

## Outcomes of tri-therapy of HIV in South Western Nigeria

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### ABSTRACT

Wasting syndrome is one of the most frequent inaugural features of people living with HIV/AIDS (PLWHA). The management of HIV infection and the adverse effects of antiretroviral drugs on nutritional status require attention. The aim of the study was to document the changes in nutritional status and the socio economic status of HIV positive patients receiving free antiretroviral (ARV) medications in South West Nigeria. HIV patients attending the community Health and Primary Care (CMPC) clinic of the Olabisi Onabanjo Teaching Hospital, Sagamu, were given triple combination therapy of ARV medications. Information on their socio economic status and other relevant data were recorded and patients were followed up monthly to determine the outcome of the drug therapies. A total of 77 HIV patients attended the clinic between July 2000 - Nov 2002. Sixty-five (84.4 %) patients were from the Yoruba ethnic group and twelve (15.6%) from the Ibo ethnic group. Seventy one (92.2%) of them were HIV1 seropositive while one (1.3%) was HIV II seropositive and five (6.5%) were HIV I and II seropositive. There were forty seven females (61%) and thirty males (39%) with a male: female ratio of 1:6. The age of the patients ranged between 2 to 58 years with a mean of  $36.1 \pm 11.54$ . Over 90% of patients had a maximum of secondary school education and they were mainly farmers, traders or junior civil servants, while 9% belonged to the middle social economic class. None belonged to the high socio-economic class. The average weight of the patients on first attendance was  $52\text{kg} \pm 12.7$ . This increased over 6 months of ARV medication to  $62.18\text{Kg} \pm 16.9$ . Forty five (58.4%) patients were alive and well at the end of the study period while thirteen (16.9%) of patients died within six to twelve months of follow up. The cause of death in six (47%) of the dead patients was dehydration secondary to diarrhoea while the cause of death was unknown in the remaining seven (53%) patients. More females appear to attend the clinic than males. Most of them belong to the low socio-economic class, who could not have access to ARV in any other way but from a free treatment programme such as this. There was a significant increase in weight and well being of the patients on the anti-retroviral therapy. Individualised nutrition care plan is needed for PLWHAs who are receiving ARV to detect metabolic disorders that may increase cardiovascular risks and other diseases associated with excessive weight gain, decrease side effects by maintaining optimum nutrition with patients that have excessive weight gain and are at risk of lipodystrophy..Identify drug food interaction and identify the dietary needs that stem from these interactions.

## INTRODUCTION

HIV infection leads to many nutritional problems. For a long time the wasting syndrome was one of the most frequent inaugural features of AIDS and still concerns many patients. The weight loss worsens the prognosis of the disease<sup>(1)</sup>. Karlson and Nordson showed that the lower the BMI, the worse the nutritional status and the worse the general state of health. Nutritional check ups and prevention of wasting in HIV/AIDS patients is very important in the management of these patients. The greater energy expenditure when resting further implicates the need for a nutritional follow up in the management of the PLWHA<sup>2</sup>. A recent study has shown that it is vital to optimize the calorific intake of HIV- infected patients presenting with chronic diarrhoea before the onset of severe immune deficiency<sup>2</sup>. In this way the severe immune deficiency which leads to wasting can be prevented<sup>2</sup>.

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 improvement of CD4(+) cell counts in HIV infected patients. The adverse effect of these antiretroviral drugs on the nutritional status and the patient's compliance towards their treatments also require attention. Lipodystrophy, whose etiology is still unknown is a common feature in HIV patient receiving anti retroviral drugs.<sup>3</sup> Metabolic disorders such as dyslipidemia, glucose intolerance, diabetes, among others in this chronic disease require particular attention since they increase cardiovascular risks.

This study aims to document the socio economic factors of patients living with HIV/AIDS and to report the effect of antiretrovirals management on nutritional status.

## MATERIALS AND METHOD

Free antiretroviral medication programme for PLWHA started in July 2000 at the Centre for special studies (CSS) Sagamu. The centre is currently located at the infectious disease clinic of the Department of Community Medicine and Primary Care of Olabisi Onabanjo University Teaching Hospital Sagamu. Patients who are HIV positive in the community come to the clinic by referrals from self, physicians, friends, families, other health workers and institutions. All patients are then rescreened at the centre before full admission.

