



CHAPTER II

LITERATURE REVIEW

2.1 Antiretroviral Treatment

This is the main type of treatment for HIV or AIDS. It is not a cure, but it can stop people from becoming ill for many years. The treatment consists of drugs that have to be taken every day for the rest of someone's life. HIV is a virus and like other viruses when it is in a cell in the body it produces new copies of itself. With these new copies, HIV can go and infect other previously healthy cells. It is easy for HIV to spread quickly through the billions of cells in the body, if it is not stopped from reproducing itself. Antiretroviral treatment for HIV infection consists of drugs which work against HIV infection itself by slowing down the reproduction of HIV in the body.

For antiretroviral treatment to be effective for a long time, ART is needed to be taken more than one antiretroviral drug at a time known as Combination Therapy. The term Highly Active Antiretroviral Therapy (HAART) is used to describe a combination of three or more anti-HIV drugs.

The general recommendation is to use a minimum of three antiretroviral drugs. If one drug is taken on its own, it has been found that, over a period of time, the drug stops working. HIV reacts to the drug in the person's body and changes, so that the virus is no longer affected by the drug. The virus then starts to reproduce itself the same

way as before. If two or more antiretroviral drugs are taken together it vastly reduces the rate at which resistance develops. (Nepal national guideline for ART, 2004)

2.2 The CD4+Test

The main cell HIV attacks is called a T-helper cell or CD4+ cell. The T-helper cell plays an important part in the immune system. It helps to co-ordinate all the other cells to fight illnesses. Any damage to T-helper cells can have a serious effect on the immune system.

The T-helper cell has a protein CD4+ on its surface. HIV needs the CD4+ in order to enter the cells it targets to infect. If HIV is able to enter the T-helper cell, it can take over the cell and then use it to duplicate itself. When HIV produces more copies of itself, the amount of CD4+ cells decreases. As a result, there are fewer cells available to help the immune system to fight illnesses.

The CD4+ test measures the number of CD4+ or T-helper cells in your blood. The more CD4+ cells in your blood you have per cubic millimeter, the stronger is your immune system. The stronger the immune system, the better the body can fight illnesses. A low CD4+ count does not mean that you will certainly become ill, but it makes it more likely. (Nepal National Guideline for ART, 2004)

2.2.1 Criteria for getting ARV treatment

The ministry of health and Maiti Nepal (NGO) in Nepal announced in 2003 to the people living with HIV/AIDS to get CD4+ count assessment. And government of

Nepal, and Maiti Nepal put criteria that those people who has CD4+count<200 /mm³ will fall in the treatment group. In Both DAART and Non-DAART group CD4+ cell count was done in same time and treatment also stated at same time in Septembet2003, and in this study the baseline CD4+ count and the after one year of CD4+ count was take in same time for Both group.

2.3 The Viral Load Test

Viral load refers to the amount of HIV in your blood. The result of a viral load test indicates how much virus there is in the blood and which can harm the immune system.

The higher the level of HIV in your blood, the faster your CD4+ cells are being destroyed by HIV. The lower the viral load, the stronger is your immune system.

A viral load test can provide important information about the likely course of HIV infection. There are different viral load tests available. Each of them uses a different technique to measure the amount of HIV in the blood. The results from the different tests tell you whether the viral load is low medium or high. (Nepal National Guideline for ART, 2004)

2.4 Adherence

The term adherence means taking the drugs exactly as prescribed. It also means taking the drugs on time and following any dietary restrictions.

There are a number of different aspects with regard to making adherence successful. Firstly, there is a need for education, which is needed before the patient starts taking the medication. The person needs to know basic information about HIV and its manifestations, the benefits and side effects of ARV medications, how the medications should be taken (and this needs to ensure that taking the ARV is fitted into the person's lifestyle) and the importance of not missing any doses.

There is also a need for ongoing support to ensure that adherence is maintained. This should involve adherence assessments at every health center visit, reinforcement of adherence principles to the patient by treatment supporters and the continuous involvement of relatives, friends and/or community support personnel.

