Knowledge and Use of Antiretroviral Drugs in Prevention of Mother to Child Transmission of HIV/AIDS Amongst HIV Infected And Uninfected Patients in Okwe General Hospital, Asaba: A Case-Control Study

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Abstract:
Background: Perinatal transmission of HIV/AIDS also known as Mother to Child Transmission of HIV/AIDS is the most prevalent source of pediatric HIV infection.
Objective: Therefore, this case-control study was designed to investigate the knowledge and use of antiretroviral drugs in prevention of mother to child transmission of HIV/AIDS amongst HIV infected and uninfected patients.
Settings: The study was carried out in Okwe General Hospital in Asaba.
Methods: A case-control study was conducted among 50 HIV infected and 46 HIV uninfected patients; using simple random and purposive sampling techniques. A validated pre-tested questionnaire was used to collect the data which were analysed with SPSS version 15.0.
Results: The mean age of the cases was 29.67±7.90 years, while that of the control was 30.89±8.30 years. The cases had a better knowledge of HIV/AIDS 43(86.0%) as compared to the control 30 (65.20%). Furthermore, most of the cases 48 (96.0%) had seen an antiretroviral drug and had knowledge of zidovudine as an example of ARD 49 (98.0%) as compared to some of the control who have not seen an ARD 42 (91.30%) and concurred that paracetamol is a type of ARD 37 (80.40%). In addition, some of the cases could not identify the actual dosage for zidovudine 24 (48.0%) and delavirdine 28 (56.0%).
Conclusion: It is therefore recommended that, more and regular health education should be carried out among HIV infected patients to sustain the gains of the antiretroviral regimen.
Keywords: Knowledge of HIV/AIDS, Knowledge of ARDs, Cases and Control, PMTCT

I. Introduction

Human Immunodeficiency Virus & Acquired Immunodeficiency Syndrome (HIV/AIDS) is a pandemic which has affected every part of the world and as of 2012; it was the number one cause of death in Africa and has moved to fourth place among all causes of death worldwide, with approximately 42 million people living with HIV/AIDS. [1] Perinatal transmission of HIV/AIDS also known as Mother to Child Transmission of HIV/AIDS is the most prevalent source of pediatric HIV infection. [2] Although Pediatric HIV is almost entirely preventable, an estimated 390,000 children were infected with it in 2010, 90% of them in Sub-Saharan Africa. [2] Nigeria, with an estimated population of over 160 million [3], is second to South Africa, in the number of people living with HIV/AIDS worldwide, representing 9 percent of the global burden of the disease. Consequently, 4.1 percent of the estimated population (3 million) is living with HIV and AIDS. [4] Knowledge about HIV/AIDS has been identified as a powerful tool to prevent the transmission of the disease. Although HIV/AIDS awareness among the general population in Nigeria is documented as about 96% for men and 93% for women, knowledge of mother to child transmission through breastfeeding for men and women is 62% and 65% while 53% of men and 52% of women respectively know that the risk of mother-to-child transmission can be reduced if the mother takes special drugs during pregnancy. [5] Unfortunately, this seemly good knowledge about this disease has not resulted in appreciable changes in attitude or in behaviour modifications in the population. [6]

Anti retroviral drugs are drugs that patients living with HIV/AIDS take to suppress the replication of the virus. However, the potency of Anti retroviral drug therapy for long term effectiveness is dependent upon the maximum and durable suppression of viral replication which can be accomplished when patients practice near-perfect adherence to a complex regime that often includes three or more drugs. Furthermore, the rising prevalence of morbidity and mortality following contraction of the disease is due to the lack of knowledge, wrong attitude towards and non-compliance to the use of ARDs as well as lack of proper understanding of treatment regimen and

self medication that put both mothers and their children at risk of contracting HIV/AIDS. The transmission of the virus from mother to her child during pregnancy, childbirth or breastfeeding is the primary cause of Perinatal HIV/AIDS transmission.

Therefore, this study was designed to investigate the knowledge and use of antiretroviral drugs in prevention of mother to child transmission of HIV/AIDS among HIV-infected and uninfected patients in Asaba, Oshimili South Local Government Area of Delta State; because both are stakeholders in the prevention of mother to child transmission of HIV/AIDS.

