

A study on clinical outcomes of people living with HIV/AIDS on anti retroviral therapy from rural hospital in Nepal

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ABSTRACT

Anti Retroviral Therapy has been started in Nepal since 2004 and the treatment centers have been upgrading all over the country regularly. A prospective observational study was carried out from August 2008 to December 2009 with an objective to evaluate clinical outcome of People Living with HIV/AIDS undergoing the therapy as per National Guidelines. After taking written informed consent pre-structured questionnaire was filled and patients were followed for next six months. All information were entered into SPSS 11.5 system and analyzed. Out of 44 patients, 24 (54.6%) were males and 20 (45.4%) were females. Age group 31-35 years were predominant 16 (36.6%) followed by 36-40 years 12 (27.2%). Clinically WHO stage III was found among 97.7% of the patients and 45.4% of housewives got HIV transmitted from husbands. Anti Retroviral Therapy was started in 25 (59.2%) of patients within three months HIV test positive. From initiation of therapy till six months there was, 1.7 kg of mean increase weight gain and 354 cells/mm³ increase in mean Total Lymphocyte Count. Opportunistic infections occurrence decreased significantly from 34.1% to 2.3% and 41 (93.2%) patients had drug adherence scale of more than 95 percentile. Hence it can be concluded that there is an urgent need of expanding the accessibility of the therapy to eligible patients throughout the country.

Keywords: People living with HIV/AIDS, Anti Retroviral Therapy, Opportunistic Infections, drug adherence, Nepal

INTRODUCTION

AIDS (Acquired Immunodeficiency Syndrome) caused by Human Immunodeficiency virus (HIV) was recognized by medical community as a distinct clinical entity in 1981. The first case of AIDS in India was reported in 1986. In Nepal first HIV positive case was identified in July 1988. The disease poses a significant challenge to modern medicine and humanity. The burden of HIV/AIDS can be categorized as clinical, financial, psychological and social. It can also be classified as burden to patient, family, community and country.¹

South East Asia has the second highest burden of HIV in the world where 4.1 million People living with HIV/AIDS (PLHA).² In Nepal estimated number of HIV infection is 69,970 of which adult population infected is 64,585 but the reported HIV positives are 14,747, including 2,627 PLHA. Though prevalence of HIV/AIDS is 0.5, epidemic has evolved from low to concentrated among high risk groups such as clients with sex workers (47.0%), housewives (20.0%), intravenous drug users (20.0%) and sex workers (7.0%). Report shows that the number of infected housewives is about three times higher than the number of sex workers.³ Estimated number of

HIV infections by age groups: children (0-14 years): 2.6%, adults (15-49 years): 93.2%, adults (above 50 years): 4.7%. HIV infection occurs through three primary modes: sexual, parenteral and perinatal. Sexual intercourse is the most common method for transmission in Nepal.^{4,5}

Anti Retroviral Therapy (ART) has been started in Nepal since February 2004 from Sukra Raj Tropical and Infectious Disease Control Hospital, Kathmandu. Until 2009, 23 centers have been upgraded throughout the country, total of 3,423 PLHA have been benefited by the therapy and estimated that 17,000 people are in need of therapy.⁶ ART has improved the health and survival prospects of PLHA and has transformed the fatal disease into chronic condition.^{7,8}

The study is conducted with an objective to fine changes in the weight, occurrence of Opportunistic Infections, changes of laboratory parameters and drug adherence level of patient taking ART at rural general hospital were CD 4 cell count facility is absent. Furthermore this study is intended to draw the attention of policy makers, health administrators, health personnel and care givers about the health status of PLHA residing in rural part of the country.

MATERIALS AND METHODS

Prospective observational study was carried out at ART clinic of United Mission Hospital, Palpa between August 2008 and December 2009. The research was approved by Institutional Review Board, Institute of Medicine, Tribhuvan University and Internal Management Committee of United Mission Hospital. After taking written informed consent, patients were interviewed to fill up the pre-structured questionnaire and the records were kept confidential in the ART clinic and regularly filled on follow-up visits as per study protocol.

Total of 44 participates were included in the study. Inclusion criteria for the selection of patients were adults above the age of 18 years, new patients starting ART from the hospital clinic or within two weeks of start of ART transfer in to our center, WHO clinical staging III or IV without CD4 cell count and patients willing to follow up on monthly interval for next six months period. Any patients not matching above criteria were excluded from the study.

All the information were entered into SPSS system (statistical package for social sciences) and analyzed. The descriptive statistics such as frequency, percentage, mean, standard deviation, z-test and chi-square test were used according to the nature of the variables.