Other things that can be done to help with adherence include minimizing the number of pills that need to be taken and also the frequency of dosing, avoiding dietary restrictions, and providing the medication free of charge for those who cannot afford treatment.

There can be additional issues and difficulties with ensuring that adherence can be maintained at a high level in certain groups of people, such as pregnant women.

2.5 Side-effects

What is referred to as side effects is when the drugs affect the body in ways other than those that are intended. Most of the anti-HIV drugs have side effects. It does not mean that everyone who takes them will experience side effects. Generally, one cannot predict the likelihood experience side effects or not. Some people only experience the side effects mildly and find them easily manageable.

The most common side effects are nausea and feeling tired. Side-effects are often referred to by the grade of the effect, and the grades range from mild to moderate to severe to life-threatening*. For example, it is considered a mild side effect if a person has 2-3 vomiting episodes a day. Life-threatening side effects such as extreme limitations in daily activity and hospitalization are rare, but are still threats to some. (Nepal National Guideline for ART, 2004)

2.6 Literature Review

2.6.1 Rationale

The 90% of AIDS related deaths occur in poor countries. Despite a rapid advances of new antiretroviral therapies the maximum benefits has been only in developed countries. The main hurdle has been the higher cost and the lack of health infrastructure necessary to use them in less developed countries. (Farmer P. et al., 2001). Yet effective the treatment is the other factor, the compliance of treatments plays a vital role in reduction of AIDS related deaths. In developed countries it is worth to note that the knowledge attitude and practice of people receiving ART plays a vital role in its effectiveness. As the researches show the potential transmission of HIV from

mother to child can be prevented by 50 %, if HIV is detected and treated with short course zidovudine during late pregnancy (Shaffer, 1999). It is also proven that good antenatal cares under a specialist team can significantly reduced maternal transmission of HIV infection. (Hooi, 2004). It is also significant to note that the availability of an increasing number of antiretroviral agents and the rapid evolution of new information has introduced substantial complexity into treatment regimens for persons infected with human immunodeficiency virus.

In Nepal the national HIV/AIDS policy has identified the free antiretroviral treatment for pregnant mothers as a key policy. The policy states “development of standard protocol for anti-retroviral treatment for pregnant women known to be HIV positive and ensure that there are sufficient resources to implement PMTCT free of cost in selected facilities” as important issue. It is has been essential to analyze the effectiveness of such treatments to understand the direction of the HAART and DAART interventions.

The mechanism of antiretroviral drugs is it incorporates into retroviral DNA by reverse transcriptase to make a nonsense sequence that terminates DNA chain synthesis. The reverse transcriptase is 100 times, more susceptible to the drugs than mammalian DNA polymerase. This has activity against HIV consequently reduces the viral load in HIV positive people. (Remington,1995). In Nepal currently the regimes as ART are Lamivudine, Zudovudine and Nevirapine twice a day in both HAART and DAART settings.

Maiti Nepal MAITI Nepal was born out of a crusade to protect Nepali girls and women from crimes like domestic violence, trafficking for flesh trade, child prostitution, child labor and various forms of exploitation and torture. A group of socially committed professionals like teachers, journalists and social workers together formed Maiti Nepal in 1993 to fight against all the social evils inflicted upon our female populace. Most of all, its special focus has always been on preventing trafficking for forced prostitution, rescuing flesh trade victims and rehabilitating them. This social organisation also actively works to find justice for the victimized lot of girls and women by engaging in criminal investigation and waging legal battles against the criminals. It has highlighted the trafficking issue with its strong advocacy from the local to national and international levels.

Maiti has no literal translation but it denotes a girl's real family, where she was born into. The word has a sentimental value especially for a married Nepali woman who has no longer any right towards her parents or their property. She then becomes an outsider belonging solely to her husband and her family forever. The famous song, Maiti ghar timro haina paryi ghar jao--meaning "this is not your home, you belong to an outsider (husband)" says it all. Maiti Nepal however is home to all women and girls--whether married or not--who are exploited, their rights grossly violated and neglected by family and society likewise. It was a crusade to find such victims a home for their protection from social evils that gave birth to this NGO in November 1993.

