CHAPTER I

INTRODUCTION

1.1 Study Outline

Treatment for HIV/AIDS is aimed at reducing death by HIV/AIDS or to prolong life of people infected with HIV. In the world today, the efforts have been also exerted to contain the pandemic by treating HIV positive people with newly discovered highly effective antiretroviral drugs. Where it has succeeded, antiretroviral therapy has altered the nature of HIV disease, transforming an almost uniformly fatal illness into a chronic but reasonably stable condition. How effective treatment can be made available to the great majority of people with HIV/AIDS is an urgent issue of global significance. Even where such treatment is available, however, its use is complicated by a number of factors, including compliance, side effects, drug-drug interactions, and selection of drug-resistant virus.

The success of anti retroviral treatment largely depends on the frequency of the use, adherence and effectiveness of drugs. In Nepal, currently Ministry of health is implementing Highly Active Anti-retroviral Therapy (HAART or non-DAART). In the same time Directly Observed Antiretroviral Therapy (DAART) is implemented among HIV positive women by a NGO. An important goal of this study is to assess adherence to drugs in these two-treatment policies adopted by the government and Maiti- Nepal and the overall effectiveness of Anti-retroviral therapy. This research also attempts to compare the efficacy of these 2 programs more broadly.

1.2 Background

1.2.1 Global Situation of HIV/AIDS

AIDS is unique in human history in its rapid spread, its extent and the depth of its impact. The first case of AIDS was diagnosed in 1981. The UNAIDS estimates 39.4 million people are now living with the HIV/AIDS worldwide. This includes the 4.9 million people who acquired HIV in 2004. The global AIDS epidemic killed 3.1 million people in 2004 in which 510 000 were children of age below 15.

The total number of people living with the HIV rose in recent years to reach its highest level in 2004. 37.8 million People were living with HIV/AIDS worldwide at the end of 2003. Among them 35.7 million were adults (age 15-49) and 2.1 million children below age of 15. The estimated 4.8 million infections and 2.9 million deaths occurred in 2003 alone. Among them 490,000 are children below age of 15. Similarly more than 50% of new estimated infections on the year 2003 were among 15-24 years of age (UNAIDS, 2004)

The number of people living with HIV has been rising in every region, compared with two years ago, with the steepest increases is occurring in East Asia, and in Eastern Europe and Central Asia (UNAIDS, 2004). The number of people living with HIV in East Asia rose by almost 50% between 2002 and 2004. In Eastern Europe and Central Asia, there were 40% more people living with HIV in 2004 than in 2002. However, Sub-Saharan Africa remains by far the worst affected region, with 25.4 million people living with HIV at the end of 2004, compared to 24.4 million in 2002. Just under two thirds (64%) of all people living with HIV are in sub-Saharan Africa, as are more than three quarters (76%) of all women living with HIV.

National HIV infection levels in Asia are low compared with some other continents, notably Africa. But the populations of many Asian nations are so large that even low national HIV prevalence means large numbers of people are living with HIV, or a very large public health burden of HIV. Latest estimates show some 8.2 million people (2.3 million adult women) were living with HIV at the end of 2004, including the 1.2 million people who became newly infected in 2004. AIDS claimed estimated 540,000 lives in 2004. Among young people 15–24 years of age, 0.3% of women and 0.4% of men are living with HIV as of 2004 (UNAIDS, 2004)

Overall, Asian countries can be divided into several categories; according to the epidemics they are experiencing. While some countries were hit early (for example, Cambodia, Myanmar and Thailand), others are only now starting to experience rapidly expanding epidemics. They include Indonesia, Nepal, Viet Nam, and several provinces in China. Other countries are still seeing extremely low levels of HIV prevalence, even among people at high risk of exposure to HIV, and have golden opportunities to pre-empt serious outbreaks. These countries include Bangladesh, East Timor, Laos, Pakistan, and the Philippines (MAP, 2004).

