Nutritional Status of the People Living with AIDS Receiving Anti-Retroviral Therapy in Eastern Nepal

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I. INTRODUCTION

H IV/AIDS is a global epidemic which first emerged in 1981 in the USA. Since then, the epidemic has claimed lives of nearly 30 million people worldwide, the worst conditions being in the Sub- Saharan countries.[1]

There are 19 countries worldwide with the highest prevalence of reported infections, which are all African countries with more than 24.5 million HIV-infected populations. South Africa is reported to have the largest population living with the disease, at well over 5 million people infected, followed by Nigeria in second place and India being the third largest population of HIV infected with more than 2 million people reported. Svalbard is reported as having no cases of HIV/AIDS. In terms of prevalence, countries such as Afghanistan, Saudi Arabia, and Cape Verde are reported to have the lowest prevalence of the disease among reported nations, at less than 0.1% of their population.[2]

According to UNAIDS/WHO, 47% of the established 14.2 million people eligible for the treatment in low and middle income countries were accessing ART(Anti Retro Viral) therapy in 2010.[3]

The AIDS picture in South East Asia is dominated by the epidemic in India. Migrants in particular are vulnerable and 67% of the infected in Bangladesh and 41% in Nepal are migrants returning from India.[4]

In a study done by the Department of Foods, Nutrition and Dietetics, Kenyatta University, among the HIV/AIDS infected two districts of South Africa , it was found out that majority of PLWHA consume foods that are low in nutrients to build up the immune system and help maintain adequate weight, and there is little variety in the foods they consume.[5] In fact, the linkages between HIV/AIDS and food security are bi-directional: HIV/AIDS is a determining factor of food insecurity as well as a consequence of food and nutrition insecurity.[6]

A study conducted to assess nutritional status and dietary practices in people living with HIV/AIDS (PLWHA), concludes that PLWHA are at increased risk for poor intakes of fruits and vegetables and depleted lean body mass. HIV-positive persons had significantly lower mean weight, BMI, upper mid-arm circumferences, arm muscle area and arm fat area than persons in the control group. They were also less likely to use multivitamins, dietary supplements, fruit and vegetables than persons in the control group.[7] In another study, it has been stated that nutritional status should be assessed at regular intervals as part of management of HIV infection.[8]

A study on diet quality of PLWA on highly active ART therapy, concludes that most of the adults living with HIV/ AIDS on ART had diets that required improvement and being overweight was associated with poorer diet quality.[9]

In the Regional Consultation on Nutrition and HIV/AIDS: Evidence, lessons and Recommendations for action in South East Asia, held in Bangkok Thailand, from 8th to 11th October, Raiten[10] presented a paper on Nutrition and HIV: an Update on the Evidence Base, in which he discussed that a full integration of dietary and/or nutritional management is necessary into all aspects of care and treatment in patients receiving ART therapy as it may not only save lives but also bring about the metabolic changes in the body.

All PLWA require 20- 30 % more energy than normal requirements, which is a factor that is generally overlooked during the treatment with ART[11]. The study conducted by Mwamburi[12] concluded that in the absence of ART the increase in viral load is associated with the decrease in body weight, however, during ART, virus load is not associated with the weight changes.

Mangili[13] on Nutrition and HIV infection: Review of weight loss and wasting in the Era of HAART from the Nutrition For Healthy Living Cohort, suggests that the increased caloric demands and intake of the people living with HIV infection may be attributed to their HIV disease and its complication but they may also be associated with HAART.

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In the study carried out by Samuel[14] on Nutritional status of the HIV positive people on free HAART therapy in a developing nation, which involved 120 HIV- positive people and a control group, for over a one-year period it was found out that malnutrition is common among the HIV- positive people of South-East Africa. When the nutritional status of the HIV sero- positive subjects was assessed in an AIDS clinic in Paris, it was found that among 124 subjects recruited, 62.1% had normal nutritional status whereas 8.1% had severe malnutrition[15].

According to Nayepi[16], in his study on The Risk of Developing Malnutrition in People Living With HIV/ AIDS, unintentional weight loss, gastrointestinal symptoms and other conditions are commonly associated with high risk of developing malnutrition. The results of the study showed that out of 145 PLWHA, 47.5% were found to be at a risk of developing malnutrition whereas 28.5% were actually malnourished.

When the weight and the body shape changes was observed in a treatment naïve population after 6 months of Nevirapine based generic HAART in South India, it was found that majority of the HIV positive patients gained weight and retained body shape symmetry with no change in the waist to hip ratio; however, several patients lost weight despite the initiation of ART.[17]

Dyslipidemia and hyperglycemia were the most commonly reported problems among the HIV positive patients on ART, both being the problems of nutritional origin, when a cross sectional study was carried out to assess lipodystrophy and dyslipidemia among the patients taking first line WHO recommended HAART in Western India.[18]

In an analysis of 469 HIV positive individuals in Nutrition for Healthy Living Cohort by Wanke[19], more than 50% of the cohort were receiving ART at the time when they met clinical criteria for wasting.