II.   Materials And Methods

2.1 Study Design
This is a case control study that investigated the knowledge and use of anti retroviral drugs in the management of mother to child transmission of HIV/AIDS among HIV infected and uninfected patients in Okwe General Hospital, Asaba region of Delta State.

2.2 Study Area
The study area was the city of Asaba located in Oshimili South Local Government Area of Delta State. Asaba is the capital of Delta State with an estimated population of 149,603 (2006 census).
The population chosen for this study comprised of HIV infected (Cases) and uninfected patients (Control) selected in Okwe general hospital in Asaba, Oshimili South Local Government Area of Delta State.

2.3 Inclusion Criteria
The inclusion criteria are HIV infected patients who attended the HIV clinic on the day of the health education session; while the uninfected respondents were those who were on the clinic on the day of the data collection. The uninfected respondents were patients admitted for other ailments and those in the clinic who have been certified as not having the infection.

2.4 Sample size determination
A minimum sample size of 100 was calculated using the formula for sample size determination and for estimating proportion; out of which the questionnaire was administered to 50 HIV infected patients and 50 uninfected patients.

2.5 Sampling Technique
A simple random sampling technique was used to select 50 HIV infected patients out of the 80 HIV patients that attended the health education session on HIV and use of antiretroviral drugs. Purposive sampling was used to select the uninfected patients that meet the inclusion criteria. The HIV infected patients were the cases while the uninfected patients were used as the control.

2.6 Method of Data Collection
On the day of the data collection, the HIV infected patients were trained/health educated before the administration of the questionnaire. The health education was done with a manual guide developed by the researcher and was distributed to the participants during the training session. They were trained/health educated on HIV/AIDS and ARDs; covering key areas such as definitions, causes of HIV/AIDS, signs and symptoms of HIV/AIDS, types of ARD, importance of ARDs, how ARDs prevent the transmission of HIV/AIDS from mother to child and its effects. The health education session was done by the researcher and a trained nurse. After the training, a pre-tested questionnaire was randomly administered to 50 HIV infected patients that attended the training, of which all responded.
Similarly, the same questionnaires were administered to 50 HIV uninfected patients of which, 46 patients responded, giving a response rate of 92.0%.

2.7 Instrument of Data Collection
The instrument for data collection was a pretested, self-administered semi-structured questionnaire. The questionnaire comprised of Socio-demographic characteristics, Knowledge of HIV/AIDS, Knowledge of ARDs and Use of ARDS. On the whole 100 questionnaires were administered to HIV infected and uninfected patients after informed consent had been obtained.

2.8 Data Analyses
Data generated were analysed using SPSS version 15.0. Descriptive statistics were used to evaluate frequency distribution, while independent sample t-test were performed to test for association between variables of interest with level of significance set at $p<0.05$.

For the purpose of this study, respondents' knowledge of HIV/AIDS, and ARD were scored using a scoring system designed by the researcher to enable further analysis, and interpretation as follows. Respondents' answers to questions were graded as correct and incorrect. A correct answer was given a score of one (1), and a wrong answer, score of zero (0). Knowledge of HIV/AIDS was measured in a 12 point knowledge scale graded; 0-6 poor and >6 good knowledge of HIV/AIDS, while knowledge of ARD was measured in a 5 point knowledge scale graded; 0-3 poor and >3 good knowledge of ARD.

2.9 Ethical Consideration
Ethical clearance for the study was obtained from the Department of Public and Community Health, Novena University. In addition, ethical approval was also obtained from the management of the hospital.

III.   Results

According to TABLE 1, more than one third 20 (40.0%) of cases are in the age bracket of 24-29 years as compared to the control 16 (34.8%) who are also in the age bracket of 24-29 years. Similarly, less than one third of the cases 35 (70.0%) were females while 29 (63.0%) of the control were also females.

