CHAPTER VI

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The discovery of HIV after the emergence of AIDS and tracing of its origin in all the affected countries is a retrospective approach in the attempt to reconstruct the evolutionary pathways and to understand the Natural History of AIDS among the mankind over time and space. On the other hand, prevention and control of the disease by way of changing people's lifestyle in their own natural settings, trial of efficacious vaccine, staging of HIV infection, viral load reduction by anti-retroviral drug therapy, treatment and care of the opportunistic infections etc., with attempts to understand the natural course of the disease at the molecular and clinical levels are the thrust areas for the prospective investigations. Without a curative medicine, behavioural and bio-medical researches by using the interdisciplinary tools play a pivotal role in all these endeavours to guide the policy makers of the Government, Non-Government Organisations and other agencies whosoever involved in facing the challenge to combat this dreaded disease.

In this thesis, a rigorous attempt has been made to study on the Natural History of AIDS among the IDUs of Manipur state, India, with special reference to their risk behaviours and bio-medical aspects for the first time, by considering quite a number of parameters inclusively on

1. *Demographic and socio-economic background of IDUs,*
2. *Causes of drug abuse in Manipur,*
3. *Trend of behavioural changes in different periods of epidemic,*
4. *Risky sexual behaviours of IDUs,*
5. Development of clinical features and other associated diseases,

6. The anthropometric changes likely to be an indicative feature of AIDS and

7. Nutritional status of infected IDUs.

Assessments on demographic and socio-economic characters and spectrum of risky behaviours over the last sixteen years (1980-96) were made from among 135 IDUs of the total 198 cases initially drawn from different detoxification and rehabilitation centres of Manipur including the central Jail at Khabeisoi, Imphal during 1994-96 through recall and personal observation methods. HIV diseases which are biologically manifested by clinical signs and symptoms, anthropometric parameters and nutritional indices were also investigated simultaneously for a period of three years and examined the progressive changes in all the four stages of WHO clinical classification of HIV infection.

The present findings have illuminated the paradoxical nature of the natural history of AIDS. It is in the sense that the HIV infection and AIDS with its traumatic physical and psychosocial impact as has been understood by the world community, is the disease claimed to be emanated first from among the behavioural deviants. As observed elsewhere in the world, Injecting drug users (IDUs) of Manipur acts as one of the potent vectors for transmission of HIV to the general population through their network interactions with other members of the society and or sexual relationships conditioned by the traditional social mores, customs and culture. In Manipur, the transmission of AIDS virus (HIV) might have been rooted sometimes in the early 80s with the initiation of drug abuse in the late 70s. With the report of HIV infection for the first time in a sexually promiscuous injecting drug user cum drug peddler during early part of 1990, the entire history of drug abuse and association of HIV infection may be classified altogether into three phases such as drug abuse epidemic
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with rapid increase in the magnitude of drug addicts during 1980 - 89 among the youths in the productive age groups, wide spread HIV infection among IDUs during 1990 -93 and present study period from 1994 to 1996 during which many are observed to be dying due to AIDS (11%) marking the beginning of AIDS epidemic in Manipur. However, HIV infection was suspected to have occurred well ahead of 1990 i.e. during the period of 1980 - 89 as a large number of drug users initiated drug injection with rampant sharing of injecting equipments in almost about 100%.

