size was 153.

Data analysis

The data was analyzed using SPSS package version 9.0 for the descriptive aspects of analysis, and frequency distributions were generated for all categorical variables. Means and standard deviations were determined for quantitative variables. The Chi-square test was applied for comparisons of proportions and for evaluating association of categorical variables. Statistical significance was said to be achieved when the P value was < 0.05.

Results

A total of 170 mothers attended the pediatric HIV clinic during the study period; 164 of them agreed to be interviewed. The remaining 6 were not interested in the study. The age range of the respondents was 17-42 years, with a mean age of 32 + 5 years. One hundred sixty-two respondents were married, and 121 (74%) had at least secondary education [Table 1].

Table 2 shows the awareness and knowledge of HIV/AIDS among the respondents. All the respondents interviewed were aware of HIV/AIDS, and 54% had been aware of the disease for more than 5 years. The main sources of information included radio (48.8%), television (37.8%), health workers (35.4%). However, religious organizations were the source of information for the least number of respondents (15%, $P < 0.05$). All mothers identified sexual intercourse as a route of transmission of HIV. Sharing of sharps (needles, razors) and blood transfusion were identified as additional routes of transmission by 59% and 63% of the respondents, respectively. A significantly higher proportion (85%) of the respondents knew that an apparently healthy person could be living with HIV ($P < 0.05$).

Table 3 shows that majority (91%) of the respondents were aware that HIV could coexist with pregnancy, but only 62% were aware of mother-to-child transmission of HIV. The observed difference between their two proportions was statistically significant ($X^2 = 14.58$, df = 2, $P = 0.0001$).

Transplacental route as a mode of mother-to-child transmission of HIV was known by 60% of the respondents. A significantly lower proportion of the respondents identified vaginal delivery and breastfeeding as routes of HIV transmission (39% and 53%, respectively; $P < 0.05$).

Cesarean section was believed to be a route of transmission by 68 (41%) respondents. This proportion was significantly higher than the 39% of the respondents that identified vaginal delivery as a route of mother-to-child transmission of HIV ($P < 0.05$). Thirty-five (21%) mothers could not identify any route of mother-to-child transmission. The use of antiretroviral drugs in pregnancy and avoidance of breastfeeding were identified as methods of reducing mother-to-child

Table 1: Socio-demographic characteristics of the study population

Age (years)	Number	Percentage
15-19	4	2.4
20-24	21	12.8
25-29	50	30.5
30-34	65	39.6
>40	8	4.8
Marital status		
Single	2	1.2
Married	148	90.3
Divorced	8	4.8
Widowed	6	3.7
Educational level		
None	16	9.8
Primary	22	13.4
Secondary	68	41.5
Tertiary	58	35.3
Total	164	100

Table 2: Awareness and knowledge of HIV/AIDS

	Number	Percentage
Awareness of HIV/AIDS		
Yes	164	100
No	0	0
Total	164	100
Duration of awareness		
>5 years	74	45.1
>5 years	90	54.9
Total	164	100
Sources of information		
Radio	80	48.8
Television	62	37.8
Public campaign/rally	58	35.4
Health workers	56	34.1
Newspaper	52	31.7
Friends/relatives/neighbor	40	24.4
Religious organization	32	19.5
Route of transmission		
Sexual intercourse	164	100
Sharing sharps	96	58.5
Blood transfusion	104	63.4
Infected persons can be healthy		
Yes	140	85.4
No	16	9.8
Don't know	8	4.8

$X^2 = 328.00$, df = 2, P = 0.000; $X^2 = 12.50$, df = 7, P = 0.0004; $X^2 = 40.05$, df = 3, P = 0.0000; $X^2 = 142.5$, df = 3, P = 0.00;

transmission of HIV by only 17% and 24% of the respondents, respectively. Delivery by cesarean section was identified as a method of prevention of mother-to-child transmission by only 10 (6%) respondents. A significantly higher proportion of respondents (58%, $P < 0.05$) did not know any method to prevent mother-to-child transmission of HIV.

Table 4 shows the knowledge about mother-to-child transmission of HIV among mothers with no or primary education as compared with mothers who had at least secondary education. Seventy-six percent of respondents with no or primary education were aware of mother-to-child transmission of HIV, while two-thirds of mothers with at least secondary education were aware of mother-to-child transmission of HIV. The observed difference was not statistically significant ($P \geq 0.05$, odds ratio (OR)=1.40, 0.76<OR<2.80

Table 3: Knowledge of the possibility of coexistence of HIV/AIDS and pregnancy

Knowledge	Number	Percentage
HIV coexistence with pregnancy		
Yes	150	91.5
No	9	5.5
Don't know	5	3.0
Total	164	100
Mother-to-child transmission		
Yes	101	61.6
No	26	15.8
Don't know	37	22.6
Total	164	100
Routes of transmission to child		
Placenta	98	60
Vaginal delivery	65	39
Caesarean section	68	41
Breast feeding	87	53
Don't know	32	19.5
Method of preventing MTCT		
ART in pregnancy	28	17
ART in labor	18	10.9
Delivery by cesarean	10	6.1
ART in newborn	13	7.9
No breastfeeding	40	24.4
Don't know	96	58.5

