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Adherence to Antiretroviral Therapy among HIV Positive Patients in Central Hospital Warri, Delta State, Nigeria

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Abstract: ***Adherence is the quantified level to which an individual follows a prescribed treatment and a low level of adherence to antiretroviral therapy(ART) adversely affects a patient's treatment outcome and results in a rebound of plasma viraemia, development of resistant strains of HIV, more rapid immune deterioration, development of AIDS and death. This study is aimed at assessing the level of adherence to ART among HIV-positive patients assessing care in Central Hospital, Warri, Delta State, Nigeria. A descriptive cross-sectional study. Data were obtained using a semi-structured, interviewer-administered questionnaire and analysed using SPSS version 23. A total of 303 persons were recruited for the study. The mean age of respondents was 36.2±10.8years. Less than half of the subjects (45.5%) were adherent to their ART. Among the non-adherent subjects, the common reasons reported for missing doses of ART were forgetfulness (50.9%), too busy with other things (43.6%) and away from home (35.8%). This study showed that adherence to ART among the study population was poor. Forgetfulness, too busy with other things and being away from home were the most common reason for non-adherence. It is, therefore, recommended that; regular health education should be organised for HIV patients on ART on the importance of being adherent to their ART, regular assessment of adherence to ART should be carried out and a method of reminding patients who are non-adherent to ART on the need to take their ART as at when due should be considered as part of the routine services provided by ART centres.***

Keywords: Adherence, Antiretroviral therapy, HIV positive patients, Warri, Nigeria

1. Introduction

HIV is a global pandemic[1].The World Health Organization (WHO) and the United Nations AIDs (UNAID) estimated that 34 million people are living with HIV/AIDS as at the end of 2011.[2] In the same year, some 2.5 million people become newly infected and 1.7 million died of HIV/AIDS-related causes, including 230,000 children. More than 60% of new HIV infections are in sub-Saharan Africa.[2] It is estimated that the prevalence of HIV/AIDS in sub-Saharan Africa is about 3.7% (3.3 -4%), this is estimated to be about 2.6 million to 3.3 million people, of which women constitute the greater proportion with an estimated value of about 1.5 million to 1.9million. About 380,000 to 510,000 children (0-14 years) are living with HIV/AIDS and deaths due to HIV/AIDS are estimated to be 190,000 to 240,000 in 2011[3]. It is interesting to note that about 2.2 million children are orphans because of AIDS.[3]The impact of HIV/AIDS in sub-Saharan Africa is threatening development in all sectors of society. The loss of productive workers and increase in health care and social service spending require difficult decisions about resource allocation across all government sectors.[4] Recent improvements in the survival of HIV-infected patients have been attributed to various factors, including earlier diagnosis of HIV, the introduction of highly active antiretroviral therapy, greater access to medical care and the development of therapeutic strategies to limit the replication of HIV.[5] Nevertheless, it is increasingly clear that the therapeutic benefits ofhighly active antiretroviral therapy (HAART) are strongly dependent on stringent patient adherence to these regimen[6].Paterson's study (1999) noted that adherence to HAART must be equal to or greater than 95% to limit viral replication effectively.[7] Adherence is a major predictor of the survival of individuals living with HIV/AIDS and poor adherence remains a major obstacle in the fight against the killer disease HIV/AIDS[.7,8] Hence it is important that regular assessment of patients' adherence to ART is carried out. Self-report, interview, pill counts, pharmacy records, computerized medication caps, and viral load monitoring are the various methods used in assessing patients' adherence to HAART[9,10]. Of these, self-reporting is the most commonly used because it is easy, quick and

inexpensive. However, it is associated with a high level of responder bias and over-estimation of the level of adherence[9,11]. The use of computerized medication caps, though reliable and less prone to respondent bias; its high cost and logistic requirements, limit its use in low-resource countries[9,11]. Despite having had several studies on adherence among HIV patients on ART from various centres, within and outside Nigeria[12-18], we did not find any study in the literature dealing with patients' adherence to ART in Warri, a major city in Delta state of Nigeria.It was on this context that we initiated this study, with the aim of assessing the level of adherence to antiretroviral therapy among HIV-positive patients in Central Hospital Warri, Delta State, Nigeria.

2. Methods

Study setting: This study was carried out between May and June 2014 in the Heart-To-Heart Centre of Central Hospital, Warri in Warri South Local Government Area of Delta State, Nigeria.

