ABSTRACT

The present study was conducted to determine the health, nutritional status and quality of life of PLHIV and effect of nutrition intervention on the same. The study was conducted in two phases, phase 1 which was completed at the Guru Teg Bahadur Hospital, New Delhi and Phase 2 which was conducted at MKCG Medical College, Berhampur (Experimental group) and VSS Medical College, Sambalpur (Control group) in Orissa.

A structured questionnaire cum interview schedule was administered to elicit information pertaining to socio-demographic profile, clinical profile and dietary information. Anthropometric profile (height, weight, BMI, waist and hip circumference, WHR, MUAC and calf circumferences, body fat percentage, skeletal muscle percentage, visceral fat and resting metabolic rate) was determined using standard procedures and biochemical parameters (CD4 count and haemoglobin) were noted from hospital records. Nutritional assessment was done using Mini Nutritional Assessment Scale and quality of life (QoL) was studied using WHOQOL-HIV BREF scale. Nutritional knowledge, attitude and practices were studied by using structured questionnaire and nutrient intakes were calculated from 24-hour dietary recall.

In phase 1, 400 PLHIV adults who attended the ART clinic over a period of three months were enrolled in the study. Those who were older than 21 years of age those who were on ART for less than 6 months, those whose record of CD4 estimations within last 30 days from the date of data collection were available and those who agreed to answer the questions related to quality of life were selected. Majority of the subjects belonged to the younger age group of 21 – 40 years (82.8%) and heterosexual route was the main reason of HIV transmission (76.5%). The rate of unemployment increased from the time of detection of the virus to the time of interview due to ill health and HIV positive status per se. More than half of the sample reported their annual family income to be less than Rs. 30,000.

The common symptoms/Opportunistic Infections experienced included weakness (34.2%), anorexia (26%) and weight loss (23.2%). The mean CD4 count of the sample was below 500 cells/cumm (291.68 ± 183.8cells/cumm) indicating damage to the immune system. The mean haemoglobin levels for males - 11.8 ± 1.7g/dl, females 10.3 ± 1.6g/dl and transgender 11.4 ± 1.5g/dl indicated that anaemia was prevalent in the sample. Anthropometric profile indicated that 39 percent of the sample was malnourished (BMI <18.5kg/m²). The mean waist circumference (WC) of males (75.2 ± 9.5cm) and TGs (79.4 ± 11.5cm) was significantly higher than females (70.3 ± 9.5cm)(p<0.05). Only 20 percent of subjects had MUACs below the cut-off of 21cm. Classification of subjects according to the normal body fat % cut-offs indicates that nearly 48 percent of women, 27 percent of males and 18 percent of transgender had body fat percentages below normal. The mean skeletal muscle percentage was 32.1 ± 8.9 percent which was much less than the normal of 42 percent in males and 36 percent in females. Classification of subjects according to MNA indicates that more than 50 percent of the sample (51.5%) was at-risk of
malnutrition, around 34 percent were malnourished and only 15 percent were within normal range.

The overall scores for knowledge (8.3 ± 2.2), attitude (34.4 ± 3.7), practices (8.1 ± 2.3) and KAP total (50.8 ± 5.5) lied in the medium category. Also, mean scores for knowledge, attitude and total KAP increased significantly (p<0.01) as the level of education increased. Analysis of quality of life indicated that sample scored maximum in the domain of spirituality, religion and personal beliefs (14.5 ± 2.9) and minimum in the level of independence (11.9 ± 3.3). Socio-demographic factors like income and marital status were found to influence the QoL domains.

Intake of energy, protein, calcium, iron, thiamine, riboflavin, niacin, folic acid, vitamin B12, copper and zinc were below the ICMR (2010) recommendations, while the intake for fat and vitamin C was more than the daily recommended allowance. Increasing the energy requirements by 10 percent as recommended by WHO, half (50.2%) of subjects could not meet even 2/3rd of the RDA. This indicates the poor dietary intake of energy by PLHIV and arouses the need for dietary interventions in order to improve the dietary intake.

