

Management Outcomes of HIV/aids Patients on Haart in a Secondary Health Institution in North Central, Nigeria

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Abstract: Background: The effectiveness of HIV/AIDS patients' management depends critically on the efficacy of the antiretroviral drugs against the virus and adherence to medications. **Objective:** This study examined mortality rate, pattern of clinical presentation and therapeutic management among 213 HIV/AIDS patients in Sobi Specialist Hospital, Ilorin, Nigeria. **Methods:** Structured questionnaire, personal interview and patients' hospital records were used to evaluate patients' factors affecting medication adherence and treatment outcomes. **Results:** Youth between the ages of 16 and 40 years with mean age of 37.04 years were most vulnerable to HIV infections. Prolonged fever, general body weakness, chronic diarrhoea and persistent cough ranked highest among the clinical signs and symptoms presented by the patients. Mortality rate of 5.2% observed was significantly lower than those reported earlier in Nigeria and other parts of the world. Finance has a significant effect on the patients' treatment outcomes, while poverty contributed immensely to the treatment failure. **Conclusion:** It is therefore recommended that the Nigeria government, faith based organizations and other stakeholders should strengthened their support on palliative care for HIV/AIDS patients in Nigeria in order to improve their drug adherence, quality of life and life expectancy.

Key words: Therapeutic management, adherence, mortality rate, HIV/AIDS patients, antiretroviral drugs

INTRODUCTION

According to UNAIDS and the World Health Organization (WHO), there are 33.3 million people living with HIV/AIDS worldwide, of which 90% are in the developing countries (UNAIDS, 2010). Currently, Nigeria accounts for around 10% of the global HIV pandemic with 220,000 deaths recorded in the year 2009 (UNAIDS, 2010; UNGASS, 2010). The youth between 15 and 35 years which correspond to the economically vibrant age bracket of the population are mostly affected. With AIDS claiming so many lives, Nigeria's life expectancy has declined significantly. For instance in 1991, the average life expectancy for women and men were 54 and 53 years respectively (WHO, 2008), while in 2009 these figures had fallen to 48 for women and 46 for men (CIA World Factbook, 2010).

With the development and widespread use of antiretroviral in the developed world, there has been a transform perception of HIV/AIDS from a fatal incurable disease to a manageable chronic illness (Palella *et al.*, 1998). This treatment causes improvement in immunological status and a reduction in the viral load (Gulick *et al.*, 1997; Erb *et al.*, 2000), thus reducing the incidence of hospitalization and mortality (Paterson *et al.*, 2000). However, concerted efforts on HIV/AIDS care are being made by the Federal government of Nigeria through

National Action Committee on AIDS (NACA) with provision of free antiretroviral treatment programmes, voluntary counseling and testing, prevention of mother to child transmission and establishment of zonal blood transfusion centers in partnership and support from various health institutions and non-governmental organizations (UNAIDS, 2010; CIA World Factbook, 2010; National Agency for the Control of AIDS, 2010). NACA currently adopts Highly Active Antiretroviral Therapy (HAART) programme by providing early diagnosis and treatment as well as constant review of clinical outcomes among HIV/AIDS patients. This has not only enhanced significantly high reduction in the advanced immunodeficiency, morbidity and mortality rate, but also with longer period of palliative measures and quality of life among HIV/AIDS patients in Nigeria (Phillips *et al.*, 2007; UNAIDS, 2009). Therefore, investigating management outcomes of HIV/AIDS patients is a major step forward in the control of the disease and would assist in early diagnosis and improved modality of care. On this premise, there is need to assess mortality rate, pattern of clinical presentation and therapeutic management among HIV/AIDS patients on HAART programme in Nigeria with the view to designing other appropriate strategies that can improve drug adherence, quality of life and life expectancy.

MATERIALS AND METHODS

Setting: This study was conducted at a designated HIV/AIDS treatment center in the Sobi Specialist Hospital, Ilorin, Kwara State, located in the North Central of Nigeria. The hospital is a 264-bed secondary health facility with over 12 health departments offering health services to the residents of Kwara State and neighbouring States. The hospital was established by the Kwara State Government in April, 1985. The HIV/AIDS treatment center took off in the hospital in May, 2009 with the provision of comprehensive HIV care services. As at December, 2010, 470 patients have been enrolled and 257 were receiving Highly Active Anti Retroviral Therapy (HAART). The center is currently receiving fund from a Non-Governmental Organization (NGO), Friends for Global Health.