Study design: This was a descriptive cross-sectional study.

Study population: Comprised of HIV/AIDS positive patients assessing antiretroviral therapy in Central Hospital, Warri, Delta State, Nigeria.

Inclusion criteria: All HIV patients assessing antiretroviral therapy in Central Hospital, Warri, Delta State, Nigeria who gave consent.

Exclusion criteria All HIV patients assessing antiretroviral therapy in Central Hospital, Warri, Delta State, Nigeria who did not give consent.

Sample size calculation: The minimum sample size was calculated based on the prevalence of HIV in Nigeria (5%),[4] standard normal variate at 95% confidence level and 10% added for possible non-response. This gave a minimum sample size of 77; however, to make findings from the study more robust and good for generalization 303 subjects were recruited for the study

Sampling technique: The systematic random sampling technique (sampling interval of 1 in 3) was used in selecting participants for the study. The Heart-to-Heart centre had a numbering system. Patients were assigned numbers as they presented to the clinic each day. We used this numbering system in selecting participants. For each day, the first participant was selected from numbers 1 to 10 using simple random sampling technique; subsequent participants were selected after every 3 patients in a systematic manner. If a patient declined giving consent, the next one on the numbering is recruited. This was continued each day until the total number of participants for the study was all recruited.

Study instrument and data collection: Data were collected using a semi-structured, interviewer-administered questionnaire. Participants' knowledge of their treatment plan was assessed by asking if they knew the names of the drugs they were taking, the number of times they took the drugs per day, if they were given any specific instruction about the timing of medication intake and asking about common side effects. Adherence was assessed by participants' self-reporting of the number of ART pills missed in the last one week. Participants who missed one or no dose in the last one week are said to have good adherence i.e. ≥95%.

Statistical analyses: The collected data were entered into SPSS version 23 statistical software, analysed and presented in tables

Ethical considerations: Ethical approval for this study was obtained from the Ethical committee of Central Hospital, Warri. Permission was also obtained from the Zonal Medical Director of Central Hospital, Warri. Verbal consent was obtained from the participants before enrolling them for the study

3. Results

Out of 303 persons recruited for the study, 239 (78.9%) were females and 64 (21.1%) were males. The majority were between ages 24-34 years (42.9%), with a mean age of 36.2±10.8years. 61.7% of the study participants were married. The majority had secondary education (43.6%) (Table 1).

Of the 303 subjects, 62.0% knew the names of the drugs they were taking while the rest could not give the names of the drugs they were taking. From the study, 138 (45.5%) of the subjects had good adherence to their ART whereas 165 (54.5%) had poor adherence to their medication. (Table 2

The most common reasons why the subjects who were non-adherent missed their antiretroviral medications were forgetfulness (50.9%), too busy with other things (43.6%) and away from home 35.8%). (Table 3)

4. Discussion

In the management of HIV patients, treatment effectiveness is dependent on good adherence with ART[19]. Despite this common knowledge, a significant number of patients on HAART do not adhere well to HAART use. This present study on the level of adherence to antiretroviral medications revealed similar results to other studies. Studies have shown that all age groups are affected with incidence highest between the age of 20 and 49 years.[20] The finding from this study is in agreement with this, as majority of the subjects were between the ages of 25 and 44years with a mean age of 36.2±10.8years which is comparable to previous studies which reported an average age of 37.04 years and 36.3±7.9 years respectively.[17, 18]

In this study, the majority of the subjects were females and were married. Possible reasons for this observation could include a higher prevalence of HIV among women,[20] better health-seeking behaviour among females and married persons,[21] and better reception from females compared to males during the study.

From this study, the majority of the subjects had secondary education (61.4%) while 5.9% had no formal education. This finding is similar to that of Erah et al, where a majority had at least secondary education,[16] in contrast to the work of Bello where as many as 33.8% had no formal education and the proportion of the patients with at leastsecondary education was 38.1%.[17]

This study revealed that over half of the study population (55.5%) had poor adherence to their medications (i.e., less than 95% adherence). This observation is in contrast with findings from previous studies which revealed that over half of participants had good adherence to their ART.[13-18.] This shows that the level of adherence among the subjects in this present study is low compared to those in other regions of the country and other parts of the world.