As far as the demographic and socio-economic complexities of drug abuse and subsequent HIV transmission is concerned, the problem stemmed up from the younger age group with mean age of drug initiation of about 14 years. However, the majority of them belonged in the age group from 21 to 30 years while only a few of them belonged in the age group above 30 years. Geographically, urban areas are affected more than the peri-urban and rural areas while the ethnic variation of drug injection habit and HIV infection shows in proportionate with the distribution pattern of Meiteis, Tribes and Muslims among the general population. Unemployed youths belonging in the higher educational category are seen more susceptible to drug abuse and HIV infection in Manipur. Furthermore, joint families in lower income group and nuclear families in higher income levels shows a characteristic pattern of greater risk of drug abuse and HIV infection as compare to the higher income joint and lower income nuclear families. By the mean time, comparison of unmarried and married drug injectors have shown that unmarried injectors had greater promiscuity in sex than the married injectors as reflected by the higher frequency of sexual exposures with multiplicity of sexual partners and types of sexual intercourse with or without using devices for safer sex. With all these factual informations, tracing of the root causes of drug use habit has been the primary task for understanding of the natural history of AIDS in the present context.
Traditionally usage of psychotrophic substances such as tobacco, marijuana, alcohol etc. among the senior members of the family and the community for ritual and recreational purposes were at large considered as a heritage of age old culture inherited from legendary time to the contemporary patriarchal society of Manipur. The connotation for the use of drug in those days was usually to relief pain and stress, and sometimes, for attaining enjoyment in rare social occasions. But it was not a practice mainly for habitual use of these substances. And moreover, it was strictly prohibited for the children and youths. This very concept is no longer true in present day context of Manipur. With the evolution of the technological know-how, new synthetic drugs that are more powerful and addictive than those used before, have been habitually using with different methods of consumption among a number of youngsters and school going children with greater risk of HIV infection. Initiating with pills and supplemented by alcohol, the young users are coming down to heroin - the last derivative form of opium with gradual changes in the old concepts and methods of using drugs. While many of them said, curiosity and pleasure seeking (77%) as their main reason for using drug, still others commented frustration, worry, tension (14.8%), etc. as the other reasons. Peer influences (21.5%) and falling as victim (3.7%) into drug trafficking network due to poverty, unemployment, etc. are other man made causes for drug misuse which need to give a serious thought for a secure and safety social environment.

Mechanical availability of drugs in the State as being in the proximity of Golden triangle which is the largest opium production area in Asia at the border of Myanmar, Thailand and Laos, and its connection to the rest of the country (India) through NH. No.39 has been claimed by many as the main cause of higher drug misuse and HIV prevalence in the State. Perhaps, it might be true as far as geo-
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Graphical affinity and human interaction across the border is concerned. But, it is imperative that unlike in other countries, the children and the youths are easily fallen into as victims with lesser degree of affection among the higher age group. Other neighbouring States - Mizoram and Nagaland which share the same porous international border with Myanmar and more or less equidistant from the so called *Golden triangle* has comparatively reduced but with differential prevalence rates in both drug abuse and HIV infection. Arunachal Pradesh has not been reported for HIV infection till 1994. However, the incompatible mind among the younger age group with innumerable external influences of human affairs seems to be one of the most important factors for drug misuse. Therefore, theory of geographical location in explaining as the main cause of high prevalence of HIV and drug abuse needs reconfirmation.

There are several other theories of how children and young ones are involved in drugs in their teenage. Among others, ethnographic studies have found the association of religious festivals with a large number of youths using intoxicating psycho-active substances. As for example, observation of *Shiva - ratri* with the religious sanctity of *Lord Shiva* was found one of the turning points for hundred of youths to initiate drugs ranging from Ganja to Heroin. In such similar occasions, it was neither considered illegal nor punishable for breaching of the *Customary Law of Taboos*.

Manipur has such a pluralistic society that observed religious occasions for almost every month in a year which made less time available for the majority of the children to give attention in their studies. Meanwhile, the land and its people with their ethos has provided a wide angle avenue for the young minds to express their anguish feelings and adapt in any easily available risk behaviours to feel themselves self-containment. Another suspected cause is the influential hospitable offers
by the drug peddlers and pushers in order to attract new recruits for expansion of their market network.

Under such circumstances, the so called theories of demand reduction are widely advocated preventive concept over the geographical issues of drug distribution. Without in-depth researches, it is therefore, a bit early to jump into the conclusion that the causes of high prevalence rate of drug misuse and associated HIV is due to its geographical location only at the proximity of Golden Triangle. In this regard, concept of susceptibility is more considerable than the theory of availability. So, researches in the areas of local traditional and value systems to develop a safety measure for its own people from such external influences that might lead in dangers are still lacking.

Though the causes of using drug are varied, the growing association of drug injection habit with the rampant HIV transmission since its detection among the IDUs in the early parts of 1990 is more important and has health implications. The degree of seriousness has reached its peak point while the innocent mothers and their children are caught in the triad of Drug use, HIV and AIDS epidemics. So, unlike elsewhere in the world, the problem of drug abuse and AIDS in Manipur may be described jointly as the basis of the natural history study on AIDS.