Population sample: Two hundred and thirteen patients made up of 75 males and 138 females diagnosed to be living with HIV/AIDS (using both laboratory and clinical records) and on HAART treatment between May, 2009 and December, 2010 were selected for the study. Inclusion criteria were outpatients diagnosed and confirmed to be HIV positive, between ages of 16-60 years, attending HIV/AIDS center and refilling their prescriptions in the Pharmacy Department within the study period. The patients that always regular at the center and using their HAART for a minimum of 6 months prior to the study were included. The benefits, confidentiality and voluntary participation features of the study were explained and written informed consent were obtained from the subjects. The HAART considered in the study includes the use of two Nucleoside Reverse Transcriptase Inhibitors (NRTI)+ one non-nucleoside reverse transcriptase inhibitor (NNRTI)/protease inhibitor (PI). (a) Truvada™+ Nevirapine; (b) Truvada™+Efavirenz; (c) Combivir™+ Nevirapine; (d) Combivir™+Efavirenz; (e) Combivir+ Lopinavir/r. Patients excluded were children below age of 16 years and patients with history of serious cardiovascular illness, diabetes and/or cancer within the previous two years.

Study design: Ethical approval was sought from the management of the hospital and informed consent from all the patients participating in this study at the time of enrollment. All data collected were obtained from the structured questionnaires, medical records and personal interview of the patients. Clinical variables including CD4 counts, WHO clinical staging, functional status, subjective clinical signs and symptoms were obtained from patients' medical records (month 0, baseline). Also,

the different classes of antiretroviral (ARV) drugs utilized by the patients were recorded. The weights and CD4 counts of the patients were taken monthly and every 3 months respectively. Information on patients' income and distance to the clinic were also recorded. The interview was carried out in local language (Yoruba language) except for 22 participants who could not understand the language and had to be interviewed in respective English and Hausa languages. The importance of the study was duly highlighted to the patients by the researcher. Learned patients themselves completed a paper format questionnaire which was explained in details prior to completion. Patients who had no formal education or had primary education were interviewed by the pharmacist using the survey forms. Drug counseling of each HIV-infected patient was usually carried out monthly at the hospital using standard procedures whenever visit is made to refill their prescriptions. The cause of death and characteristics of the deceased were obtained through regular monthly follow-up, home visit to the patients by the trackers and medical records.

Statistical analysis: Data generated from the structured questionnaires, medical records and personal interview were keyed into Genstat statistical package (Genstat, 1995) and analysed for frequencies, mean, percentages and regression analysis. A p-value of <0.05 was considered significant in all the statistical analysis.

RESULTS

Socio-demographic characteristics: The socio-demographic characteristics of the 213 patients are presented in Table 1. Majority of the patients were females with 138 (64.8%), between 16 and 40 years old. The males were 75 (35.2%), some of the patients 168 (78.9%) were married, while as many as 132 (61.9%) had no formal education or had primary education. The proportion of patients that had primary or no formal education 132 (61.9%) was significantly higher than those with at least secondary education ($p < 0.05$). As many as 78 (36.6%) were traders and 48 (22.6%) were unemployed. The rest were 33 (15.5%) civil servants, 45 (21.1%) self employed and 9 (4.2%) were students. Majority of the patients (59.6%) had a monthly income (salaries, interests from petty trading, contributions received from friends, relatives and other sources) less than N10, 000.00 (Nigeria currency). Minority of 64 (30.0%) patients lived less than 50 km, 90 (42.0%) patients lived between 50 and 100 km, 40 (19.0%) patients lived within 100 to 200 km, while 19 (9.0%) patients resided between 200 and 300 km.

Table 1: Socio-demographic characteristics of HIV positive patients at specialist hospital, Sobi, Ilorin, Nigeria

Variable	Frequency	Percentage
Age		
16-30	72	33.9
31-40	78	36.8
41-50	51	24.0
≤50	12	5.3
Gender		
Female	138	64.8
Male	75	35.2
Marital status		
Single	21	9.9
Married	168	78.9
Widowed	15	7.0
Divorced	9	4.2
Level of education		
No formal education	72	33.7
Primary	60	28.2
Secondary	51	24.0
Tertiary	30	14.1
Occupation		
Trader	78	36.6
Civil servant	33	15.5
Self employed	45	21.1
Student	9	4.2
Not employed	48	22.6
Monthly income (Naira)		
<5,000	43	20.2
>5,000-10,000	84	39.4
>10,000-20,000	29	13.6
>20,000-30,000	27	12.7
>30,000-40,000	19	8.9
>40,000	11	5.2
Distance (km)		
<50 from clinic	64	30.0
50-100 from clinic	90	42.0
100-200 from clinic	40	19.0
200-300 from clinic	19	9.0

