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Diet - therapy with HAART is crucial for survival of PLWHA in Limited resource settings

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ABSTRACT: While no medical treatment cures HIV/AIDS, new methods to treat the disease have developed rapidly. Health-care professionals focus mainly on Anti Retroviral therapy for people living with HIV infection or AIDS. The prevalence of poverty in limited resource setting calls for food support alongside HAART to increase the survival of PLWHA. We report information on the financial, socio economic parameters, amount of food eaten and eating habits of 110 PLWHA, 55 on free HAART and 55 who were not on medication.

Forty-three percent and 43.6% of the PLWHAs on HAART and those who are not on HAART respectively skip meals ($P > 0.05$). About 67% of those receiving medication skip meals because of financial reasons while 21.4% of those not receiving medication also skip meals for the same reason ($P > 0.05$). Other reasons why they skip meals are lack of appetite, illnesses and for spiritual reasons. About 66% of those on medication and 51.2% of those not on medication spend less or at most 150 Naira (approximately 1\$) per day on feeding and they depend on the relatives to provide these money because majority of these patients were either out of employment or just petty traders. In this study 42.5% and 40.5% of the HAART and non HAART respectively were not gainfully employed, while 58.7% and 64.8% of Subjects on medication and those not on medication are petty traders.

Furthermore 26% of those on free medication who were alive and well did not attend clinic regularly because of finances. Patients were not meeting up with the increases in the recommended daily allowances for PLWHA. Furthermore the special nutrition requirement for PLWHA and food restriction in the use of some Anti- Retro viral calls for a proper nutrition programme along side with HAART in these limited resource settings. The patients were not educated and not knowledgeable on the type of food that should be eaten along with these medications. The percentages of subjects in this study who have either no education or primary education were significantly higher than those who had tertiary education $p < 0.01$. Food assistance and nutrition counseling alongside with free HAART is needed to prolong the lives of PLWHAs in resource limited settings.

Key Words: Poverty, PLWHA, HAART, Limited resource populations.

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Introduction

Malnutrition is a major problem in several parts of Africa. Malnutrition is complicated by a combination of factors, including poverty, poor nutritional education, drought, famine, civil wars, population displacement and recently the AIDS pandemic. It is estimated that one third of children under 5 in sub-Saharan are stunted and more than half suffer from some form of micronutrient malnutrition. (Agbaje 2004)

The HIV infection is associated with many nutritional problems. For a long time the Wasting syndrome is one of the common physical manifestations of AIDS. In Africa, three overlapping processes have been indicted in the weight loss and wasting in PLWHA. These are reductions in food intake, nutrient malabsorption, and metabolic alterations. (Salmon *et al* 2002). Several vitamins and minerals are critical for the complex humoral and cellular immune responses against infectious pathogens including the HIV. (Piworz and Preble 2000). Dietary deficiency or malabsorption of these micronutrients and weight loss will contribute to poor prognosis. In HIV infected individuals, poor nutritional status is a strong predictor of survival, even after controlling for CD4+ cell counts. Karlson and Nordson 2001, showed that the lower the BMI, the worse the nutritional status and the worse the general state of health. A weight loss of > 66% of ideal body weight was linked to the timing of death in AIDS patient.

Nutritional support through nutrition counselling and interventions can slow or reverse the process and consequences of weight loss and wasting in PLWHA. Existing data suggest that nutrition interventions to increase energy and protein intakes of people living with HIV may help to build reserves and reduce their vulnerability to weight loss and wasting that accompanies diarrhea and other opportunistic infections. (Kotler, 1991) Improvements in micronutrient intake and status may also strengthen the immune system, reduce the adverse consequences of infection related oxidative stress, and lengthen survival. The two interventions may help people living with HIV to remain relatively healthy, prolong the interval from initial infection to development of AIDS and improve the quality of life. At later stages of the disease, nutrition support is largely palliative and focuses on the dietary management of conditions that affect appetite, digestion, and comfort when eating.

These interventions should be focused primarily on maintaining intake during bouts of illness and recuperative feeding when acute symptoms subside. Nutritional evaluation of HIV- infected patients should include the measurement of body composition and analysis of nutritional parameters, including albumin, transthyretin and C-reactive protein. Transthyretin seems to be particularly useful to follow the recovery period of malnutrition. The majority of those who have HIV or die of AIDS are in their most productive years and often the sole breadwinners in the household or clusters of families.