Table-1: Socio-demographic characteristics of studied subjects by gender.

Characteristics	Male No. (%)	Female No. (%)	Total No. (%)
Age group(Yrs)			
25-30	4 (16.8)	5 (25)	9 (20.5)
31-35	7 (29.1)	9 (45)	16 (36.3)
36-40	6 (25)	6 (30)	12 (27.3)
>41	7 (29.1)	-	7 (15.9)
Total	24 (100)	20 (100)	44 (100)
Marital Status			
Married	23(95.8)	16 (80)	39 (88.6)
Widow	1 (4.2)	4 (20)	5 (11.4)
Total	24 (100)	20 (100)	44 (100)
Education			
Illiterate	8 (33.3)	17 (85)	25 (56.8)
Primary	16 (66.7)	3 (15)	19 (43.2)
Total	24 (100)	20 (100)	44 (100)
Occupation			
Migrant /Farmer	22 (91.6)	3 (15)	25 (56.8)
Driver	2 (8.4)	-	2 (4.6)
Housewife	-	17 (85)	17 (38.6)
Total	24 (100)	20 (100)	44 (100)
HIV Transmission			
Sex Workers	24 (100)	-	24 (54.6)
Partners	-	20 (100)	20 (45.4)
Total	24 (100)	20 (100)	44 (100)

Table-2: Distributing clinical and Laboratory results during study period.

	Start (mean)	3 Months (mean)	6 Months (mean)
Weight	47.7 kg	48.5 kg	49.4 kg
Hemoglobin	20.4 gm/dl	10.7 gm/dl	10.8 gm/dl
TLC	1124.5 cells/mm ³	1236.2 cells/mm ³	1478.9 cells/mm ³

RESULTS

Among 44 PLHA 24 (54.6%) were males and 20 (45.4%) were females. The age group of 31-35 years was predominant (36.3%) followed by 36-40 (27.2%). Most of them were illiterate (56.8%), married (88.6%), migrant labor/farmer (56.8%). The main mode of HIV transmission was by sexual contact and male acquired HIV infection from sex workers and later transmitted to their wives as shown in Table-1.

Interval time period between HIV testing and starting of ART was found to be within first three months 56.8% followed by 22.8% after six months duration [Fig.1]. The WHO clinical staging of PLHA at the start of ART was as high as 97.7% of them were in stage III is shown in Fig. 2. Weight monitoring record of PLHA showed 47.7 kg,

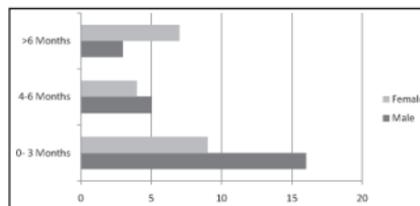


Fig. 1: Time interval between HIV testing and start of therapy.

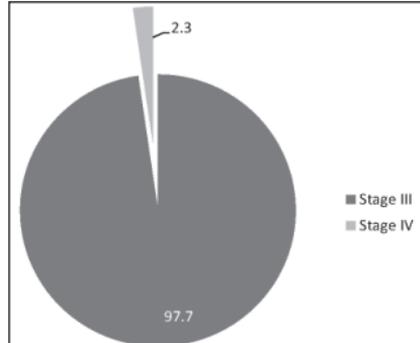


Fig. 2: WHO stage of PLHA at start of therapy.

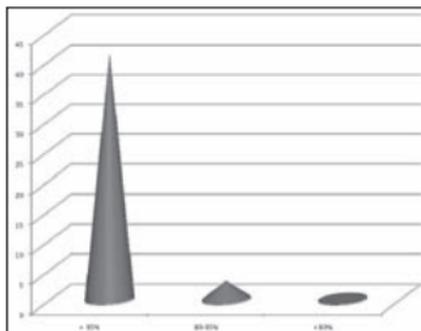


Fig 3: Drug adherence scale of ART duration

48.5 kg and 49.4 kg at beginning, three months and six months duration respectively during treatment period. Blood hemoglobin level and Total Lymphocyte Count (TLC) were 10.4 gm/dl and 1124.5 cells/mm³ at start of therapy after three months were 10.7 gm/dl and 1236.2 cells/mm³ and after six months were 10.8 gm/dl and 1478.9 cells/mm³ respectively as shown in Table-2.

