

Chapter I

Introduction

The Visceral Leishmaniasis constitutes a complex disease caused by protozoa of the genus *Leishmania*. The genus is characterised by two alternate forms of development, eg.-the intracellular amastigote form that occurs in man and in other vertebrate reservoir animals, and extra-cellular promastigote form that occurs in the invertebrate vector sand-fly. There are 3 types of Leishmaniasis: cutaneous, mucocutaneous and visceral. Cutaneous is caused by *Leishmania tropica major*, the mucocutaneous is caused by *Leishmania brazilliensis* and *mexicana*, where as visceral is caused by *Leishmania donovani*. Sand fly, belonging to genus *Phlebotomus* and *Lutzomyia*, has been known to be a vector, while some of the Leishmaniasis has been known to be both anthroponotic and zoonotic.

Visceral Leishmaniasis is a disease of insidious onset caused by *Leishmania donovani* and transmitted by being bitten by infected female sand fly. The disease is characterised by fever, anaemia, lymphadenopathy, hepatosplenomegaly, alteration in serum albumin ratio, with massive antibody production, and gradual and severe suppression of cell mediated immunity. If not treated in time, the disease proves fatal.

Leishmaniasis is prevalent both in tropical and sub-tropical countries. It is one of the major problems of public health concern in Nepal. Globally about 600,000 newly reported cases estimated annually and over all prevalence of disease estimated at 12 million with 350 million people at risk (Pan-American Health Journal,1994). In Nepal

overall prevalence of Leishmaniasis (Visceral) was estimated at 9,360 with a high incidence of 44.60/100,000 population and case fatality rate at 13.16 %, which is quite high in comparison to other countries. Besides, population at risk was estimated at 5.5 million. In majority of cases, mortality results from Pneumonia, Renal failure, Severe dysentery, Toxaemia and Septicaemia (WHO, 1990).

The disease had long been confused with Malaria. The parasite of Leishmaniasis was discovered in 1900 by William Leishman in splenic smears of British soldier, who died from fever contracted at Dum-Dum, India. So, it is known as Dum-Dum fever or Kala-azar. In 1903, Charles Donovan found parasites in splenic smear. So the vector has been finally recognised as *Leishmania Donovanii* after the name of two scientist William Leishman and Charles Donovan.

Kala-azar (VL), a vector borne disease has been known as an endemic disease in the sub-continent of south Asia for several centuries. It was regularly found in southern plain of eastern Terai of Nepal during early 1950s (Raghvan). However there was a gradual decline in the number of cases of VL during 1960-1970s. This decline was attributed to Malaria Control Program from insecticidal spraying which was also effective against control of sand-fly vectors of Kala-azar. Discontinuation of the program is due to lessened donor support which led to a decrease in control activity with increased sand fly population, resulting in resurgence of Kala-azar in population of southern plains of eastern Terai. In 11 districts adjoining open borders of Kala-azar endemic areas of Bihar in India has now become a major public health problem.

Mortality from Kala-azar is an important indicator not only to assess the health status of people, but reflects many things such as quality of health care as well as socio-economic status and environmental status in that area. For every one death, 4-5 people

were found suffering from complications such as pneumonia, severe dysentery, profuse bleeding from nose and inside brain, renal failure, septicaemia and toxæmia etc. There is a widely agreement that early diagnosis of the problem and prompt treatment of the case or complications is the key in reducing the mortality in developing countries (WHO,1984). This entails are not only making facilities available but also more realistic approach, that is facilities should be available, accessible both physically and economically.

The Ministry of Nepal is in the process of finding ways to face challenges of the changing environment demands and health care system. Its goal is to have equipped diagnosis and treatment facilities in 30-40 districts, and to reduce mortality from Leishmaniasis by 50% by 2000-2010 (EDCD, DHS, 1995).

Department of Epidemiology and Disease Control Division in collaboration with the Department of IEC is in the process of decentralising the service to district health system to empower the community people to increase awareness which helps improve the health status of people and decrease illness, complications, death and disabilities from Leishmaniasis.

The essay in chapter II describes the issue of high mortality and morbidity of the disease and reasons from Leishmaniasis. The reasons behind it are the lack of information on disease, low socio-economic status, ineffective surveillance mechanism, inactiveness of community health workers for providing services (case-detection), lack of laboratory facilities for diagnosing disease, poor referral system at community level, lack of facilities for prompt treatment, along with problem of accessibility and affordability of people to avail services. The essay also describes the need of community health workers for case detection and prompt treatment, and describes the

ways to mobilise them to become more effective in conducting program. Some strategies for preventive control of the disease has also been discussed in this essay.

Further, the essay suggests and describes some of the solutions for, how to increase case detection, improve referral services and prompt treatment. It also describes an access to good quality service, emphasizing massive awareness among the community people, and integration of disease control service with other health services (EDCD, 1994). A detail description of both preventive and curative aspect of the disease has been mentioned in this essay with more emphasis on health education program.