Nepal borders with China and India, home to 2.35 billion people, who are experiencing several distinct epidemics. HIV prevalence among drug injectors was estimated between 18% and 56% in six cities in the southern provinces of Guangdong and Guangxi in 2002, while in Yunnan province some 21% of drug injectors tested positive for HIV in 2003 (5). Latest estimates show that about 5.1 million people were living with HIV in India and 840,000 in china 2003 (3). Since Nepal has open border

with India, labor migration, economic dependence, cultural ties etc can play role in HIV transmission. China is also emerging as a major import center for Nepalese textile market. The heightened prevalence of HIV in high-risk groups in china is also a worrying sign for Nepal's HIV/AIDS situation.

1.2.2   HIV/AIDS situation of Nepal

The first AIDS case in Nepal was reported in 1988. Until the late 1990s, Nepal was classified as having a low-level epidemic. By March 2004, 715 AIDS cases and 191 deaths had been reported in Nepal, with a male female ratio of 2.4:1. In total 60,000 adult HIV cases are estimated in the country at the end of 2003 and UNAIDS estimated that 16000 females are living with HIV/AIDS in Nepal (UNAIDS, 2004). The people most at risk for HIV infection are female sex workers and their clients, injecting drug users and their sexual partners, and people who migrate to India to seek work. Sexual transmission remains the primary mode of HIV infection in Nepal. The Ministry of Health, Nepal has reported 17.2% percent prevalence among street-based sex workers in Kathmandu Valley, up from 2.7 percent in 1996. Among injecting drug users in Kathmandu Valley, HIV rates had risen from 2.2 percent in 1995, to approximately 50 percent in 1998, and to an estimated 68 percent in 2002. (USAID, 2004) Nepal is currently classified as a country experiencing concentrated epidemic, particularly among injecting drug users and female sex workers. Trends show that in the western and mid-western sentinel sites, HIV among STD patients has been showing a steady increase from less than 1% in 1992 to 3% in 2001. In the eastern and central regions, however, the prevalence among STD patients remains less than 0.5%. (USAID, 2004)

The estimated number of adult HIV cases when examined by the three sub groups at varying levels of HIV risk shows a different scenario. Three-fourths of total HIV cases belong to high-risk groups such as IDUs, MSM, Sex-workers and their clients and the seasonal labor migrants. The remaining one in four HIV cases belong to low risk populations such as women in general and in urban and rural areas including partners of the high risk subpopulations. The estimates show that HIV prevalence in among general adult populations is less than one percent (0.52%). Of total HIV cases one in four cases is a woman.

The sub populations are broadly categorized into i) high-risk groups and ii) low risk -groups. The high-risk groups include IDUs, FSWs, Clients of FSWs, MSMs and Migrant men. Non-migrant men (excluding clients of FSWs) and general women (excluding active FSWs) belong to low- risk goups. With HIV prevalence of 60 percent, an estimated 15,000 IDUs in Nepal are at great risk of contracting HIV. An estimated 8000 IDU s are HIV positives in the country which constitutes 14% of total number of positive cases (USAID, 2004). It is estimated that approximately 100,000 Nepalese are engaged in commercial sex work in India. The sex trading inside Nepal is estimated to be 25, thousand and 17.2% of them are estimated to be HIV positive.

It is very hard to estimate the total number of labor migrants that migrate to India and different part of the world. The national census classifies migrants as ones who left their home for more than 6 months. This figure shows 589,050 migrants to India. There are some study that suggested 6-8% HIV prevalence among seasonal migrant labors returning home from Mumbai, India (Poudyal, 2003). However it is estimated that 25 thousand migrants to be HIV positive (FHI, 2004)

Very little is known about male to male sexuality in Nepal. Although there is adequate evidence of this practice in other neighboring countries (Asthana and Obstvogles, 2001; Khan and Hyder, 1998; Khan 1998), which indicates that Nepal cannot be exception to this. No systematic efforts have been made to date to estimate the size of the population in Nepal of men having sex with men (MSM). Blue diamond society an NGO working for health and right of MSM in Kathmandu claim that their peer outreach workers have listed thousand of MSM in Kathmandu valley alone. Since some studies in Chennai India suggested 6.5% prevalence among MSMs, it is assumed that levels of HIV infection among these men are at the level of national average or slightly higher The assumed level of HIV infection is 0.5-1%. (FHI, 2004).