The drug adherence scale of above 95 percentile was 93.2% among PLHA in the study group as shown in Fig.3. Opportunistic infections occurrence reduced from 15 to 1 patients which was statistically significant at p value of <0.05 level of significance as shown in Fig.4.

DISCUSSION

One of the most important findings of this study is the opportunistic infections occurrence decreased from 34.1% to 2.3% after six months of therapy. This change is statistically significant at 0.05 p value of level of significance. The reduction of opportunistic infection supported the adherence to ART and is also due to additional use of Co-Trimoxazole DS tablet prophylactic in all patients. The finding is consistent with study of Anglaret *et al* which shows the reduction of serious illness up to 43% by the Co-Trimoxazole therapy.⁹

Age group 31-35 years were predominant 16 (36.6%) followed by 36-40 years 12 (27.2%). The study shows that economically productive age group is the most vulnerable age group with high HIV prevalence rate. This finding is similar to the national estimate that seroprevalence of < 1 percent among the age group 15 to 49; posing a threat to become the nation's number one killer of that age group.⁴ Moreover, the current demonstration of the very economically productive age of many of those HIV infected and the further harm to these young lives through high rates of HIV infection requires attention from public health researchers

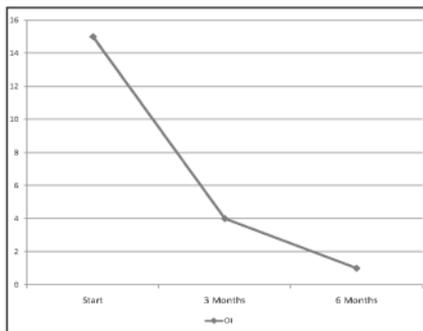


Fig. 4: Opportunistic infection numbers during therapy duration and strategists to better understand and reduce the transmission of HIV.³

The numbers of male patients were 54.6% than those to female 45.4%. These findings are also in accordance with the fact that more Nepalese male population is diagnosed as HIV positive than female population and this may be due to their early treatment seeking behavior than their counterparts. The ratio is almost similar to Sri Lanka where HIV positive men to women are 1.4:1.¹

Majority of patients were married and 54.6% of them suspected the mode of transmission from sex works having unprotected sex while working outside the country. All of the female were married and suspected to have transmitted the disease from their partners indicating that the transmission of HIV among rural women takes place predominantly within the institution of marriage.³ Sexual contact is the most common mode of transmission of HIV/AIDS in rural part of the country.

Regarding the interval duration of HIV diagnosis from the starting of the ART, in 56.8% of patient's ART was started within three months of their HIV test positive. In rest of the patients in whom therapy was started within six months and more than six months durations were 20.4% and 22.8% respectively. Study from India showed evaluating the clinical outcome of patients on Highly Active Anti Retroviral Therapy (HAART) for six month have demonstrated improved in health status.¹⁰ These findings were in accordance with results that 97.7% when started the therapy were in WHO Stage III of the disease.

The result regarding weight gain showed that the mean body weight increased from 47.7 kg to 49.4 kg after 6 months of therapy. Study with follow up for one year recorded mean body weight increased from 49.4 kg to 54.4 kg and were statistically significant at the 0.05 level of significance.¹¹

Majority of the patients' hemoglobin was below 11 gm% with mean hemoglobin of 10.4 gm% at the start of the therapy and increased to mean 10.7 gm% and to mean 11.8 gm% at 3 months and 6 months period respectively.

Information regarding TLC which is established as a surrogate marker for CD 4 cells count in conjunction with clinical data as criteria to initiate HAART by WHO.¹² The mean TLC increased was 354.4 cells/mm³ from 1124.5 cells/mm³ to 1478.9 cells/mm³ after six months of antiretroviral therapy. Studies in developing country, Martin et al on monitoring CD 4 cells count have shown improvement 112 cells/mm³ to 273 cell/mm³ after one year of therapy.¹³⁻¹⁵

According to National Guidelines for ART, more than 95 percentile of compliance is required for optimal viral suppression. The lesser degree of adherence is more often associated with virological failure. A consensus exists that in order to achieve an undetectable viral load and prevent the development of drug resistance, a person on HAART needs at least above 95 percentile of prescribed dose on time.⁶ Tiyou et al study showed the adherence higher than the developed country and income generating activities and social supports main emphasis for success of ART.¹⁶ In this study, we found that 93.2% of people living with HIV/AIDS had above 95 percentile adherence scale based on self reported interview questionnaire method. In patients 6.8% had adherence scale of below 95 percentile. The findings of the study were similar with other study.^{17,18}

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