In all the episodes of the epidemics, the behavioural and biological responses of the affected individuals do change variably. Nearly about 82% of the study sample initiated drug during 1980-89, and the rest 18% of them joined newly in the network of HIV infection during 1990-93. The beginning of AIDS epidemic with news of random death in every locality has been noted during the present study period from 1994 to 1996. Though relapse to drug injection occurred among old
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users, only about 3% of the study sample have initiated injection drug use during early part of 1994. During 1994 - 96, an improvement in the unsharing habits of injecting equipment is also seen as compare to the previous years. Though improper, the cleaning practices of the IDUs was also improved. With this, many of the study subjects had attempted to leave drug. Use of bleach solution for cleaning syringes and needles showed a discouraging figure of 1% during 1994 -96 as compare to 5% during 1990 -93. Though boiling of injecting equipment was strongly advocated, there was little increase in their practice for which the reasons are required to look into. As the epidemic advances, the sharing habit of injecting equipments reduced from 100% during 1980-89 to 56% during 1994-96 through a stage of 88% during 1990-93. Reduction in the activities of abusing drugs is also slightly felt during 1990-93 as lesser number of injectors (34.07%) initiating injection with a marginal decrease in sharing habits (11.45%) and increased cleaning habit with plain water to 71.07%. The height of fear psychosis was double fold during this period with a large number of patients discharged from the hospitals as soon as the HIV sero status was detected. Unfortunately, safer sex in terms of condom use has shown a discouraging picture with 92% of the sexually exposed IDUs did never practice it. Though IDUs were less active sexually during the drug using period, majority of them had responded to have return their normal libido when they were off the drugs.

It is also observed in the present study that majority of the IDUs (both HIV infected and non-tested group), do not have AIDS. Stage - I of WHO clinical classification system defined by the asymptomatic condition and persistent Generalised Lymphadenopathy (PGL) consists of 45.2% of IDUs, as compare to stage - II (29.6%), III (17.03%) and stage - IV (8.15%) respectively. According to the frequency distribution pattern of the PGL, stage - I of HIV infection is supposed to have
114 (84.4%) cases of individuals. However, only 61 cases i.e. 45.2% of HIV infection comprises of stage - I while the rest 53 (39.3%) cases had been manifested for both PGL and other AIDS defining clinical signs.

Symptoms of the acute HIV syndrome which are usually appeared within days to weeks were unable to examine properly in the present study on IDUs because the exact date of HIV infection and their subsequent date of seroconversion was impossible to detect timely for reasons mentioned elsewhere in this text. It implies that most of the study subjects might have been infected with subsequent seroconversion long before recruitment for the present study.

The stage - II HIV infection as denoted by the appearance of either one or more signs such as Generalised pruritic dermatitis, Herpes zoster, Angular cheilitis, etc, has been detected in the study sample after a mean age of 6.1 years of their estimated date of seroconversion. Stage -IV with the characteristic clinical signs such as HIV wasting syndrome with > 10% body weight loss; diarrhoea > 1 month; fungal infection, extrapulmonary tuberculosis, etc. with performance scale of >50 % in bed in a day were observed after a mean age of 6.9 years. This proves that the progression of HIV infection among injecting drug users in Manipur is comparatively faster. With this, the natural history of AIDS still remains incomplete in Manipur suggesting us to carry out further researches from all possible disciplines.

Using anthropometric tools in the present study, parameters such as body weights, mid-upper arm circumference and skinfolds over triceps and biceps measured a general decreasing trend from grade - I to grade- IV HIV illness with steady erosion of immune system. While comparison of anthropometric parameters is made between the onset of study and the last follow-ups, an improvement was observed
specially in stage - I and II of HIV illness during the last contact. A point may be noted that infected subjects were measured shortly after the detoxification of prolonged heroin addiction during the onset of study while the last follow-ups was done after a long gap of drug abstinence. It suggests that prolonged use of heroin with sudden detoxification in a month or two might have play a role to bring such differences not only in the gross physical manifestations but also in the bio-chemical levels. However, there is no significant difference among the patients in stage III and IV as observed during the onset of the study and last follow-up period implying more or less similar impact of HIV infection in later stage of AIDS. As indicated by the different percentile values of median body weight changes, a HIV infected IDU in stage - IV of illness may have a variation in his body weight ranging from a minimum of 38.3 Kg. to a maximum of 54.9 Kg.