Several vulnerability factors exist that can likely worsen the epidemic. These include: high rate of male migration, prostitution, poverty, low socio-economic status of women, and elicit drug trafficking. Additionally, a large numbers of young Nepalese girls are recruited as sex workers to Indian cities, and large numbers of young Nepalese males working in India frequent female sex workers there and within Nepal. Thus, in addition to the increasing number of HIV infections occurring among persons with high HIV-risk behaviors in Nepal, there are also increasing numbers of Nepalese female sex workers and young male Nepalese workers who have bee infected with HIV in India, and who have or will be returning to Nepal. (UNAIDS, 2004)

1.3 Justification of the Research

Currently, it is estimated that there are more than 60,000 people living with HIV/AIDS in Nepal, with an estimated 3,000 deaths (2002) annually. In 1986, first antiretroviral therapy was introduced and the first drug was Zidovudine (ZDV). Over the next few years, other antiretroviral drugs (NsRTIs, NNRTIs) and PIs were introduced. Initially, mono and dual therapies were used but there was problem of resistance. At present, 3 or more ARV drugs are recommended worldwide for the treatment of people with HIV infection. Since the use of combination therapy, this disease has been transformed into chronic condition. However, the use of antiretroviral therapy is not all in all solution in HIV/AIDS prevention and care program. The delivery of effective care and antiretroviral treatment for people living with HIV/AIDS in poorest countries is considered as an urgent priority and seems as a complement program to prevent HIV transmission. Initially, antiretroviral therapy was very expensive and unaffordable in most of developing countries. As drugs are increasingly available at affordable cost, the development of guidelines on the appropriate and rationale use of ART have been relevant in developing countries.

The current guidelines are intended basically for use by medical doctors who use ARV therapy to the people infected with HIV/AIDS. Guidelines for the treatment and management of HIV infection have been produced in a number of countries in Europe, Australia, USA, India, Thailand, etc. and by WHO/UNAIDS. While the guidelines attempt to represent the current state of knowledge, it is inevitable that, as HIV/AIDS is a rapidly evolving medical field, new data will change therapeutic choices and preferences.

The availability and accessibility of sustainable ART is one side of sphere, the other side is the most effective procedure of managing the treatment method, which should lead to increase Cd4+ cell count, decreased viral load and less opportunistic infection. In developed countries where the infrastructural and human resources are scarce, the long-term effective treatment should be identified. One important aspect of this study is to compare DAART and non-DAART patients with respect to treatment accessibility and adherence, and to current quality of life, after one year of treatment. Hopefully study findings will help policy makers in Nepal to analyzed the effectiveness of two methods and reflect the lesson learned in the long-term policy development.

The Ministry of Health, Nepal is providing highly active anti-retroviral therapy (HAART) to 25 people living with HIV/AIDS since September 2003. These drugs are used on the basis of collection and self-administration basis. Maiti-Nepal has introduced directly observed anti-retroviral therapy (DAART) and providing it to 17 people living with HIV/AIDS. The patients take drugs under direct supervision of the physician in Maiti Nepal's rehabilitation center. The treatment of HIV has been proven effective to contain the epidemic and change in high-risk behaviors in many countries. Ascertaining the most effective method of administering ART is a significant issue in resource poor country like Nepal. The availability and accessibility of sustainable ART is one side of sphere, the other side is the most effective procedure of managing the treatment method.

This study is focusing on the scientific analysis on the efficacy of ART in Non-DAART and DAART methods currently practiced in Nepal.

1.4 Problem Statement

In Nepal only 6% of total estimated number of people living with HIV/AIDS know their status. The silent transmitter is transmitting the virus to family, spouse and partners. The country is in need of scaling up its early detection principle to involve more PLWHAs in containment of the epidemic. Treatment of HIV has been proven effective in many countries. The more detected PLWHAs will be in need of more treatment. The most effective method of administering ART is the significant issue in resource poor country like Nepal.