The illnesses result in majority of the subjects losing their jobs either as a result of inability to cope with the energetic demands of the work or as a result of being stigmatized. Further more the ill health also results in higher medical expenses and lower incomes for family members. All these have decreased the survival rates in PLWHAS even though the management of HIV infection has greatly improved during recent years essentially because of the appearance of new antiretroviral drugs. Highly active antiretroviral therapy has achieved important reductions of viraemia and significant recoveries of CD4(+) cell counts in HIV infected patients. The adverse effect of these antiretroviral drugs on the nutritional status and the poverty challenge in Nigeria and Africa as a whole further underscore the need for food support and nutritional programme to further prolong the lives of people living with HIV/AIDS in these limited resource settings.

Methodology

The center for special studies Sagamu, Olabisi Onabanjo University Teaching Hospital was established in the year 2000 when free antiretroviral medication for PLWHAs started in July of the same year. Patients who are HIV positive in the community come to centre by referrals from self, physicians, friends, families and other health workers and institutions. All patients are then re-screened to confirm HIV status at the center before full admission. Though all the patients were admitted into the programme, all the patients could not receive the ARV medication because the supply of ARV medication was limited. All the patients were at the stage IV of HIV status. Most of the subjects had a CD4 count of less than 200mm³ and

symptomatic disease. The clients for the study were chosen from the subjects attending the clinic and were paired for age and sex, so that the clients in the two groups were comparable. Information for the study was collected from the subjects during the monthly support group meetings by interview questionnaire method.

Statistical analysis.

Students t-test for paired samples were used to calculate the significance ($P < 0.05$) between observations and other probability values.

Results

A total of One hundred and ten matched for age and sex were recruited for the study. Subjects in the age groups of 20-29 and over 40 years of age were significantly more than the subjects in the 30-39 age groups (Table 1). The sex ratio was 70 women to 30 men in the two groups (Table 2). About 70% of the subjects were Christian and 30% Muslim. Most of the study subjects who skipped meals because of spiritual beliefs were Christian. (Table 6). The study was conducted in south western Nigeria and because of this the study subjects were mainly from Yoruba ethnic group. (Table 2) About 60% of the subjects were married (Table 2). The CD4 count, Absolute lymphocyte count and body mass index of study subjects who were on HAART were significantly different from the CD4 count, Absolute lymphocyte count and body mass index of subjects who were naïve to HAART (Table 3). The number of the subjects who had primary and secondary education were significantly more than the subjects with tertiary education, similarly the number of subjects who are petty traders were significantly more than those who had regular paid jobs (civil servants) (Table 4). About 66% of those on medication and 51.2% of those not on medication spend less or at most 150 Naira (approximately 1\$) per day on feeding and they depend on the relatives to provide these money because majority of these patients were either out of employment or just petty traders (Table 5).

Discussion

HIV/AIDS reduces food intake by damaging the immune system which leads to infection such as fever and diarrhea. These infections lower food intake by reducing appetite and interfering with the way the body absorbs food. HIV not only lives in the white blood cells but also in the cells of the intestine. HIV damages the cells thereby reducing the amount of food absorbed. (Piwoz and Preble 2000) HIV changes the way the body uses food. When the body runs out of energy, in addition to using fat to provide the energy needed, HIV also uses muscle protein which affects weight and causes loss of muscle.

The poverty challenge in poor resource settings and Africa as a whole further underscore the need for a nutritional support programme to help people living with HIV/AIDS. The majority of those who have HIV or die of AIDS are in their most productive years and often the sole breadwinners in the household or clusters of families. The illnesses result in majority of them losing their jobs either as a result of inability to cope with the energetic demands of the work or as a result of being stigmatized. Further more the ill health also results in higher medical expenses and lower incomes for family members. This results in unavailability of food. The results of this study shows that 43% percent and 44% of the PLWHAs on HAART and those who are not on HAART respectively skip meals. 68% of those receiving medication skip meals because of financial reasons while 21% of those not receiving medication also skip meals for the same reason. Even the meals they do not skip do not meet the recommended dietary allowance for PLWHA. On average the PLWHAs in this study spend less or at most 150 Naira (approximately 1\$) per day on feeding and they depend on the relatives to provide these money because majority of these patients are either out of employment or just petty traders. Other reasons why they skip meals are lack of appetite, illnesses and for spiritual reasons. About 40% in each group are not gainfully employed, while those that are employed are petty traders who earns barely 3000 naira (20 dollars) a month. Further more some of

those who are on free medication and are alive and well did not attend clinic regularly because of finances. Patients are not meeting up with the increases in the recommended daily allowances for PLWHA.