For the present study, about 50% of the IDUs in stage -IV suffered from severe undernourishment. These group of individuals were infected mostly with fungus, bacteria and even with protozoan affecting the gastro-intestinal system with the result of poor food intake and malabsorption. We could see no severe malnutrition in stage II and III patients when they are compared with asymptomatic individuals in stage -I. Signs of wasting is frequently appeared among the severely undernourished cases at stage - IV. This shows that the degree of undernutrition has also been deteriorated with the gradual progression of HIV illness. When the present findings on the levels of haemoglobin in all stages of HIV infection are compared with WHO guidelines for interpretation of Iron status, all the study subjects suffered from anaemia with a measure of mean haemoglobin level accounting 9.9 gm% for a corresponding mean weight of 43.1 Kg reflecting severe anaemic condition in stage - IV of HIV infection. The decreased in the body weight from stage - I to IV shows
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clearly a linear positive correlation with the decreasing trend of the haemoglobin levels among the infected IDUs. To reconfirm the impact of undernutrition further bio-chemical investigations such as serum albumin level, serum levels of vitamin, etc. may be done so as to give a better assessment of the nutritional status of the AIDS patients for therapeutic intervention and management.

Among HIV infected individuals, weight loss and malnutrition are concomitant with the result of differential immunity depletion. So, adequate food which is the source of all energy is suggested to provide timely to regain weight loss and correct protein energy malnutrition among the HIV infected persons. If an infected person fail to meet his food requirements, he suffered not only from loss of body weight but also from reduced ability to work, and diminish resistance to infection. If an adequate energy supply is not provided, some stored protein and fats will be burnt out to provide required energy for the minimum physiological activities. This is considered wasteful if continue for longer period with the result of wasting syndrome as often seen in cases of stage - IV HIV patients. Therefore, measurement of calorie requirement for HIV infected individuals to maintain the energy intake and expenditure balance for better management of nutritional disorder and prolonging the life span in the absence of a curative medicine is an important issue. The different levels of daily energy need among IDUs of Manipur at different stages of HIV infection with corresponding basal energy expenditure along with the changes in the activity and infection factors clearly shows that the basal energy expenditures are inversely proportional to the total energy needs as the disease progress from stage II to IV. From the trend curve, it is clearly observed that energy needs are reduced in stage-II HIV infection as compare to stage-I. Again from stage-II onward, the energy need increases. However, the basal energy expenditure shows a consistent
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decreasing trend as the disease progress from stage - I to IV. The exact mechanism for such trend of energy variation is not known. Perhaps, it may be suggested that as the disease advances with greater intensity of opportunistic infection, the body required more energy to cope the infection in addition to the maintenance of the normal physiological activities. Further investigations to determine the controlling factors of the variation between the energy need and expenditure balance is suggested.

Although, there have been no study assuming the interaction between nutritional status and neurological function (i.e. behaviour, cognition, and work performance), clinical observations of HIV infected persons indicated that such interactions exist in nutritionally compromised individuals, and that this topic deserves additional attention.

In the present study, identification of food items at different levels of HIV infection and system of affection to supply the total energy needs has not been covered. But the pattern of energy needs and expenditure balance for IDUs are examined to guide for comparison and selection of suitable food items which can provide required energy at their respective diseased condition and system of affection.

Meanwhile, the ever increasing prevalence rate of HIV transmission among the drug users and their associates has indirectly reveals the ineffectiveness of all kinds of prevention and control measures inseminated so far to both the affected and non-affected people in Manipur. The increasing number of drug relapse cases and marriage issues among the infected individuals knowingly are the reflection of the inconsistency of the awareness programme and counselling techniques with poor health education activities. But, the present study has shown that it is not the situation where there will be of no change at all. Changes are taken place in all the ac-
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tivities with signs of improvement from 1980 and more effectively during 1994-96. If severe efforts are given on good quality counselling and consistent health education as observed in the present study sample, it will be of a fruitful approach for the prevention of HIV transmission and control of affected individuals. The changes in the non-sharing habit of the study sample to the extent of 87% due to the counselling and health education is a radical one showing the positive aspects to live. Putting into jail is not the solution for the IDUs. Rather, it has been observed to create a new dimension of the problem in the society with a tendency of parriicide and or suicide as the likely out-come. Therefore, it is high time to conduct operational research to detect the lacunae on the IEC programme quality and implementation with a serious thought of impact evaluation so that timely correctional measures be taken up before spending huge additional amounts on the so called prevention and control programme. It is also right time, if not too late, to re-examine critically the type and quality of the counselling methods and standards of the counsellors.