The essay has described epidemic measures in controlling epidemics of the disease. The role of CHWs has been more focused because of their importance and involvement in the community and the success of program with their mobilisation. It has also defined the problems and constraints. Finally the essay concludes that case detection and prompt treatment service to people at risk is the most appropriate intervention for the cause of high mortality and morbidity. The central fact is that most Leishmaniasis complications can not be prevented and predicted, but it can be treated successfully. Therefore working to ensure adequate care for early diagnosis and prompt treatment is fundamental to this thesis. It is built on an idea that when a young child (5-20 years) contracts disease, the key to his/her survival is how long it takes his/her to receive adequate diagnosis and treatment care.

According to situation analysis done about early diagnosis and treatment of VL, My suggestion is to provide training for case detection and treatment service to the Kala-azar patients through trained health workers in Harinagar PHC, Sunsari (Nepal) It is also described that PHC in Sunsari district lacks diagnosis and treatment facilities.

Data exercise done for needed assesment compels that facilities for diagnosis and treatment has to be provided at PHC in Sunsari districts.

The world health organisation addressed this issue in a publications entitled “Leismaniasis control” at Ist referral level to reduce mortality and morbidity. The Ist referral level is defined as the District hospitals or Sub-district hospitals or Health-centers to which people are usually sent when they are sick or in difficulty. Unfortunately in Nepal these functions can be performed only at teaching, central, zonal and few district hospitals to which most people do not have access.

Even though it is not possible for PHC to carry out diagnosis and treatment for Kala-azar, there is still much that could be accomplished at this level. PHC could provide basic services such as early case detection, or basic conventional treatment like antibiotics administration, haematinics or IV drips, provision of referral services in time to district hospital for diagnosis and treatment of the case. These simple measures would mean that people would reach hospital in better condition and in time and thus have more chances of survival.

At PHC in Sunsari district diagnostic and treatment facilities can be introduced with training to the health workers along with an adequate support, regular supervision, monitoring, and evaluation of their performances for the study of work progress and achievements.

In comparison to hilly regions in Nepal, Sunsari district has on an average a better transportation infrastructure in most of its area, hence access to district hospital can be minimized. The literacy rate in eastern development region of Nepal, in both sexes is from 35-39% which is a bit higher than National level (RHS, 1996). Education level of Sunsari district though is not good, but in comparison with hilly people in

Nepal, it is definitely better, hence the decisions on different aspects of Leishmaniasis can be taken with slight motivation. The attitude of seeking health care in time can be increased with a mass health education to the community people and also by community participation.

Primary Health Center is a good point in which patients can be assured of better prognosis of disease if treated in time. PHC is the facility where cases of Leishmaniasis or complications from Leishmaniasis can be tackled, stabilised and referred to district hospital in time. The main objective of this study is to improve services for controlling the Leishmaniasis disease and to reduce mortality and morbidity from disease through the mobilisation of the community health workers for an increase in case detection, and to make referral services more effective and reliable for the promotion of early diagnosis and treatment of VL at Harinagar PHC. The specific objectives of the study is to provide training to health workers, to implement screening services through CHWs, to provide IEC and other supports, to regularly supervise, monitor the performances of CHWs and the programs, and to evaluate the impact of screening services for Leishmaniasis among young children age 5-20 years in Harinagar PHC.

The main focus of the study is to provide screening services for the people at risk through the trained CHWs at Harinagar PHC and getting them referred to a district hospital for laboratory diagnosis and treatment. Therefore, training for increased case detection and treatment is a major component of the proposed plan. The purpose of this training is to get health workers acquainted with how to screen people at risk of Kala-azar and how to develop their skill for communication with risk people.

The proposed plan also includes provision of IEC materials (on Leishmaniasis to create awareness among risk people targeting at early diagnosis and treatment)

through PHC before, during and after training. It will help people know more about Leishmaniasis and its control measures, and help them memorize the information given by CHWs. The monitoring and supervision of screening service will be done as planned. Monitoring will help to look at work progress, performances of staffs and achievements of services whereas supervision will help health workers perform their job better by improving their knowledge. After completing one year of screening service to people at risk of Kala-azar at Harinagar PHC, plan has been made to evaluate the impact of screening services on people who were given the services, which will be the answer to the question-whether or not people are satisfied with the service provided by trained community health workers.

The study is still in preparation phase, so data collection for the evaluation of the impact will be difficult. Data collection comprises of in-depth interview with the community health workers at PHC and medical personnel at district hospital along with focus group discussion with risk group of people. Focus group discussion is essential for exploring in-depth information on Leishmaniasis. The competency of the health workers for their services, their regular visits in the community, their contacts with risk people are all included in data collection instruments.

The study strengthens the capacity of Ministry of Health in Nepal, to design, implement screening services with prompt treatment in Primary Health Center and evaluate the program, informs the decision makers about the importance of Leishmaniasis and its control along with how to reduce mortality from VL and shares information on the most effective strategies to reduce it