## Initial clinic visits

At the initial clinic visit pre-test and post test counselling were done before the patient was admitted to the study. The patients also sees a physician who determined the clinical stage of the disease.

## Criteria for antiretroviral drug initiation

Initial admission criteria was first come first served basis but subsequently was based on a CD 4 count of less than 200mm<sup>3</sup> and or symptomatic disease and availability of medication.

HIV RNA (Viral load) was not available in the study centre.

## Antiretroviral medication

Patients were managed with combination of at least 3 antiretroviral drugs from 2 of the 3 groups of antiretroviral drug which are The Nucleoside reverse transcriptase inhibitors (NRTI), the Non Nucleoside reverse transcriptase inhibitors (NNRTI) and the Protease inhibitors. (PI)

Two arms of drugs were given to the patients thus  
ARM 1 = 1 PI + 2 NRTI

or

ARM 2 = 1NNRTI + 2NRTI

Except otherwise indicated one month's supply of drugs was given to the patients per visit.

## Follow up

Patients were followed up in the clinic every 4 weeks. After the initiation of antiretroviral medication, patients were seen every 2 weeks for the first month to see any adverse drug reaction.

## RESULTS

A total of 77 HIV patients attended the clinic between July 2000 - Nov 2002. Sixty five (84.4 %) of the patients were from the Yoruba ethnic group and twelve (15.6%) from the Ibo ethnic group. Seventy one (92.2%) of them were HIV1 seropositive while one (1.3%) was HIV II seropositive and five (6.5%) were HIV I and II seropositive. There were forty seven females (61%) and thirty males (39%) with a male: female ratio of 1: 6. The age of the patients ranged between 2 to 58 years with a mean of 36.1 ± 11.54. Sixty-three 83% patients attending the clinic were Christians, twelve (15.6%) were Muslims and One (1.3%) was a traditional believer. Over 90% of patients had a maximum of secondary school education and they were mainly farmers, traders or junior civil servants, while 9% belonged to the middle social economic class. None belonged to the high socio-economic class. The average weight of the patients

**Table 1:** Age of patients receiving anti retroviral therapy.

Age Group	Frequency	Percentage
0-10	3	3.9
11-20	1	1.3
21-30	17	22.1
31-40	31	40.3
41-50	18	23.4
51-60	7	9.1
Total	77	100

**Table 2:** Gender distribution of HIV/AIDS patients receiving antiretroviral therapy

Sex	Number	Percentage
Male	30	39
Female	47	61
Total	77	100

**Table 3:** HIV status of patients receiving antiretroviral therapy

HIV status	Number	Percentages
HIV 1	71	92.2
HIV 1	1	1.3
HIV 1 & 2	5	6.5
Total	77	100

**Table 4:** Educational status of patients receiving antiretroviral therapy

Educational status	Frequency	Percentages
None	14	18.2
Primary	24	31.2
Secondary	32	41.6
Tertiary	7	9.0
Total	77	100

**Table 5:** Occupation of patients receiving antiretroviral therapy

Occupation	Frequency	Percentages
Unemployed	4	5.2
Trading/Farming	47	61.0
Civil servant	11	14.3
Driver/taxi driver	5	6.5
Security guard/Police	4	5.2
Artisans	5	6.5
Clergy	1	1.3
Total	77	100

**Table 6 :** Treatment Outcome

Outcomes	Frequency	Percentages
Defaulted	14	18.2
Withdrawal	5	6.5
Dead	13	16.9
Alive and well	45	58.4
Total	77	100

**Table 7:** Weight at admission and at monthly clinic visit.

	Weight in Kgs $\pm$ SD
Admission	52.00 $\pm$ 12.70
1 <sup>st</sup> Month	53.97 $\pm$ 12.23
2 <sup>nd</sup> Month	53.39 $\pm$ 12.89
3 <sup>rd</sup> Month	55.94 $\pm$ 13.39
4 <sup>th</sup> Month	56.32 $\pm$ 11.90
5 <sup>th</sup> Month	58.96 $\pm$ 12.31
6 <sup>th</sup> Month	60.07 $\pm$ 11.02
7 <sup>th</sup> month	62.18 $\pm$ 16.97

**Table 8:** Number of sexual partners at time of admission

	Frequency	Percentages
No partner	3	3.9%
1 sexual partner	64	83.1%
2 sexual partners	9	11.7%
3 sexual partners	1	1.3%
Total	77	100

on first attendance was  $52\text{kg} \pm 12.7$ . This increased over 6 months of ARV medication to  $62.18\text{Kg} \pm 16.9$ . Forty five (58.4%) patients were alive and well at the end of the study period while thirteen (16.9%) patients died within six to twelve months of follow up. The cause of death in six (47%) patients was dehydration secondary to diarrhoea unknown in the remaining seven (53%) patients.