The commoner reasons reported for missing doses among the subjects who had poor adherence to their medications were forgetfulness (50.9%), too busy with other things (43.6%) and away from home (35.8%). These are similar to what others reported to be the reasons for missing doses.[14-17]. Stigmatization is still a major issue among HIV-positive patients, much so among female adolescents. So, for fear of others discovering their HIV status, when away from home, patients will be afraid to take their medication publicly, hence defaulting.[22,23] Also because of stigmatization and patients' perceived need for privacy while taking HAART, patients may skip doses of HAART when busy with other activities especially when these activities involve other people being present[24]. However, ina similar study, poor financial status, lack of confidentiality, occupation and stigmatization were the reasons reported for missing ART medications among the population studied.[17]

5. Conclusion

This study showed poor adherence to ART among the study population was poor as less than half of the subjects were adherent to their medications. Forgetfulness, too busy with other things and being away from home were the most common reasons for non-adherence.

It is, therefore, recommended that; regular health education should be organised for HIV patients on ART on the importance of being adherent to their ART, centres offering ART services should put measures in place to regularly assess the level of adherence to ART among HIV-positive patients assessing care in the centre and a method of reminding patients who are non-adherent to ART on the need to take their ART as at when due should be considered as part of the routine services provided by ART centres. Twice weekly SMS could be sent as a reminder to patients. These messages should also contain information about HIV and its treatment. For patients who consent to the disclosure of their HIV status to their spouses and/or any other close relative or those whose status is already disclosed to their spouses and/or other relatives, the spouse/relative should be counselled to serve in regularly reminding the patient at home.

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References

[1] Adetokunbo OL, Gilles HM. Short Textbook of Public Health Medicine for the Tropics, Edward Arnold; 2003: 108-110
[2] WHO, Geneva. Facts sheets for emergency response HIV/AIDS, 2012. Retrieved 14th July, 2014 from http://www.who.int/mediacentre/factsheets/fs360/en/index.html
[3] USAIDS and UNICEF Report. Children orphaned by AIDS, frontline responses from eastern and southern Africa. Retrieved 14th July, 2014 from http://www.unaids.org/en/regionscountries/westandcentralafrica/
[4] National Agency for the control of AIDS (NACA)-History of NACA. Retrieved 14th July, 2014 from http://naca.gov.ng/content/view/122/160/lang
[5] World Health Organization Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: Recommendation for a public health approach. World Health Organization Press, 2013: 84-90
[6] Wutoh AK, Elekwachi O, Clarke-Tasker V, Daftary M, Powell NJ, Campusano G. Assessment and predictors of antiretroviral adherence in older HIV-infected patients. J Acquir Immune DeficSyndr. 2003 ;33(2):106-14
[7] Holzemer W L, Corless I B, Nokes K M, Turner J G, Brown M A, Powell-Cope G M, Inuoye J, Henry S B, Nicholas P K and Portillo C J. Predictors of self-reported adherence in persons living with HIV disease. AIDS patients and STDs, 1999:13(3), 185-197 doi: 10.1089/apc.1999.13.185
[8] Gardner EM, Burman WJ, Steiner JF, Anderson PL, Bangsberg DR. Antiretroviral medication adherence and the development of class-specific antiretroviral resistance. AIDS. 2009 Jun 1;23(9):1035-46. doi: 10.1097/QAD.0b013e32832ba8ec
[9] Reda AA, Biadgilign S. Determinants of Adherence to Antiretroviral Therapy among HIV-Infected Patients in Africa. AIDS Res Treat. 2012; 2012:574656
[10] Vreeman RC, Wiehe SE, Pearce EC, Nyandiko WM. A systematic review of pediatric adherence to antiretroviral therapy in low- and middle-income countries. *Pediatric Infectious Disease Journal*. 2008;27(8):686–691
[11] Osterberg L, Blaschke T. Adherence to medication. *New England Journal of Medicine*. 2005;353(5):487–497). There is, however, currently no gold standard for assessment of adherence to HAART
[12] Rueda S, Park-Wyllie LY, Bayoumi AM, Tynan AM, Antoniou TA, Rourke SB, Glazier RH. Patient support and education for promoting adherence to highly active