It was started by a handful of conscious professionals like teachers, journalists, and social workers committed towards combating the social crimes like domestic

violence, girl trafficking, child prostitution, child labour and various forms of female exploitation.

Maiti's focus has always been on prevention of girl trafficking, a burning issue for Nepal. Rescuing girls forced into prostitution and helping to find economic alternatives have been our key struggle. Rehabilitation, although not literally possible especially with former prostitutes, is one major challenge we have accepted in our work. The practical steps would be to counsel them and provide non-formal education on health, laws, basic reading and writing. They are also trained to develop income-generation skills and provided Maiti's shelter until they are ready to stand on their feet. The sexually abused girls, abandoned children, potential victims of trafficking, destitute women, prisoner's children, returnees from Indian brothels, girls and children infected with HIV and Hepatitis B, intercepted girls are the major target groups or say, beneficiaries of our programs.

Hospital Patients- Majority of patients in Hospital was the worker who returns from the city in India after long time and most of them are infected with HIV. There were few female in hospital group were most the general population and few female sex worker from Kathmandu.

2.7 Literature Review from Previous Study

2.7.1 Social support and adherence

The most important, reasons for missing medication doses, psychological symptomatology, life-stressor burden, social support, ways of coping, coping self-efficacy, the quality of their relationship with their main physician, and barriers to health care and social services. Analysis indicated that consistent adherence was reported by persons who drank less alcohol, had a good relationship with their main physician (Heckman BD. et al., 2004)

In a large, multicenter survey, personal and situational factors, such as depression, stress, and lower education, were associated with less certainty about the potential for antiretroviral therapy outcome and one's perceived ability to adhere to therapy (Reynolds NR et al., 2004)

Adherence was not different between racial and gender groups, nor was total barrier score. However, individual barriers were differentially endorsed across groups. Rather than relying on demographic predictors, which may be only an indirect marker of adherence, evaluations of adherence should examine the psychological and social barriers to positive adherence outcomes in individual patients (Ferguson TF et al., 2002)

2.7.2 Well-being

Overall, well being was moderately stable over the two-year follow-up period, although somewhat affected by symptom changes and immunologic/virologic outcome (Saunders DS & Burgoyne RW, 2002)

The results of the analysis reveal that multiple factors affect wellbeing for HIV/AIDS male outpatients receiving HAART, including severity of depression, deterioration of work function, inconvenience resulting from medication schedules and medical appointments, lack of social support, negative stressors, and adverse effects of HAART (Yen CF et al., 2004.)

Self-reporting indicates that Health Related Quality of Life is severely comprised in PLWA in Stages 3 and 4 and limitations in the four domains of mobility, usual activities, pain/discomfort and anxiety/depression constitute major problems for PLWA. In an area of high HIV prevalence, the provision of appropriate, multi-disciplinary health care services to PLWA presents a major challenge to the health services (Hughes J et al., 2004)

2.7.3 DOT_HAART

Experience with DAART to date has been limited to pilot studies or retrospective comparisons. The prospect of simplified, once-daily antiretroviral therapy holds promise for DAART. However, improvements in antiretroviral therapy may also improve outcomes in patients taking therapy on a self-administered basis.. In future studies it will be important to compare DAART with self-administered therapy in terms

of initial virologic and immunologic responses, durability of responses, the development of antiretroviral resistance (Lucas GM; Flexner CW; Moore RD, 2002).

Adherence was higher for supervised than for unsupervised medication administration ($P < .0001$), a finding that supports use of daily supervision of once-daily regimens. Moreover, DAART should incorporate enhanced elements such as convenience, flexibility, confidentiality, cues and reminders, responsive pharmacy and medical services, and specialized training for staff (Altice FL et al., 2004)

With the collaboration of Haitian community health workers experienced in the delivery of home-based and directly observed treatment for TB, an AIDS-prevention project was expanded to deliver HAART to a subset of HIV patients deemed most likely to benefit. The inclusion criteria and preliminary results are presented. We conclude that directly observed therapy (DOT) with HAART, "DAART", can be delivered effectively in poor settings if there is an uninterrupted supply of high-quality drugs (Farmer P et al., 2001).