Clinical variables: The clinical variables are shown in Table 2. Services for evaluating CD4 counts were available for all HIV/AIDS patients in the hospital at no cost. The CD4 counts for 108 (50.7%) of the patients were less than 200 cells per ml. Patients with counts higher than 350 cells per ml were the minority 39 (18.3%). The mean CD4 counts for the 213 patients was 203.88 cell mL⁻¹. Majority of the patients were working 62.1%, 33.3% were ambulatory and 4.6% were bedridden. The baseline weights were available for 213 patients and the mean was 52.09 kg. More than one third of the participants 75 (35.2%) had weight ranging from 50 to 59 kg, while 45 (21.1%) of the patients had weight greater than 70 kg. By WHO clinical staging, 66 (31.0%) and 93 (43.6%) of the patients were in stages 1 and 3 respectively, while few patients 22 (10.4%) were in stage 4. Prolonged fever 37 (17.4%), general body weakness 33 (15.0%), chronic diarrhoea 28 (13.2%) and persistent cough 23 (10.8%) rank highest among the clinical signs and symptoms presented by the patients. Skin rash, weight loss, oral thrush, headache, recurrent vaginal candidiasis, insomnia, loss of appetite and genital herpes were other clinical features identified among the HIV/AIDS patients.

Table 2: Clinical variables of HIV patients receiving treatment at the specialist hospital, Sobi, Ilorin, Nigeria

Variable	Frequency	(%)
CD4 counts		
≤200	108	50.7
200-350	66	31.0
350	39	18.3
Functional status		
Working	132	62.0
Ambulatory	71	33.3
Bedridden	10	4.7
WHO clinical Staging		
Stage 1	66	31.0
Stage 2	32	15.0
Stage 3	93	43.6
Stage 4	22	10.4
Symptoms		
Prolonged fever	37	17.4
Persistent cough	23	10.8
Skin rash	12	5.6
Weight loss	31	14.6
Chronic diarrhoea	28	13.2
Oral thrush	5	2.3
General body weakness	32	15.0
Headache	11	5.2
Genital Herpes	1	0.4
Recurrent Vaginal Candidiasis	9	4.2
Insomnia	11	5.2
Loss of appetite	13	6.1
Weight (kg)		
<50	51	23.9
50-59	75	35.2
60-69	42	19.8
>70	45	21.1

CD4-cell count changes over six-month period: The CD4-cell response analysis was available for the 213 patients who had a baseline CD4 measurement (2). The mean CD4 count for the 213 patients was 203.88 cell mL⁻¹ at HAART initiation and increased to 357.59 cells mL⁻¹ at 3 months (80.3% increase from the mean baseline value) among the patients who had been enrolled long enough to have a 3-month measurement. This increased to 370.37 cells mL⁻¹ at 6 months (81.7% increase from the mean baseline value) among the active patients enrolled long enough to have a 6-month measurement. There was no statistical significant difference between increase within 3 and 6th month CD4 counts (p>0.05).

Weight changes over six-month period: The mean weight of 52.09 kg for the 213 participants was recorded at baseline level (Table 2). Three months after initiation of HAART, there was an upward increase to 56.11 kg. At 6 months of HAART, the weight up surged to 59 kg.

Treatment variables: Six categories of the HAART combinations, multivitamins, haematinics and antibiotics received by the patients and the relative proportions of patients on the medications are presented in Table 3. Zidovudine+Lamivudine+Nevirapine were the combination of choice in the treatment center and 40.9%

Table 3: Treatment variables of HIV positive patients at the specialist hospital, Sobi, Ilorin, Nigeria

Antiretroviral drugs combination	N	Percentage
AZT + 3TC +NVP	87	40.9
AZT + 3TC +EFV	54	25.4
4DT + 3TC +NVP	6	2.8
4DT + 3TC + EFV	3	1.4
TDF + FTC+ EFV	42	19.7
TDF + FTC+NVP	12	5.6
ABC + 3TC + NVP	3	1.4
AZT + 3TC + LPV/r	6	2.8
Opportunistic infection Medicines		
Loratidine	16	7.5
Amoxicillin	51	23.9
Acyclovir	5	2.3
Loperamide	8	3.7
Metronidazole	33	15.9
Paracetamol	27	12.7
Nystatin	7	3.5
Erythromycin	16	7.5
Clotrimazole	6	2.8
Fluconazole	14	6.5
Artemether-Lumefantrine	27	12.3
Bromazepam	3	1.4