antiretroviral therapy for HIV/AIDS. Cochrane Database Syst Rev. 2006 Jul 19; 2006 (3).
[13] Potchoo et al.: Knowledge and adherence to antiretroviral therapy among adult people living with HIV/AIDS treated in the health care centers of the association "Espoir Vie Togo" in Togo, West Africa. BMC Clinical Pharmacology 2010 10:11. doi:10.1186/1472-6904-10-11
[14] Wakibi, S.N., Ng'ang'a, Z.W. & Mbugua, G.G. Factors associated with non-adherence to highly active antiretroviral therapy in Nairobi, Kenya. *AIDS Res Ther* 2011, 8:43 https://doi.org/10.1186/1742-6405-8-43
[15] Wang X, Wu Z. Factors associated with adherence to antiretroviral therapy among HIV/AIDS patients in rural China. AIDS: 2007 ;2:149-155 doi:10.1097/01.aids.0000304711.87164.99
[16] Erah PO, Arute JE. Adherence of HIV/AIDS patients to antiretroviral therapy in a tertiary health facility in Benin City. African Journal of Pharmacy and Pharmacology, 2011;2(7):145-152.
[17] Bello S I. HIV/AIDS patients' adherence to antiretroviral therapy in Sobi Specialist Hospital, Illorin, Nigeria. Journal of Advanced Scientific Research, 2011;2(3):52-57
[18] Alakija KS, Abayomi F, James AO, Olufemi D. Factors influencing adherence to antiretroviral medication in Ilorin, Nigeria. Journal of the International Association of Physicians in AIDS Care (JIAPAC) 2010; 9:191
[19] Vanhove GF, Schapiro JM, Winters MA, Merigan TC, Blaschke TF. Patient compliance and drug failure in protease inhibitor monotherapy. JAMA. 1996 Dec 25;276(24):1955-6
[20] Obionu C N. Primary Health Care For Developing Countries 2nd ed. Institute For Development Studies, University Of Nigeria, Enugu, 2007:187
[21] Galdas PM, Cheater F, Marshall P. Men and health help-seeking behaviour: literature review. J Adv Nurs. 2005 Mar;49(6):616-23
[22] Rao D. Kekwaletswe TC. Hosek SG. Martinez J. Rodriguez F. Stigma and social barriers to medication adherence with urban youth living with HIV. AIDS Care. 2007; 19:28–33
[23] Martinez J, Harper G, Carleton RA, Hosek S, Bojan K, Clum G, Ellen J; Adolescent Medicine Trials Network. The impact of stigma on medication adherence among HIV-positive adolescent and young adult females and the moderating effects of coping and satisfaction with health care. AIDS Patient Care STDS. 2012 Feb;26(2):108-15
[24] Pefura-Yone EW, Soh E, Kengne AP, Balkissou AD, Kuaban C. Non-adherence to antiretroviral therapy in Yaounde: prevalence, determinants and the concordance of two screening criteria. J Infect Public Health. 2013 Aug;6(4):307-15

Table 1: Socio-demographic characteristics of the study population

Characteristics	Frequency(n=303)	Percent (%)
Age group (years)		
Less than 15	10	3.3
15-24	10	3.3
25-34	130	42.9
35-44	88	29.0
45-54	51	16.8
55-64	10	3.3
Sex		
Male	64	21.1
Female	239	78.9
Marital status		
Single	79	25.8
Married	187	61.7
Divorced	9	3.0
Separated	7	2.3
Widow/widower	21	6.9
Educational status		
Nil formal	18	5.9
Primary	99	32.7
Secondary	132	43.6
Tertiary	54	17.8

Table 2: The level adherence to ART among the study population

Characteristics	Frequency (n=303)	Percent (%)
Know names of the ART medications		
Yes	188	62.0
No	115	38.0
Level of adherence to ART medications		
All of the time(more than 95%	138	45.5
Most of the time (80-95%)	86	28.4
Usually (60-80%)	24	7.9
About half of the time (40-60%)	12	4.0
Some of the time (20-40%)	37	12.2
Very little of the time(less than one out of every 5)	6	2.0

Table 3: Reasons for missing antiretroviral medications

Characteristics	No. Ex	Frequency (n=165)	Percent (%)
Forgot	165	84	50.9
Too busy with other things	165	72	43.6
Away from home	165	59	35.8
Had a change in routine	165	18	10.9
Asleep was dose was due	165	12	7.3
Did not want other people see me take the pills	165	9	5.5
Ran out of pills	165	9	5.5
Had problem taking pill at a specific time	165	8	4.8
Wanted to avoid side effects	165	6	3.6
Had troubles with taste or swallowing of pills	165	4	2.4
Had too many pills to take	165	1	0.6