Table 1: Socio-demographics of Cases and Control respondents

Variables	Frequency	
	Patients (N = 50) Number (%)*	Controls (N = 46) Number (%)*
Age in years		
18-23	12 (24.0)*	7 (15.2)*
24-29	20 (40.0)*	16 (34.8)*
30-35	10 (20.0)*	13 (28.3)*
36-41	5 (10.0)*	4 (8.7)*
42-47	2 (4.0)*	3 (6.5)*
48-53	1 (2.0)*	3 (6.5)*
Gender		
Male	15 (30.0)*	17 (37.0)*
Female	35 (70.0)*	29 (63.0)*
Marital Status		
Single	24 (48.0)*	16 (34.80)*
Married	26 (52.0)*	30 (65.20)*
Occupation		
Student	17 (34.0)*	10 (21.70)*
Civil service	8 (16.0)*	7 (15.20)*
Teaching	9 (18.0)*	8 (17.40)*
Pharmacy	5 (10.0)*	3 (6.50)*
Banking	1 (2.0)*	5 (10.90)*
Others	10 (20.0)*	13 (28.30)*

*Percentages of the response

Overall knowledge of HIV/AIDS of both Cases and Control
As shown in TABLE 2, 43 (86.0%) of the cases had good knowledge of HIV/AIDS, while 30 (65.20%) of the control had good knowledge of HIV/AIDS.

Table 2: Knowledge of HIV/AIDS among Cases and Control

Variables	Frequency*	
	Patients (N = 50) Number (%)*	Controls (N = 46) Number (%)*
Poor Knowledge of HIV/AIDS	7 (14.0)*	16 (34.80)*
Good Knowledge of HIV/AIDS	43 (86.0)*	30 (65.20)*

*Percentages of the response

Knowledge of ARDs among the cases and control groups
As highlighted in TABLE 3, majority of the cases 46 (92.0%) had knowledge of the full meaning of antiretroviral drugs while less than two third 28 (60.87%) of the control group also had good knowledge of ARD. Similarly, as expected most of the cases 48 (96.0%) have seen an antiretroviral drug while on the other hand majority of the control 42 (91.30%) affirmed that they had not seen antiretroviral drug. In addition, majority of the cases 49 (98.0%) had knowledge of zidovudine as an example of ARD while majority of the controls 37 (80.40%) concur that paracetamol as a type of ARD.

Table 3: Knowledge of ARDs among Cases and Control

Variables	Frequency	
	Patients (N = 50) Number (%)*	Controls (N = 46) Number (%)*
What is the full meaning of ARD?		
Anti-retroviral disease	4 (8.0)*	18 (39.13)*
Anti-retroviral drugs	46 (92.0)*	28 (60.87)*
Have you ever seen an anti-retroviral drugs		
Yes	48 (96.0)*	4 (8.69)*
No	2 (4.0)*	42 (91.30)*
The name of the drug used for prevention of mother to child transmission of HIV/AIDS		
Analgesics	3 (6.0)*	15 (32.61)*
ARD	47 (94.0)*	31 (67.39)*
Example of ARD is		
Paracetamol	1 (2.0)*	37 (80.40)*
Zidovudine	24 (98.0)*	9 (19.60)*
ARD is administered		
Before laboratory confirmation of HIV	7 (14.0)*	16 (34.80)*
After laboratory confirmation of HIV	43 (86.0)*	30 (65.20)*
How does ARD prevent the transmission of HIV/AIDS from mother to child		
By inhibiting the growth of the retrovirus	47 (94.0)*	25 (54.35)*
By causing spontaneous abortion	3 (6.0)*	21 (45.65)*

*Percentages of the response

Knowledge of Antiretroviral drugs use among Cases

According to TABLE 4, more than half of the cases confirmed Zidovudine as the drug given 8 hours after birth in a dosage of 2mg/kg and every 6 hours for at least 6 weeks, while 28 (56.0%) declared that the recommended dose of delavirdine is false.