Table 4: Partial regression analysis of finance on treatment outcomes

	Unstd coef	Std coef	Std error	t	Sig.
Finance	0.056	0.059	0.058	0.878	0.229

of the patients received the medication. Anti-retroviral drugs, opportunistic infection medicines and other palliative medications were provided free for all the HIV/AIDS patients in this setting. Majority of the patients 207 (97.2%) were on first line HAART. The average monthly expense on treatment per patient was between N2, 174.49 and N2, 444.07. These include cost of transportation to hospital and prescribed medication for opportunistic infections when stock-out of these drugs arises in the hospital due to logistic reasons.

Impact of income on treatment outcomes: Partial regression of impact of income on patients' treatment outcomes is presented in Table 4. The results showed that there is positive effect of income on the patients' medication adherence.

Mortality in ART patients: The actual causes of death among 6 (2.8%) patients were unknown (Table 5). The rest 5 (2.4%) patients were documented to have died of prolonged diarrhoea 1 (0.48%), tuberculosis 3 (1.44%), candidal oesophagitis 1 (0.48%). Eleven dead patients having a baseline mean weight of 47.6 kg and mean age of 37.0 years, the baseline median CD4-cell counts at initiation of antiretroviral treatment was 71 cells mL⁻¹. Out of the dead cases, 7 (63.6%) presented for treatment at WHO clinical stage III, while those that presented at WHO clinical stage IV were 4 (36.4%). In terms of functional status, ambulatory were 6 (54.5%) and were bedridden 2 (18.2%) at the time of presentation for treatment, while 3 (27.3%) were working. The mean

Table 5: Causes of death among HIV/AIDS patients in sobi specialist hospital, Ilorin

Causes of death	Number of death	Mortality rate
Diarrhoea	1	0.48
Tuberculosis	3	1.44
Candida Oesophagitis	1	0.48
Unknown cause	6	2.8
Total	11	5.2

treatment duration before death was found to be 242.6 days while the mortality rate was 5.2%.

DISCUSSION

HIV/AIDS is not only epidemic, persistent and dangerous menace to the achievement of future national development targets including Millenium Development Goals but also playing pivotal roles in decreasing life expectancy at birth and worsening national health systems. Treatment default has however, been reported to be one of the most important problems in the management of HIV/AIDS worldwide (Nwauche *et al.*, 2006). In this study more than half of patients were females which was the same as Agu *et al.* (2010) in Benin. Contrary to this was the International Epidemiological Database to Evaluate AIDS-lower income countries data of 15 countries whereby the male proportion was 54% (Brinkhof *et al.*, 2008). The increased incidence of cases in men in these countries indicates the reporting bias due to the social norms of increased service utilization and early diagnosis of male cases (Cecella, 2006). The mean age of the study was 37.04 years and the age of patients at the presentation at the commencement of the care was 16-40 years. This is in line with the findings of Erah and Arute (2008) who reported that the majority of the patients are within the age range of 25-49 years and Nwauche *et al.*, 2006 with mean age of 35.04 years in Port Harcourt. The majority of these patients were in the economically productive age group and may be the only support to their family; hence the morbidity may push their family to impoverishment. In India, 80% of HIV/AIDS patients were married (Thejus *et al.*, 2009). This is in line with the present study with more than three quarter of the patients married. Sexual intercourse as a main route of HIV transmission was attributed to this finding. Conversely, Nwauche *et al.*, (2006) reported that 43% of the patients were single and 40.1% were married in Port Harcourt which is inconsistent with this work. More than one-half of patients in this study had education below secondary school. Low literacy level among these patients is a contributing factor to late presentation of the disease to the hospital. As the more educated a patient is the better understanding of the disease state and comprehension of instructions given on drug usage. These could enhance

treatment outcomes (Bello and Itiola, 2010). Majority of the patients came from other districts and the distance ranged from 50 to 300 km. Hence, access to transport is also a major problem for the patients and causes delay in arrival to the clinic for drug refill.