Study conducted by Mustapa[20] reported HAART treated PLWHA, the latter had higher BMI values indicating better nutritional status. In a study done by Kristy[21] on Obesity in HIV infection: Dietary Correlates, out of 321 subjects 13% of the males and 29% of the females infected with HIV were found to be obese.

Hence review and assessment of the nutritional status of the people living with AIDS, particularly those under ART therapy is a necessity to ensure that their nutritional status is good.

This study has assessed the nutritional status of the People Living with AIDS receiving ART at BPKIHS.

II.   OBJECTIVES

To assess the nutritional status of the people living with AIDS receiving Anti Retroviral Therapy at BPKIHS and to find out the association between nutritional status and the selected demographic variables.

III.   METHODOLOGY

A descriptive cross sectional research design was used to assess the nutritional status of the people living with AIDS receiving anti retroviral therapy at ART clinic, Tropical ward at B.P Koirala Institute of Health Sciences.

The total numbers of patients receiving ART were 480 (As per ART register record), out of them 113 were selected using population enumerative sampling technique, who met the selection criteria. The patients receiving ART for more than three months and physically present during the data collection period were included in the study after obtaining informed consent. The data was collected in July 2012.

The data for the study was collected by an interview questionnaire after obtaining content validity form the concerned expert and pre-testing the tool. It consist a total of 46 questions which have been divided into 4 categories: socio-demographic profile, anthropometric measurements, dietary pattern and life style questions.

Permission was taken from the concerned departments, i.e. Department of Internal Medicine, Tropical Medicine, Infectious Disease, Ward In-charge of the Tropical Ward and VCT counselor of the ART clinic where the study would be conducted. Informed verbal consent was taken from each of the respondent prior to the data collection. Confidentiality and anonymity of the respondents were also maintained. The purpose of the study was revealed to the subjects before the interview. The collected data was then entered in Excel 2007 and analyzed using SPSS 15.0 version.

IV.   RESULTS

Majority of the respondents (61%) were male. About 31% were of the age group 31- 35 years. The range was 19-73 years and mean age was 36.3years. Among the respondents, 75.2% were married. Among those receiving ART, 69.9% had the CD4 count at the start of the therapy between 51-250, whereas the most recent count showed 47.79% had the

count in the same range. Among the respondents, 64.60% had normal BMI, whereas 24.79% were found to be malnourished and 10.62% of the respondents were overweight. None of the respondents were found to be obese. The mean BMI is 20.85 with SD 3.13 and range 14.17 to 29.56. BMI and socio demographic variables like age (p-value= 0.136), sex (p-value= 0.094), marital status (p-value= 0.066), total family income per month (p-value= 0.700) and duration of ART in months (p-value= 0.472) were found to have no significant association, at 0.05 level of significance. The details of the results are depicted in table 1.

V. DISCUSSION

Among the respondents, 30.97% were of the age group 31- 35 years. The range was 19-73 years and mean age was 36.3years. Majority (61%) of the respondents were male. The above findings are similar to that of Swaminathan[30]. Among the respondents, 75.2% were married and none of the female respondents were pregnant or lactating mothers during the data collection period. Among them, 40.71% were Brahmin/Chhetri whereas 39.82% were of Mongolian origin. Out of 85.84% literacy rate, maximum (67.02%) had received education of secondary level, whereas only 22.68% had been educated up to higher secondary level.

Among the respondents, majority (74.3%) were Hindu followed by Buddhist (15%) and Kirat (5.3%). Majority (53%) of the respondents came from Nagarpalika (municipality) whereas 46.9% came from VDC, which also included the town or city areas (urban) which have not yet been declared municipality by the government.

Out of the total respondents, 23.01% had their family income between NPR 4000- 14000 and 15000- 25000 each. This may be due to the fact that the population consisted of people coming from Lahure family and having earning members abroad in a large number. The mean income per month was NPR 29,982.30 and the range was 4000- 80,000.

Among the respondents, 37.17% were on ART since 13-36 months, the mean duration being 33.13 months and the range was found to be 3-142 months. Among those receiving ART, 69.9% had the CD4 count at the start of the therapy between 51- 250, whereas the most recent count showed 47.79% had the count in the same range.

Hepatitis C was the most common (15%) OI disease observed among the respondents, which may be due to past history of drug misuse. However, among the OI symptoms, majority (25.66%) had skin infections within the last three months of therapy. Infections like oral infection, sore throat, anxiety, nose bleed and tension headache were seen among 17.699% of the population. Majority of the patients (90.27%) took Cotrimoxazole as prophylaxis medication whereas, medications like Aciloc, Paracetamol, Anti-hypertensive constituted 15.04% of the prophylaxis drug being consumed, followed by vitamins (14.16%).

Among the respondents, only one respondent was vegetarian. Majority (65.49%) of the population ate 5 meals per day. The composition of major meals was mostly carbohydrate (98.23%). When asked about the frequency of consumption of meat/fish/egg items, 61.09% responded that they consumed it 1-2 times per week, whereas 46.02% responded that they consumed milk and dairy products in the same frequency. Among the respondents, 65.40% responded that they had not eaten any kind of bakery items and 92.92% said that they had not eaten any kind of snacks (noodles, chips) within the last three months of ART therapy. Among the respondents, only 25.66% were consuming the nutritional supplement provided by WHO for ART receiving patients, supplied and distributed by the ART clinic, BPKIHS.