A similar DAART effort was launched in Boston for patients with drug-resistant HIV disease who had experienced failure of unsupervised therapy. In both settings, community health promoters or accompagnateurs provide more than DOT: they offer psychosocial support and link patients to clinical staff and available resources. DOT-Non-DAART in these 2 settings presents both challenges and opportunities. These models of care can be applied to other poverty-stricken populations in resource-poor settings (Behforouz HL; Farmer P; Mukherjee JS, 2004)

Preliminary findings show that a DAART program based in 3 public HIV/AIDS clinics was feasible in a low-income urban population. Effective communication between the DAART staff, the medical providers, and the pharmacy is essential for the successful implementation of this program (Wohl AR et al., 2004)

2.7.4 Scoring of the WHOQOL-120 HIV Instrument

The WHOQOL-120 HIV produces a quality of life profile. It is possible to derive six domain scores, 29 facet scores, and one general facet score that measures overall quality of life and general health. Five of these are specific to HIV/AIDS,. The specific HIV facets are labeled F50 – F54, to distinguish them from the generic WHOQOL-100 facets. Each HIV facet, like the WHOQOL-100, has four items to represent these facets. The six domain scores denote an individual's perception of quality of life in the following domains: Physical, Psychological, Level of Independence, Social Relationships, Environment, and Spirituality. Individual items are rated on a 5 point Likert scale where 1 indicates low, negative perceptions and 5 indicates high, positive perceptions. For example, an item in the positive feeling facet asks "How much do you enjoy life?" and the available responses are 1 (not at all), 2 (a little) 3 (a moderate amount), 4 (very much) and 5 (an extreme amount). As such, domain and facet scores are scaled in a positive direction where higher scores denote higher quality of life. Some facets (Pain and Discomfort, Negative Feelings, Dependence on Medication, Death and Dying) are not scaled in a positive direction, meaning that for these facets higher scores do not denote higher quality of life. These need to be recoded so that high scores reflect better QoL. The scores from the four items in the Overall Quality of Life and General Health facet can be summed and

presented as part of a profile. Items are organized by response scale (capacity, frequency, intensity or satisfaction). Instructions for calculation of scores are given below. These follow the syntax file, which can be obtained from: The WHOQOL HIV Coordinator, Mental Health: Evidence and Research.

2.7.5 Calculation of domain score

Each facet is taken to contribute equally to the domain score. Domain scores are calculated by computing the mean of the facet score within the domain, according to the following formulae. As negative items have had their scores reversed, the facets are summated according to the procedure given below. Scores are then multiplied by four, so that domain scores range between 4 and 20.

2.7.6 Reverse negatively phrased items

Reverse 6 negatively phrased items

RECODE Q3 Q4 Q5 Q8 Q9 Q10 Q31 (1=5) (2=4) (3=3) (4=2) (5=1).

(This transforms negatively framed questions to positively framed questions.)

The mean score of items within each domain is used to calculate the domain score. Mean scores are then multiplied by 4 in order to make domain scores comparable with the scores used in the WHOQOL, so that scores range between 4 and 20.

2.7.7 Calculate Domain Scores

Compute domain

scores

$$\text{Domain 1} = (Q3 + Q4 + Q14 + Q21)/4 * 4$$

$$\text{Domain 2} = (Q6 + Q11 + Q15 + Q24 + Q31)/5 * 4$$

$$\text{Domain 3} = (Q5 + Q22 + Q23 + Q20)/4 * 4$$

$$\text{Domain 4} = (Q27 + Q26 + Q25 + Q17)/4 * 4$$

$$\text{Domain 5} = (Q12 + Q13 + Q16 + Q18 + Q19 + Q28 + Q29 + Q30)/8 * 4$$

$$\text{Domain 6} = (Q7 + Q8 + Q9 + Q10)/4 * 4$$

(These equations calculate the domain scores. All scores are multiplied by 4 so as to be directly comparable with scores derived from the WHOQOL-100)