The degree of immune suppression can be evaluated by the CD4 counts. The CD4 counts give a reflection of the weakness/strength of the immune system and also predictor of the rate of development of opportunistic infection in the body. Baseline CD4 counts serves as a significant prognostic indicator for treatment outcome (Van Griensven *et al.*, 2010). The HIV disease staging however provides reliable information about prognosis and be evaluated by the medical history and physical examination. In the present study, majority of the patients presented at a CD4 counts of less than 200 cells per ml and WHO clinical stage 3 at baseline level. This is in agreement with the study of Agu *et al.* (2010) that large proportion of the patients are presented at very late stage for treatment with very poor baseline CD4 counts and WHO clinical stage 3 or 4. Contrary to this study is Erah and Arute (2008) who reported that the CD4 counts for 44.1% of the patients included in their study were higher than 350 cells mL⁻¹, while less than 200 cells mL⁻¹ were the minority. The reasons for the late presentation to the hospital may be due to denial and stigmatization which prevent acknowledgment of the problem and care seeking. Also, tradition beliefs and practices affect understanding of health, the disease and acceptance of conventional medical treatment. Furthermore, lack of information needed to understand and prevent HIV is contributing to late presentation of the disease at the hospital. Therefore, there is dire need for a rapid scale up of counseling and testing for early detection of asymptomatic cases in developing countries. Furthermore, there was a significant improvement in the CD4 counts 3 months after commencement of HAART in this setting. Though, such escalation of CD4 counts was not observed after 6 months of HAART. This is an indication of viral load suppression and enhancement in immunological response. HIV/AIDS related symptoms usually develop from the illness itself, treatment and medicines. Symptoms and their reoccurrence remain problematic. In this work, the risk of disease progression to stage 3 or 4, prone a large proportion of the patients to opportunistic infections due to weakened immune systems. These invariably present symptoms such as persistent cough which may be due to *Mycobacterium tuberculosis* or *Mycobacterium avium* complex; chronic diarrhoea, as a result of malabsorption of gut lining; general body weakness induced by anaemia or as a result of malnutrition and adverse effect of zidovudine. Others were oral thrush, genital herpes and recurrent vulval candidiasis. This result is similar to the work of

Thejus *et al.* (2009), who reported that 62% of the patients were having opportunistic infections. This study supports the need for symptom management interventions that enhance emotional wellbeing and self-care activities for HIV infected patients. More than half of the study population were able to perform their usual work in or outside their homes, while minority were not able to live economically productive life. This finding is synonymous with that of Thejus *et al.* (2009) in which 52% were working, 36% ambulatory, while 12% were bedridden. Also similar is that of Agu *et al.* (2010) with 75% working class, 17.8% ambulatory, 2.6% bedridden and 4.6% not indicated.

HIV/AIDS pandemic continues to have a devastating impact on health, nutrition, food security and overall socio-economic development in the countries that have been greatly affected by the disease (UNAIDS, 2010). Nutrition plays a critical role in comprehensive care support and treatment of HIV patients. There are complex interactions between nutrition and HIV/AIDS. HIV progressively weakens the immune system and leads to malnutrition. Malnutrition worsens the effects of HIV and contributes more rapid progression to AIDS (UNAIDS, 2006). AIDS is well known for causing severe weight loss known as wasting. In Africa, the illness was at first called slim because sufferers became like skeletons. Less dramatic changes often occur in earlier stages of HIV infection. The weight loss during HIV infection tends to be in the form of lean tissues such as muscles. One factor behind HIV weight loss is increased energy expenditure. About 10% or more of calories were burnt while resting by HIV patients. Also, there is a decrease energy intake due to eating less food. It has been reported that weight loss strongly predict illness or death among people with HIV (Olufemi *et al.*, 2009). In this study, more than half of the patients have weight range between 50 and 59 kg body weight which is lower than average weight of 70 kg in adults. The rapid weight gain observed after 3 and 6 months on HAART, shows the patients were adherent to their medications and hence improvement in treatment outcomes. Weight gain within six months of commencing antiretroviral therapy resulted in better survival and improved clinical outcomes, especially among the most severely malnourished patients. In the study of Olawumi *et al.* (2008) at Ilorin, Nigeria, they observed that there was significant positive correlation between increase in CD4 counts and weight. Failure to gain weight within six months of commencement of HAART increased the chance of death ten folds when compared with those who had gained over 10 kg (Koethe *et al.*, 2010).

In general, the dietary recommendations for people living with asymptomatic HIV infections are much the same as for everyone else, a healthy balanced diet. Except that people with untreated HIV tend to burn more energy.