Regarding the frequency of performing exercise, 83.2% responded that they never performed any kind of exercise (like yoga, vigorous fitness training and jogging), supported by the findings of Smit[31]. About 91% said that they occasionally felt under pressure and stressed out and 54% of them slept more than 8 hours per day followed by 41.6% who slept 6-8 hours per day. Among the respondents, 52.2% have not eaten with their friends and families outside their home, since the last three months of therapy. When asked about the substance use habit, 40% of the respondents currently had tobacco chewing habit whereas 28.30% had it before the start of therapy. Among those with tobacco use, 16.8% actually chewed tobacco compared to 11.5% who smoked cigarette. With regard to alcohol consumption habit, before the start of the therapy, 36.3% consumed alcohol which has been decreased to 0.9% after the start of the therapy. Among the respondents, 28.3% were in the habit of drug misuse before the start of the therapy, actually before contradicting the disease. One of the respondents was using drug even after the start of the therapy and had left both the therapy and drug 45 days back, who was excluded from the sample.

The association calculated between the selected socio- demographic variables like age (p-value= 0.136), sex (p-value= 0.094), marital status (p-value= 0.066), total family income per month (p-value= 0.700) and duration of ART in months (p-value= 0.472) with the nutritional status, measured using the BMI, was found to be insignificant. This shows that the nutritional status of the PLWA receiving ART is not affected by age, sex, marital status, total family income and duration of ART.

The above findings are supported by the findings of Mustapa[28]. In his study, he also found out that among the respondents on HAART, 48.10% had normal BMI, whereas 24.05% were malnourished and 18.99% were overweight,

which is similar to the findings of this study in which majority (64.60%) had normal BMI and nearly 25% were malnourished.

In the study done by Hendricks[29], in which population was divided based on gender, 13% of the males and 29% of the females were found to be obese. Another study by Shevitz[32] in which population was again gender based found out that 275 of the women were overweight and 21% were obese whereas 33% of the males were overweight and 6% were obese.

The above findings show that some kind of nutritional problems does exist in patients receiving Anti Retroviral Therapy. Even though 64.60% of the respondents had normal BMI, this study concluded that 35.4% had poor nutritional status (24.79% suffered from malnutrition and 10.62% from overweight).

The association calculated between nutritional status and socio-demographic variables like age (p-value= 0.136), sex (p-value= 0.094), marital status (p-value= 0.066), total family income per month (p-value= 0.700) and duration of ART in months (p-value= 0.472) was found to be insignificant.

VI.   CONCLUSION

Based on the study, it can conclude that 35.4% PLWA still facing nutritional problems as shown by their poor nutritional status. It was found that 64.60% have a normal BMI and 10.6% were obese. The nutritional status is insignificantly associated with the change in socio-demographic variables like age, gender, marital status, duration of treatment that is seen after the initiation of therapy.

VII.   LIMITATIONS

Due to the proxy visits by the relatives instead of the patient, the sample collection was difficult as anthropometric measurements could not be taken. There was difficulty in obtaining data about the dietary patterns and lifestyle. The setting of the clinic could not ensure proper privacy. Patients who came in a hurry couldn't be assessed due to their hurry for returning back.

VIII.   RECOMMENDATIONS

The supplementation of the nutritional supplement provided by NCASC and distributed by the ART clinic can be improved and the target group can be encouraged to consume it. Similar study can be conducted at other ART centers and results can be compared. This study can be done on a larger sample and the association with diet patterns and lifestyle can be observed, which also affect the nutritional status in one way or the other. The BMI at the start of the therapy can be assessed and used to compare the improvement in BMI after the initiation of ART.

IX.   IMPLICATIONS OF THE STUDY

This study gives an overview of the nutritional status of the PLWHA receiving ART at BPKIHS. For patients at the risk of being malnourished, ART initiation can be an important step in attempt to increase their nutritional status.

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Table 1 Association between selected Socio- Demographic Variables and Nutritional Status of the Respondents

Key: NS: Not significant   *: Chi Square test   ^: Yate's Corrected Chi Square test   n=113

SN	Characters	Categories	Nutritional Status (BMI)			P-value	Remarks
			Malnourished %	Normal %	Overweight %		
1.	Age (in years)	<36	27.1	67.8	5.1	0.136*	NS
		≥ 36	24.1	59.3	16.7		
2.	Sex	Male	18.8	71	10.1	0.094*	NS
		Female	36.4	52.3	11.4		
3.	Marital Status	Married	30.6	61.2	8.2	0.066^	NS
		Single	10.7	71.4	17.9		
4.	Total Income/month (in rupees)	<30,000	44.8	45.8	58.3	0.700*	NS
		≥30,000	55.2	54.2	41.7		
5.	Duration of ART (in months)	≤ 36	69	59.7	75	0.472*	NS
		>36	31	40.3	25		