

HIV/TB Co-Infection in People Living with HIV/AIDS - A Study on ART out-Patient Clinic of Seti Provincial Hospital at Dhangadhi

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Abstract

TB-HIV co-infection is common in People Living with HIV/AIDS (PLHIV). Tuberculosis is an opportunistic infection (OI). OIS are infections that occur more often or are more severe in people with weakened immune systems than in people with healthy immune systems. Human Immune Virus Infection (HIV) weakens the immune system, increasing the risk of TB in people with HIV. Infection with both HIV and TB is called TB-HIV co-infection. It is hospital based descriptive study conducted among the cases with TB-HIV co-infection. All the Patients consulting the investigating Physician of a department of medicine at a Seti provincial hospital in Far-western province of Nepal within study period were enrolled after informed consent.

Out of 597 cases of ART taking patient were studied. Among them 54 were diagnosed TB-HIV co-infection, 74% (40) were married and 26% (14) were

Unmarried. Among them 50% (27) were male and 50% (27) were female. Most of the cases were from village and semi-urban settings. TB-HIV co-infection is common opportunistic infection in patient with people living with HIV/AIDS (PLHIV).

Keywords: *TB-HIV co-infection, high prevalence in Nepal.*

Introduction

Tuberculosis is a specific infectious disease caused by *M. tuberculosis*. The disease primarily affects lung and causes pulmonary tuberculosis. Similarly, it can also affect intestine, brain, bones and joints, lymph gland, skin and other tissue of the body. The disease is usually chronic with varying clinical manifestations. The disease also affects animal like cattle; this is known as "bovine tuberculosis", which may sometimes be communicated to man. Pulmonary tuberculosis, the most important form of tuberculosis which affects man, will be considered here. AIDS, the acquired immune-deficiency syndrome (sometimes called "slim disease") is a fatal illness caused by a retrovirus known as the human immune-deficiency virus (HIV) which breaks down the body's immune system, leaving the victim vulnerable to a host of life-threatening opportunistic infections, neurological disorders, or unusual malignancies. Among the special features of HIV infection are that once infected, it is probable that a person will be infected for life. Strictly speaking, the

term AIDS refers only to the last stage of the HIV infection. AIDS can be called our modern pandemic, affecting both industrialized and developing countries. HIV/TB co-infection is common in People Living with HIV/AIDS (PLHIV). Tuberculosis is an opportunistic infection (OI). OIS are infections that occur more often or are more severe in people with weakened immune systems than in people with healthy immune systems. Human Immune Virus Infection (HIV) weakens the immune system, increasing the risk of TB in people with HIV. Infection with both HIV and TB is called TB-HIV co-infection.

National Tuberculosis center (NTC) has been implementing all 6 components of WHO stop TB strategies since 2006. The NTP also adapted TB-HIV strategy and policy in 2009. One of the most important and challenging components is TB-HIV as it is needed to co-ordinate between two programs for effective implementation of the activities. Moreover, it is also helpful to finding out more TB-HIV co-infected cases which increases TB case detection rate and

prevent the case fatality rate from TB. So, b considering the objective of the national strategies, NTC has been implementing its program activities through the Nepal Government networks and partners organizations which are extremely fundamental to scale up the program in the target areas. The TB-HIV co-infection rate (the prevalence of HIV infection among TB patients) in Nepal is 2.4% overall HIV prevalence in Nepal is estimated at 0.3% in the adult population and it is categorized as a concentrated epidemic. Thus, HIV prevention and care must be a priority concern for HIV/AIDS preventive and control programmers and TB care and preventive should be a priority concern for HIV/AIDS preventive and control programmers. This study was conducted in the department of Medicine, Seti Provincial Hospital Far-western province, Nepal in 2019.

Since yearly 1990s, the HIV/AIDS pandemic has transformed the TB infections to epidemic proportions. Sub Saharan Africa is the worst hit region in terms of the impact of TB-HIV where are third of the estimated 40 million people living with HIV/AIDS (PLHIV) are co-infected with TB. While HIV negative persons with latent TB have a 10% lifetime risk of developing active TB, those with HIV and AIDS co-infection have a 50% lifetime risk of developing active in a given year fueling an upsurge in the TB epidemic with an estimated annual mortality of million people worldwide mortality is reported to increase up to 4 fold in HIV-infected TB patients. The HIV infection is currently the greatest risk factors for new infection, and a potential risk for recurrence of TB. Development of active TB in HIV infected persons appears to be associated with increased HIV replication which is probably initiated by enhanced cytokine expression and is responsible for shortened survival rate in HIV infected persons. In turn, TB is a leading cause of replication morbidity and mortality in HIV infected persons globally, and accounts for 44% of all AIDS related deaths annually. The TB-HIV co-infection is not only concerning for adults. In South Africa, nearly 25% of children with HIV in one study developed TB during the course of year. Patient with HIV and drug resistant TB have higher risks of adverse drug reactions and drug toxicity, thus requiring increased monitoring by healthcare providers. It is a

recommended that TB-HIV programs be well-established before adapting drug-resistant TB-HIV interventions.