The availability and accessibility of sustainable ART is one side of sphere, the other side is the most effective procedure of managing the treatment method, which should lead to increase CD4+ cell count, decrease viral load and less opportunistic infection. In developing countries where the infrastructural and human resources are scarce, the long-term effective treatment should be identified. This study is focusing largely on the scientific analysis on the efficacy of ART in Non-DAART and DAART methods currently practiced in Nepal. The finding of this study could help policy makers in Nepal to analyze the effectiveness of two methods and reflect the lesson learned in the long-term policy development.

1.5 Purpose of the Study

The Ministry of Health, Nepal, is supplying highly active anti-retroviral therapy (Non-DAART) to 25 people living with HIV since September 2003. The drugs are used on the basis of collection and self-administration basis. In this group, therapy is not directly observed. Maiti-Nepal a non-governmental organization working for

prevention of girl trafficking, rescue, rehabilitation of trafficked women has introduced directly observed anti-retroviral therapy (DAART). The patients take drugs under direct supervision of the physician in Maiti Nepal's rehabilitation center. Thus it is essential to know the most effective system for ART in Nepal. So the overall purpose of study is to analyze the effectiveness of Non-DAART and DAART treatment policy in resource poor settings like Nepal and to recommend the most effective strategy for ART treatment in Nepal.

1.6 Objective of the Study

The researches have shown that the 95% adherence to antiretroviral therapy is needed for effective virus suppression after one year (Wohl A R. et al., 2004). The most common reason cited for lack of virus suppression among HIV positive people who experience failure of multiple ART regimens has been poor adherence to treatment. Poor adherence can lead to not only incomplete virus suppression but also the development of drug resistant stains of HIV, resulting in unfavorable disease course. In overall well being of patients largely depends on the treatment and the most efficient method of administering such drugs.

The key objectives of this study are

- To identify the difference on the outcome in terms of QOL among people living with HIV/AIDS (PLWHAs) under on Non-DAART and DAART treatment methods

- To identify the difference in immunological outcome among (PLWHAs) on Non-DAART and DAART treatment methods

- To identify the difference in terms of compliance among PLWHAs on Non-DAART and DAART treatment methods.

1.7 Research Questions

- What is the difference on the outcome of treatment of Non-DAART and DAART?

- What are the differences between patient with and without treatment in term of symptoms and well-being?

- What are the factors associated with adherence to antiretroviral treatment?

1.8 Research Hypothesis

- There is association between social, cultural, economic variables and outcome of the treatment

- There Is association between the accessibility, availability and compliance of ART

- QOL in treatment group is greater than not getting treatment people infected with HIV

- There is difference in QOL among patients getting directly observed and self-administered ART regimens

- There is difference in compliance among patients getting directly observed and self-administered ART regimens

1.9 Definition of Major Variables

1.9.1 Independent Variables and measurement

Socioeconomic Variables

Socioeconomic factors are the factors that influence the individual's behavior. The society, culture, economy social institution and supportive environment shape an individual's behaviors. The measurements are nominal scale and presentation will be made in number and percentage.

Patient behavior

The knowledge in ART, its side effects, differentiation between HAART and DART methods, tolerance towards the drugs etc has an influence on the compliance of the treatment. The government policy and knowledge of it also influences the choice of treatment method.

The measurements are ordinal scale and presentation will be made in graded chart, number and percentage.

Accessibility/Availability

Physical distance between patient and care center, cost of travel, duration of travel, mode of transportation, quality of services, and maintenance of confidentiality.

1.9.2 Dependent Variables

Adherence – taking treatment 95% of prescribed doses

CD4 – The main cell that HIV attacks is called a CD4 cell. CD4 cells are also known as T helper cells. They are a type of lymphocyte, which is a white blood cell that plays an important role in the immune system.

Quality of life (QOL): As individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns (WHO).

- Self rated QOL

- Self rated health status

- Physical

- Psychological

- level of independence

- Social relationships.