The total number of calories should be around 10% higher than the usual guideline amounts and up to 30% higher during recovery from illness. The balance of fats, proteins and vitamins should remain the same. In patients with HIV infection and in the early stages of AIDS without a secondary infection, weight gain and/or maintenance was achievable with a high-energy, high-protein, oral and liquid nutrition supplements in conjunction with nutrition counseling (Stack *et al.*, 1996). The use of vitamins, minerals or other supplements is considered to be a popular complementary therapy by people living with chronic diseases such as HIV/AIDS and even by the general public. It has also been observed that since the beginning of the HIV/AIDS epidemic, the use of vitamins/minerals and other nutritional supplements adopted by people living with HIV/AIDS as a complementary therapy not only improve their general health status and quality of life but also possibly reverse or slow down HIV disease progression and increase their survival rate. Even with the availability of HAART micronutrients supplementation is still being viewed as an important and integral part of HIV and AIDS treatment (Fawzi, 2003; Nerad *et al.*, 2003; Oguntibeju *et al.*, 2003, 2006, 2008; Fawzi *et al.*, 2004; Cunningham-Rundles *et al.*, 2005).

There are indications that some patients often prefer to give up treatment because of no affordability of the drugs (Hill *et al.*, 2005). In this study, with an average monthly expenses on treatment per patient, amounting to N2, 174.49-N2, 444.07 due to the additional cost of medicines and transportation to the treatment center, patients' income has positive effect on management of the disease. However, more than half of patients earned income between N5, 000 and N10, 000 per month which is relatively meagre compared with expenses of daily needs. In this setting, antiretroviral, prophylactic and palliative drugs including laboratory tests were rendered to the patients at no cost. In few instances, some of these patients were told to purchase their drugs other than antiretroviral agents outside pharmacy during stock out in the hospital pharmacy. In the present research work, more than one third of the patients were unable to work and earn money for their upkeep, while the rest patients who work were low income earners. Most of these patients have to depend on other people for their financial and physical support to survive. More than half of the patients also need to travel a distance of 200 km to get their prescription refilled every month. Some of these patients could not afford to transport themselves to the health facility for monthly refill of their drug prescriptions. Others were unable to meet the three daily meals, even though this is very necessary before and after taken their

drugs to minimize drug side effects. High pricing of antimicrobial agents, palliative care medicines, coupled with mobility and daily meals fares and associated low monthly income are major factors contributing to treatment failure in this setting. This study was supported by Stone (2009) (in USA who reported that poverty could be a challenge to successful treatment outcomes in patients with HIV/AIDS. Also, DeSilva *et al.* (2009) in Nigeria reported that, in addition to treatment, access to appropriate nutrition is an important factor that determines the outcomes of HAART.

Currently, tuberculosis is the leading killer of persons infected with HIV in sub-Saharan Africa and mostly killing between 22 and 44 years old people throughout the world. This not only leads to a loss of a viable workforce for many countries, but also leading to the breakdown of families all across the world (Global Health Link, 2002). A severe inflammation of oesophagus caused by the fungi infection, hinder the patients from swallowing their antiretroviral drugs. All antiretroviral agents were formulated in oral dosage forms for adults. If the patients are unable to swallow, there will be therapeutic failure, leading to increase in viral load, drop in immunological system, clinical failure and finally death ensued. In the present research work, 11 (5.2%) of the HIV/AIDS patients died during course of study. Less than half of these patients were known to have died of tuberculosis, prolonged diarrhoea and candida oesophagitis. Majority of the death cases took place outside the hospital setting and was determined through contact tracing and home visits by the trackers. The outcome of investigations showed that the patients were in advanced stage of the disease. This finding however, is inconsistent with the studies of Olufemi *et al.* (2009) at Makurdi, Nigeria who reported a mortality rate of 14.7% and that of Amusa *et al.* (2004) at Ile-Ife in which mortality rate was 18%. Mortality rate among the patients in this study was low despite the patients showed up at advanced stage of the disease. This was probably due to free services being rendered to the patients at the hospital.

CONCLUSION

In this setting, the best therapy approach of HAART in the management of HIV/AIDS is fixed dose combination of Zidovudine+Lamivudine+Nevirapine. The low level of mortality rate recorded among these patients was probably due to no cost services being provided to the patients. It is therefore recommended that the Nigeria government, faith based organizations and other stakeholders should strengthened their support on

palliative care for HIV/AIDS patients in Nigeria in order to improve their treatment outcomes, quality of life and life expectancy.

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