Methods

A hospital based-cross sectional descriptive study was conducted between Jan, 2019 to Dec, 2019 at ART center in Seti Provincial Hospital which located at Dhangadhi, Kailali in Far-western Province of Nepal. A questionnaire was used to obtain participant demographic data which include age, gender, HIV status, and Anti-Retroviral Therapy (ART). All patient consulting the investigating Physicians- team of Seti Provincial Hospital with in study period (one-year 2019 January/2019 December) were enrolled after informed consent. The sample size was 597 newly diagnosed ART taking patients at ART clinic. All the required investigations were done to diagnose TB e.g. sputum test for detecting Acid Fast Bacilli and chest x-ray for radiological finding. With usual detailed work-up, TB-HIV co-infection was ascertained. An intensive exploration was made in all the subjects into range of TB-HIV co-infection in PLHIV. The information and views collected from the subjects and their care takers (when the subject was not in position to respond) regarding the role of TB-HIV co-infection in PLHIV were sorted out. The information was kept confidential. Ethical clearance was obtained from the hospital Ethical Review Board of Social Development Ministry of Far-western province, Nepal.

Results

Out of the total of 597 cases enrolled in this study; 54 patients were diagnosed TB-HIV co-infection. 40 cases (74%) were married and 14 cases (26) unmarried. Among them 50% (27) were male and 50% (27) were female. The maximum number of males and females were 21-30 years age group. Most of the cases were from village and semi-urban settings. Great majority 78% were educated to various levels. Caste/ethnicities classified as per the system of Government of Nepal, 2007 for Free Health Services, District Health service report 2019 revealed: Upper Hill Caste (e.g. Brahmin, Chhetri, Thakuri, etc.), Disadvantage Hill Janajati (e.g. Magar, Rai, Tamang, Limbu, Sherpa etc.), relatively advantage Janajati (e.g. Newar, Gurung, Thakali etc.) and Lower cast

(e.g. Kami, Damai, Sarki, Badi etc.) as the commonest cast/ethnicities. Majorities of (50, 92.7%) Cases were Hindu and Minorities (4, 7.3%) cases were other religions like Buddhist, Muslim and Christian respectivel. Above mentioned all the cases were diagnosed in the form of pulmonary tuberculosis in the Seti Provincial Hospital where the study site was. The TB-HIV problem is currently seeming to be small but has been growing rapidly. As there is increasing trend in HIV infection, there could be a substantial increase of TB-HIV co-infected cases in future. Hence the TB and AIDS programs need to address issue of joint planning and protocols to deal with existing co-infected patients. Surveillance of HIV infection in TB-HIV co-infection in the country and in this connection extensive further study is needed among MDR-TB patients. All TB-HIV co-infected found in this study were males and females 54 cases. They were in reproductive age group of 20-40 years. The present study showed that TB-HIV co-infected cases suffering more commonly with pulmonary. The pulmonary TB was also reported by the study done in Far-western Province of Nepal. Among 54 TB-HIV co-infections 25 patients were sputum positive pulmonary TB, 19 patients Sputum negative pulmonary TB and 10 patients extra-pulmonary TB. The data was seen in following table:

Table 1. Marital status and male/female ratio

Marital Status	No of Persons	Percentage
Married	40	74%
Unmarried	14	26%
Male	27	50%
Female	27	50%

Table 2. Types of tuberculosis (TB)

Sputum positive	Sputum Negative	Extra Pulmonary
25	19	10

Discussion

HIV/TB co-infection is a serious problem with great impact for individual, family, society and nation. Its rate is reported to increase in recent years, more so in the developing countries. Nepal is also witnessing high and rising TB-HIV- co-infection in PLHIV, in various settings though we have a limited nationwide community-based data. Tuberculosis is an opportunistic infection (OI). OIS are infections

that occur more often or are more severe in people with weakened immune systems than in people with healthy immune systems. Human Immune Virus Infection (HIV) weakens the immune system, increasing the risk of TB in people with HIV. Infection with both HIV and TB is called TB-HIV co-infection. Hence, the prevention efforts are challenging and also required to be multi-factorial and multi-dimensional.

Tuberculosis is a serious opportunistic infection among people living with HIV/AIDS (PLHIV) worldwide; whereas HIV co-infection modifies the natural history and clinical presentation, and adversely affects the outcome of TB. The increasing TB in Nepal has also been attributed to the concurrent HIV/AIDS epidemic. This study shows high HIV infection rate among TB patients in comparison to the other studies conducted by national TB center (NTC).

Conclusion

The TB-HIV co-infection rate was persistently high in Nepal an indication that the TB-HIV/AIDS dual epidemic will continue to portend a huge challenge to Nepal for many years to come. Among the subject seeking medicine consultation for TB-HIV co-infection male and female were equally representatives in sex ratio and majority of cases were married rather than unmarried.

Declaration

Ethics approval and consent to participate-approval from Ethical Review Board Government of Province ministry of Social Development Far-western Province of Nepal Consent to participate taken from the subjects.

Keywords

TB-HIV co-infection; Deliberates self-opportunistic infection and leading cause of death in patient with PLHIV and elaborate the Tuberculosis, HIV co-infection, high prevalence, and TB diagnosis in Nepal.

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