In conclusion, the special nutrition requirement for PLWHA and food restriction in the use of some ARVs calls for a proper nutrition programme along side with HAART in these limited resource settings. The patients are not educated and not knowledgeable on the type of food that should be eaten along with these medications. The percentages of subjects in this study who have either no education or primary education are significantly higher than those who have tertiary education. Food assistance and nutrition support is a co-therapy with HAART that can help improve the quality of life.

Table 1
Age group of subjects involved in the study

Age Group (years)	20-29	30-39	40-49	50+	P values
HAART	40.4	17.5	31.6	49.6	P > 0.01
HAART Naïve	36.4	22.5	44.9	32.1	

Table 2 Social parameters of subjects

	HAART %	No HAART %
Sex:		
Male	30.0	30.0
Female	70.0	70.0
Religion:		
Christian	68.1	72.3
Muslim	31.9	25.5
Traditional	0.0	2.1
Tribe:		
Yoruba	85.5	86.5
Igbo	10.4	5.4
Hausa	2.1	0.0
Others	2.1	8.1
Marital status:		
Married	59.6	56.8
Single	21.3	16.2
Widowed	12.8	16.2
Seperated	6.4	10.8

Table 3: Body mass index, CD4 count and Absolute Lymphocyte count of Subjects

	HAART	NO HAART	P VALUE
CD4count(mm ³)	344.1±171.5	179.9± 64.2	P<0.0001
Abs.Lym.count(mm3)	529.0± 156.7	399.3± 104.5	P<0.0001
BMI	23.8 ± 4.2	21.0± 3.3	P<0.001

Table 4: Education, occupation and employment status of subjects.

	HAART %	NO HAART%	P value
Level of education:			
Primary	27.3	33.3	P<0.05
Secondary	56.9	53.8	
Tertiary	5.9	12.8	Significant
Occupation:			
Civil servant	13.0	5.4	P<0.05
Trader	58.7	64.8	
No occupation	13.0	12.7	Significant
Employment			
Employed	57.5	58.5	P>0.05
Non employed	42.5	40.5	
			Non significant

Table 5: Household number, Number of dependent relatives and money spent on feeding

	HAART %	NO HAART%
Household no	4.5 \pm 2.1	4.0 \pm 2.5
No of dependent relatives	2.6 \pm 2.0	2.4 \pm 2.0
Source of money for feeding		
Self	73.7	56.7
Spouse	7.9	6.7
Parents/others	18.4	36.7
Average amount of money spent on feeding.		
50 Naira (0.5\$)	2.1	0
100 Naira (1.0\$)	19.1	17.9
150 Naira (1.5\$)	44.7	33.3
300 Naira (2.0\$)	17.0	17.9
> 300 Naira(2.0\$)	17.1	30.8

Table 6 Dietary habits of PLWHAS

	HAART %	NO HAART %
Skip meals		
Yes	42.9	43.6
No	57.1	56.4
Reason for skipping meals		
Financial	66.7	21.4
Lack of appetite	22.3	42.9
Spiritual	11.1	7.1
Evidence of gastrointestinal / eating problem		
Yes	53.1	35.9
No	46.9	64.1
Type of eating problem		
Anorexia	7.7	13.2
Taste change	7.7	18.4
Dentition	15.4	0.0
Sore throat	7.7	5.2
Nausea	15.4	7.8
Diarrhoea	30.8	23.6
Stomach pain	7.7	10.4
Good or Bad Appetite		
Good	72.0	65.8
Poor	28.0	34.2
How often you cook		
Everyday	78.3	57.1
Weekends/when I have money	21.7	42.9

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