## DISCUSSION

From a relatively unknown disease in the early 1980s, HIV/AIDS, has become a leading health and social problem all over the world. As the epidemic rages, the prevalence rate of HIV infection has increased from 1.8% in 1991 in Nigeria to 5.8% in 2001, translating to 3.47million people living with HIV/AIDS in Nigeria.<sup>4</sup> The epidemic worst hits the youth in their prime. This is evidenced from the result of this study in which the highest prevalence of those reporting at the clinic falls within the fourth decade of life. Recent estimates indicate that around the world 7,000 aged 15-24 are newly infected with HIV each day.<sup>4</sup> This study also confirms that women are at a higher risk of infection. This higher risk is partly a result of women's greater biological vulnerability to the virus, compounded by social and economic pressures as well as an unequal gender relation that makes it very difficult for women to refuse unwanted sex. Furthermore, the physical area exposed to sexual secretions is larger for women than for men. The vagina retains seminal fluid for a longer time and is prone to fissures, fungal infections and sexually transmitted diseases. Economic reasons especially poverty accounts for the rising profile of prostitution. This is also corroborated in this study in which the majority of the patients have only the primary and secondary education. This low educational status prevents them from having access to the wealth of the nation. They fall into the low socio economic class and may at one time or the other engaged in casual sex to get money and gifts in return for sex. Moreover,

Traditional practices exacerbate women's vulnerability. These practices include wife inheritance, polygamy, and female genital mutilation among others. Ogun *et al*<sup>5</sup> found a male : female ratio of 2:1 in 1999. The male: female ratio found in this study (1: 6) is quite different from the ratio found in 1999. The difference is largely due to the reasons mentioned above. As the prevalence of the disease increases more women are at a higher risk of contacting the disease.

The introduction of antiretroviral therapy to PLWHA has greatly improved the management of HIV infection in Nigeria at large.<sup>3</sup> This is evidenced from this study in which 58.4 % of the infected patients receiving antiretroviral therapy were alive and well. Most of the patients that died probably started the drug late when the viral load concentration has increased in a higher proportion and the CD4 count reduced to a value below 200 cells/mm<sup>3</sup>

In Africa, AIDS is still known as the slim disease<sup>6</sup> because of the weight loss associated with the disease. Studies have confirmed that malnutrition with alteration in body cell mass and fat occurs at all stages of HIV infection.<sup>8</sup> Weight loss negatively impacts patient's quality of life and self-image. Antiretroviral drugs reduces the wasting syndrome in some of the patients. This was observed in this study. Overall there was an increase in the weight of the patients treated with the antiretroviral therapy. This was not however the case in all the patients treated with the drug. Much remains to be understood about relationships between losses of body mass and HIV infection. Therapeutic attention to reversing weight loss without addressing the etiology has never been convincingly proven to improve overall prognosis<sup>7</sup>. Although new highly active antiretroviral therapies have reduced the prevalence of wasting syndrome, they have at the same time been associated with previously unrecognized variations to body composition and the mechanisms that cause weight loss are myriad and usually multifactorial. Hence, the need to supplement calories, treat with antiretrovirals and address reversible causes of weight loss is generally beneficial.

## CONCLUSION

There was a significant increase in weight and well being of the patients on the Anti-retroviral therapy. Individualized nutrition care plan is needed for PLWHAs who are receiving ARV to detect metabolic disorders that may increase cardiovascular risks and other diseases associated with excessive weight gain as a result of ARV medication. It is recommended to decrease side effects by maintaining optimum nutrition with patients that have excessive weight gain and are at risk of lipodystrophy, identify drug food interaction and identify the dietary needs that stem from these interactions.

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