Table 4: Knowledge of ARD use among cases

Variables	Frequency	Percentage
Which of the drug is given 8 hours after birth in a dosage of 2mg/kg & every 6hours for at least 6weeks		
Nevirapine	24	48.0
Zidovudine	26	52.0
The recommended dose of delavirdine is 400mg taken three times daily with or without food		
True	22	44.0
False	28	56.0
It is good to take the right dose of ARD to prevent mother to child transmission of HIV/AIDS		
True	48	96.0
False	2	4.0

Relationship between the knowledge of HIV/AIDS and ARDs among cases and controls

As shown in TABLE 5 below, using the independent sample t-test analysis, shows there was a significant difference between the knowledge of HIV/AIDS among the cases and control groups (P=0.004, 95% -5.82257-3.40003).Furthermore, using the independent sample t-test analysis, shows there was a significant difference between the knowledge of ARDs among the cases and control groups (P=0.031, -2.29508-1.48565) (TABLE 5).

Table 5: Association between the knowledge of HIV/AIDS and ARDs among cases and controls

Variables	F	t	df	Sig. (2-tailed)	95% CI	
					Upper	Lower
Knowledge of HIV/AIDS among cases and control	1.660	-7.654	48	0.004	-5.82257	-3.40003
Knowledge of ARDs among cases and control	1.983	-9.391	20	0.031	-2.29508	-1.48565

IV. Discussion

The response rate in this study is similar to a study done in Mekelle University Belaynesh Abreha ayder, Ethiopia, where the objective, was to assess knowledge, attitude and practice of PMTCT service among pregnant women attending the ANC clinic. [7] In addition, the females were more than the males in both groups in this study which is similar to a study in Kisumu, Kenya and Ndola Zambia. [8-9] This finding is however not surprising because women were the predominant group among the HIV infected patients, and prevention of perinatal transmission of HIV/AIDS is predominantly a female dominated study, with few males. Increasing knowledge about prevention of mother to child transmission of HIV/AIDS and use of antiretroviral medication during pregnancy, labour and delivery and after child birth is critical in reducing mother to child transmission of HIV/AIDS. Consequently, a high percentage of respondents of both groups had good knowledge of HIV/AIDS; however the HIV infected group (Intervention or Cases) had a higher knowledge of HIV/AIDS. This might probably be because of the intervention carried out among cases before the administration of the questionnaire. Furthermore, there was a significant difference between the two groups (Cases and Controls) on their knowledge of HIV/AIDS ($P<0.05$). This finding is similar to a previous study where participants demonstrated adequate awareness and knowledge about HIV/AIDS. [1]

Furthermore, most of the respondents had knowledge of the full meaning of ARD and as expected only few of the control group have seen an antiretroviral drug and was able to recognize zidovudine as an example of an antiretroviral drug. Consequently, there was a significant difference between the knowledge of ARD among cases and control ($P<0.05$). This finding might be due to the health education session conducted among the cases before administering the questionnaire, which probably might have increased their knowledge of ARD.

In addition, most of the cases showed knowledge on use of ARD by identifying zidovudine as the drug administered 8 hours after birth in a dosage of 2mg/kg and every 6 hours for at least 6 weeks. This is similar to previous findings in South-East Nigeria where the respondents demonstrated good knowledge of ARD. [10] However, despite this knowledge demonstrated, some of the cases still showed deficiency in knowledge by identifying Nevirapine as the drug administered 8 hours after birth in a dosage of 2mg/kg and every 6 hours for at least 6 weeks. Furthermore, most of the cases showed deficiency in knowledge on the recommended dosage of delavirdine. The implication of this deficiency in knowledge might lead to overdose or underdose of the drugs, non-compliance with the stipulated regimen and drug resistance among HIV/AIDS infected patients.

V. Limitation of the study

This study will likely be limited by the self-report method of assessment of both the cases and controls especially on the use of ARDs. Hence the result may be subject to some errors including recall bias. However, the authors took precaution against this by explaining the study objectives and gave the respondents time to fill the questionnaire and where respondents had difficulties they were given the necessary attention.

VI. Conclusion

Knowledge of HIV/AIDS and antiretroviral drugs among HIV/AIDS infected patients (cases) was better than uninfected patients (control); thus clearly showing the importance of health promotion through health education among specially targeted groups. However, deficiency of knowledge especially on use of ARD was shown by the cases which can have long term consequences on their health. Consequently, health education among HIV infected patients should be organized regularly so as to update their knowledge on current guidelines on treatment of the disease.

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