Phase 2 aimed to study the impact of nutrition supplementation on the health, nutrition profile and quality of life of PLHIV. The experimental group was enrolled from MKCG Medical College, Berhampur while control group was taken from VSS Medical College, Sambalpur. At baseline, 153 PLHIV were enrolled in experimental and 33 in control group. Endline assessment for experimental was done at eight months on 96 subjects while for control group it was done at 11 months on 20 subjects. The intervention was in the form of NutriPlus powder which was a micronutrient rich wheat-soy blend given via take-home ration strategy.

Maximum percentage of PLHIV belonged to the age group of 31 – 40 years in both experimental (55.6%) and control (45.4%) group. In both the groups sexual route (multiple sexual partners and unsafe sexual practices) was the main route of HIV transmission (97% in control group and 98% in the experimental group) and females reported that they acquired the infection from their husbands. Supplementation did not showed any effect on improving the biochemical parameters of experimental group as CD4 count increased significantly in both the groups at endline (from 181.7 ± 98.5 cells/cumm to 300.6 ± 203.2 cells/cumm in control group and from 306.5 ± 162.8 cells/cumm to 431.6 ± 206 cells/cumm in experimental group). No significant change post intervention was observed in both experimental and control group subjects in the haemoglobin level as well.

Nutritional supplementation showed significant impact on improving the anthropometric measurements of experimental group as weight, waist and hip circumferences and mid upper arm circumference increased significantly at the endline (p<0.05). Post intervention percentage of subjects belonging to malnourished or ‘at-risk’ category as determined by MNA declined
and there was an increase in number of subjects belonging to normal category. However, this shift was not significant. Supplementation also showed significant improvements in the knowledge, attitude and practices scores of experimental group subjects while overall KAP score decreased for the control group subjects.

Food group analysis indicate that at endline, in experimental group subjects the intake of cereals and pulses declined which could be attributed to the fact that these individuals were substituting their food with the NutriPlus powder. A significant increase in the energy (p<0.01), protein (p<0.001), carbohydrate (p<0.01) and fat (p<0.05) intake at the endline was seen only in the experimental group. In the control group, an increase was seen in fat intake with no change in carbohydrate and a decrease in energy and protein intake, though the differences were not significant. Also, at endline, in the experimental group, there was a significant increase in the intake of calcium, iron, vitamin B12, thiamine, niacin and riboflavin as compared to the baseline values (p<0.001).

Within group analysis, indicated an increase in all the QoL domain scores for both control and experimental group, however, the increase was significant only in experimental group for physical (from 12.0 ± 2.4 to 12.7 ± 2.3), social relationships (from 11.6 ± 2.0 to 11.9 ± 1.8) and G-facet (from 10.0 ± 2.2 to 12.9 ± 2.9). Also, in the control group, a significant decrease was found in the SRPB domain at the endline (from 16.3 ± 1.3 to 14.8 ± 2.8). Overall, the Control group subjects scored minimum on G-fact (i.e. overall quality of life) (12.8 ± 3.0, range 8-16) and maximum on SRPB domain (16.3 ± 3.1, range 9.6 – 20). While, the experimental group subjects scored maximum on SRPB domain (14.6 ± 2.3, range 6-18) and minimum on psychological domain (12.0 ± 2.2, range 4.8-16.8).

Thus, it can be concluded that the health and nutrition profile of people living with HIV/AIDS is compromised. Also, the overall quality of life of these individuals is affected with the level of independence being most affected. PLHIV had adequate knowledge on nutrition which increased with the level of education. They also had a positive attitude towards importance of nutrition in HIV, however did not get converted into healthy dietary practices. Hence, nutritional supplementation in the form of a micronutrient enriched food supplement was effective in improving the anthropometric profile and nutrient intakes of PLHIVs but had no significant impact on biochemical status i.e. CD4 count and Haemoglobin levels. However, since CD4 counts significantly affected by BMI and consequently affected by BMI and dietary intakes, it could have long term beneficial effect.