- Environment

- Spirituality/Religion/personal Beliefs

  (WHO HIV/AIDS Questionnaire)
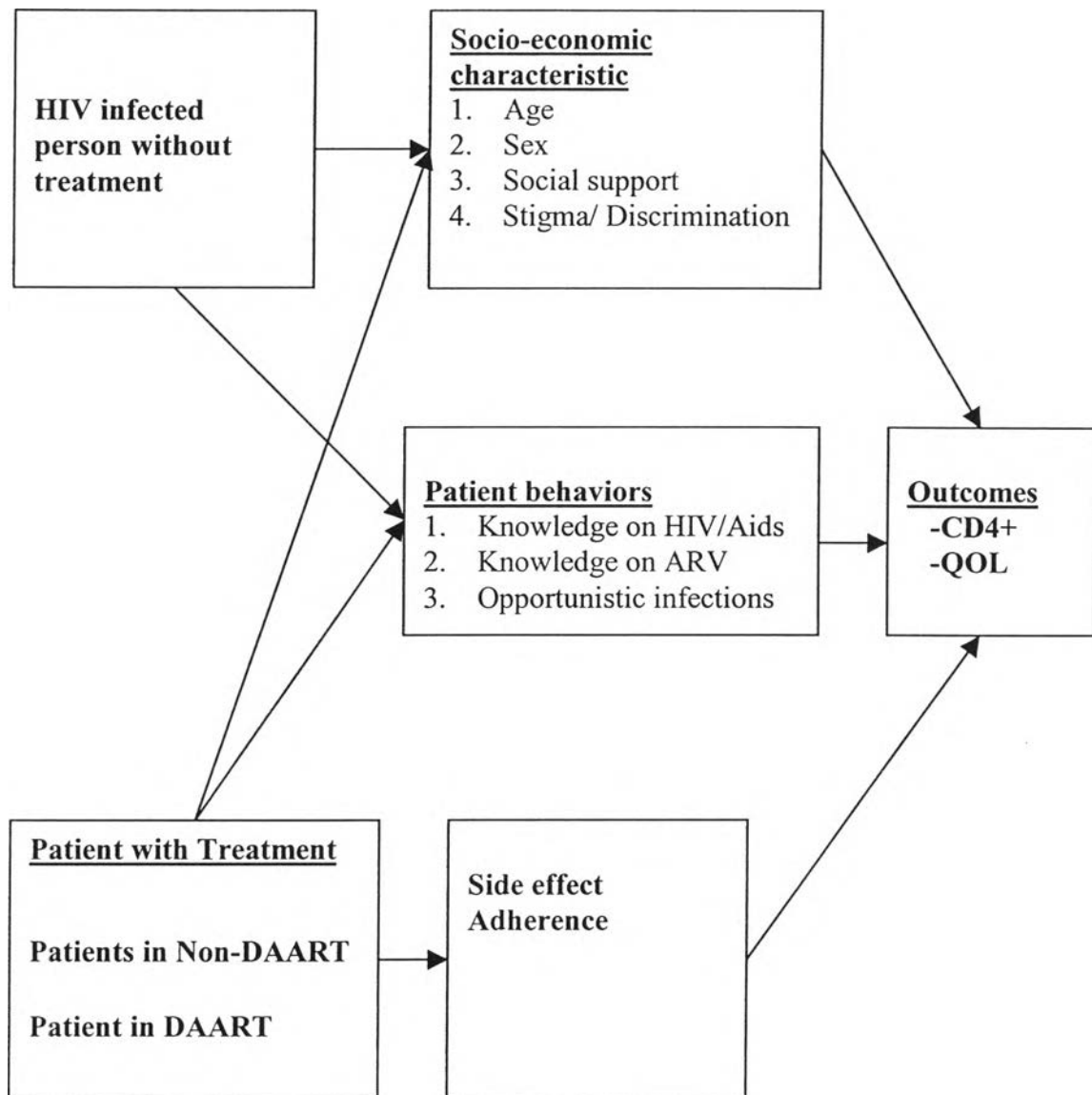
1.10   Conceptual Framework

Figure 1.1: Conceptual Framework