While the issue of marriage and child birth arises among drug addicts who are really found HIV sero-positive, every family refuse it on eugenic concept. Ideally, most of the prevention programme edicted not to marry a girl or not to give birth to a baby on health and disease point of view. If one is married to a sero-positive person, condom should be always used to minimise harm and protect from HIV infection and STD. Together with all these complicated issues, many (11%) of the HIV positive IDUs are found now -a-days marrying after knowing their HIV status with problems of partner notification in future. In some quarter, it is proposing that HIV testing before marriage must be legalised. It is still in the rudimentary stage of awareness in this regard. It is again a high time to explore if there is any
solution to this through vigorous research before the problem is too messy in the general population.

Furthermore, political instability affecting all systemic parts of the State controlling machinery in the last few decades must be seriously looked into if there is any link to the present day development in drug trafficking and AIDS problems in and over the State. It is imperative that by what mistakes or laxatives has failed the social and traditional mechanism in these days to check and balance the risk as it had been generally doing in the past and to every society. What problem of the society has disabled the parents to protect their own children from the dangers of being trapped in the drug trafficking and HIV/AIDS, is another priority area for research. In no case, efforts should not be delayed in all the fronts if prevention is to be achieved successfully and timely.

Now, the complication increases double fold when drug menace is found very much associated with HIV and subsequent illness due to opportunistic infections. With the existing health care services in Manipur, majority of the participants felt that they are being neglected and ill treated at all levels. With the uncertainty of the diseases, the health workers and physicians have limitations in dealing with them. However, the HIV and AIDS is such a problem which can not be left alone for its immediate impact in the society. By the mean time, the economic impact of HIV and AIDS and challenges to the fundamental human rights such as rights to privacy, liberty, social security, work, education, equal protection of the laws, marriage and family life and rights to treatment and care cannot be ignored for reasons of political instability, economic disparity and socio-cultural inequalities.

On the other hand, timely treatment of opportunistic infection and anti-retroviral drug therapy is by and large a measure to contain the HIV infection. But,
hit and trial attempts of combined anti-retroviral drug therapy without conducting the viral load test in certain cases as has been observed in Manipur is equally dangerous and fatal with immediate side effect. However, the infrastructural limitations and technical lacunae cannot be left unaddress. On the other hand, it can not be waited that long for the arrival of sophisticated instruments and laboratory techniques if prevention and control of the disease is a must to be achieved in time in this part of the Globe too.

When a dilemma is being faced in the medical front, occurrence of relapse into risky behaviours among injectors in higher frequency in spite of the existing ideal IEC model for prevention of HIV infection has indirectly told us to how IEC programme are being implemented into what extent and intensity. Therefore, it is high time to give a serious and sincere thought on the impact evaluation of the HIV prevention and control measures with sound and scientific research so that quality control counselling, education and information may be imparted to all the workers in all the centres working for HIV and AIDS prevention. Such an effort must also come down to the prevention activities taken up at the family levels.

The present study on the natural history of drug abuse and HIV/AIDS with implication for the purpose of prevention and control of HIV infection may partially help if not fully to manage all these problems and provides some clues for further course of researches. Furthermore, with these knowledges and understanding of the regional nature of the problem, some of the research priority areas which needs to take up without delay are suggested below.

1. The existing IEC programme implementation should be assessed systematically and it needs to be strengthened.
2. The impact evaluation studies on the overall prevention and control measures taken up so far in the region must be taken up without delay.

3. The socio-economic impact of HIV and AIDS right from the family levels to the society and the quality of life for affected groups must be assessed so that feasibleness of effective prevention measures could be worked out.

4. The issues on the noncompliance of treatment among the patients must be studied thoroughly so that drug resistance on opportunistic infections could be avoided.

5. Complications of malnutrition among HIV infected individuals and nutritional profile has not been studied at all in this part of the country. Further in-depth researches are also needed in this aspects for better management of the disease.

6. Preliminary case reports are too scanty and incomplete for the understanding of the natural history of HIV and AIDS. Many a diseases such as Histoplasmosis, Cryptococcal meningitis, MDR-TB, Thrombocytopenia, Gastro-enteric complications, associations of Hepatitis -B and C, etc. must be properly investigated for better knowledge on treatment and management of the patients.

Last but not the least, the challenge of HIV/AIDS epidemic could be faced only when the operational research components are being added up in all the preventive services to guide for a successful implementation of the programme with timely feedback evaluation results.