$X^2 = 272.0$, df = 3, P = 0.000; $X^2 = 77.017$, df = 3, P = 0.000; $X^2 = 39.98$, df = 5, P = 0.000; $X^2 = 104.3.00$, df = 6, P = 0.000; ART - antiretroviral therapy

Table 4: Level of education and knowledge of mother-to-child transmission of HIV

Knowledge of mother-to-child transmission	Primary (%)	Secondary (%)
Yes	28 (73.7)	84 (66.7)
No	10 (26.3)	42 (33.3)
Total	38 (100)	126 (100)

X^2 = 1.18, df = 2, P = 0.277 OR = 1.40 (0.73 < OR < 2.70)

Discussion

All the mothers in this study were aware of HIV/AIDS, and the majority also demonstrated knowledge of mode of transmission and the course of the disease. This is commendable and may be attributed to many factors, including the high level of education of the respondents. Such high levels of awareness have been reported in Lagos,[8] Nnewi[9] and Ekiti[10] in Nigeria and in other parts of the world.[6,11,12] In spite of the high levels of awareness and knowledge of HIV/AIDS reported in most parts of Nigeria, the prevalence continues to rise among pregnant women, as shown by sentinel surveys.[2] The main media of information on HIV/AIDS among mothers in this study were radio, television and public rallies. Radio programs and public campaigns have been quite successful in increasing knowledge about HIV/AIDS in Nigeria and have been the first source of knowledge about HIV/AIDS in northwestern Nigeria.

Sexual intercourse was identified by all the respondents as a route of transmission. This agrees with a worldwide trend in which sexual intercourse is the route of transmission mostly known to respondents.[8-12] There is lack of accurate information about sexual health; this has led to many myths and misconceptions, in turn leading to stigmatization of, and discrimination against, people living with HIV/AIDS; and this will increase the rates of infection in the countries of Sub-Saharan Africa and in other parts of the world.

Many faith-based organizations see immoral behavior as being the cause of the HIV/AIDS epidemic and they therefore decline involvement in preventive and intervention programs. In this study, religious organizations contributed the least to awareness about HIV/AIDS among the respondents. This is similar to studies by other workers.[9,10,13] There is therefore a need to involve religious leaders in the HIV/AIDS education campaigns and in campaigns for increasing collaboration with HIV/AIDS prevention programs.[13] Blood transfusion and the sharing of razors and other sharp objects were identified by 63% and 59% of respondents, respectively, in this study as routes of transmission. These routes of transmission are the ones also frequently identified by respondents in other Nigerian studies.[8-10]

Ninety-one of the respondents were aware that HIV infection could coexist with pregnancy, while a significantly lower proportion (61%) of respondents were aware of mother-to-child transmission of HIV. The study also reveals that literate and illiterate respondents were equal in their awareness of

mother-to-child transmission of HIV. Furthermore, specific knowledge of routes of transmission or measures available to prevent transmission was low. Similar low levels of knowledge were reported in other parts of Nigeria,[9,10] Uganda and Tanzania.[11]

More than half of the women in this study did not know of any method of preventing mother-to-child transmission of HIV. Avoiding breastfeeding was identified by 24% of the respondents as a means of preventing transmission from mother to child, while only 6.1% of the respondents mentioned cesarean section as a method of preventing mother-to-child transmission of HIV. It is known that breastfeeding contributes 30-40% of vertical transmissions.[1] This is a noteworthy and contemporary issue, since in Sub-Saharan Africa and other developing countries, breastfeeding is the cultural norm and exclusive breastfeeding is advocated because of high infant mortality and morbidity from diarrheal diseases and malnutrition. Mothers are likely to opt for breastfeeding to avoid being stigmatized as HIV/AIDS victims. However, there is a need for government and nongovernmental policies that will ensure a sustainable and effective breast milk substitute supply and its utilization by infants of HIV-positive mothers, just as antiretroviral drugs are currently being made available to these mothers.

This study provides information about knowledge of mother-to-child transmission of HIV and its prevention among mothers targeted for intervention in a high-risk zone in Africa. The mothers in this study were interviewed at their first visit to the pediatric HIV clinic. Some of the mothers could have had some information prior to presentation to the clinic. This study therefore has a reflection on the larger community.

In our locality, the opinion of the male partners strongly influences the adoption of health policies and programs by women.

For community education, a public media campaign should dwell more on the aspect of prevention of mother-to-child transmission. There is also the need for increased collaboration with HIV/AIDS prevention programs. The level of involvement of religious organizations in an HIV/AIDS prevention program also needs to be determined for an effective process of capacity building and system strengthening.[13] Finally, a more comprehensive evaluation of knowledge and attitudes of both men and women in the community about HIV/AIDS and mother-to-child transmission will provide added information for establishing community intervention programs.

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