

# TB/HIV CO-INFECTION STATUS AMONG THE NEWLY DIAGNOSED TB PATIENTS A Study from Eastern Nepal

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## Abstract

Tuberculosis (TB) is a leading public health problem worldwide particularly in the developing countries. The HIV epidemic has increased the global tuberculosis burden. Estimating the proportion of HIV infection among TB cases can act as early warning system for the spread of TB due to HIV in the country. The objective of the study was to know status of TB/HIV co-infection cases among the TB patients at DOTS clinic in BPKIHS, Dharan, Nepal. Three Hundred newly diagnosed TB cases attended to BPKIHS DOTS clinic were tested for HIV. Among 300 newly TB patients, 14 (4.7%) patients were HIV positive. All were males. The study has shown very high (4.7%) TB/HIV co-infection. This is an alarming situation. Similar operational research can be conducted in different parts of Nepal to know the exact scenario of TB/HIV co-infection, which is necessary for formulating national policy & guidelines for TB/HIV control in the country.

**Keywords:** TB & HIV Co-infection, TB, HIV, Nepal

## Introduction

Tuberculosis (TB) is a leading public health problem worldwide particularly in the developing countries. In view of the seriousness of the problem, WHO in 1993 declared it to be a global emergency, of the

1.7 billion people estimated to be infected with the TB bacillus, 1.3 billion live in developing countries.<sup>1</sup>

In South - East Asia Region, nearly 3 million cases and 700,000 deaths occur every year. This morbidity and mortality occurs mainly in the economically productive age between 15-60 years, directly affecting the nation's economics. The situations in likely to be further complicated by the rapidly expanding HIV/AIDS epidemic and the emergence of resistant strains of TB.<sup>1</sup>

There were 32,678 TB patients have been registered under National TB Program (NTP)

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in Nepal during 2004/2005. DOTS have been successfully implemented throughout the country since April 2001. The treatment success rate in DOTS is 88%.<sup>2</sup>

The total numbers of HIV Positive cases in Nepal were 3909 in 2004/2005. Using mathematical models it has been estimated that there are more than 60,000 people living with HIV/AIDS in Nepal at the end of 2003.<sup>2</sup>

HIV and TB have been described as the "Diabolical Duet". The reason is that the two go together. When someone is infected with HIV, the virus weakness their immune system usually helps to fight off diseases, so they are now more susceptible to infections. The prevalence of HIV is rapidly rising in Nepal. The effective control measures – for AIDS as well as for TB are more important now than ever before.<sup>2</sup>

As of one survey of 2002, 2.4% of TB patients also had HIV infection. This could rise rapidly if HIV increases for which a consolidated effort is needed.<sup>2</sup> In another study 10.8% cases were diagnosed as TB/HIV co-infected.<sup>3</sup> In view of this alarming situation, this study is under taken.

Compare to an individual without HIV infection, HIV infected patients are upto 10 times as likely to develop TB<sup>4</sup>. As HIV prevalence in the population increases HIV related TB cases rise rapidly. Countries with a high HIV prevalence rate have been found to report significant number of HIV attributed TB cases. Though SAARC Region is in low HIV prevalence (less than 1%) among adults, but all the member states are reporting increasing number of HIV/AIDS cases and the epidemic is spreading rapidly<sup>4</sup>. Some countries have already started HIV surveillance survey especially among high risk groups but TB patients have not been included in all the surveys. Therefore, now is the time to take this initiative to do HIV

surveillance among TB patients. The findings of the surveillance is expected to help assess the impact of HIV on tuberculosis epidemic, which will help on channeling the resources and the planning of health care services for people who are co-infected with HIV and TB. Estimating the proportion of HIV infection among TB cases can act as early warning system for the spread of TB due to HIV in the country.

## Objectives

The objective of the study was to know status of TB/HIV co-infection cases among the newly diagnosed TB patients at DOTS clinic in BPKIHS, Dharan, Nepal.

## Methodology

This cross-sectional study was conducted in BPKIHS, Dharan from March to July 2006. The sample size was 300 newly diagnosed TB cases attended to DOTS clinic.

Three Hundred newly diagnosed TB cases attended to BPKIHS DOTS clinic were tested for HIV. The test was done for anti HIV – 1 and 2 antibodies by using rapid HIV TRI-DOT test in the Department of Microbiology, BPKIHS. The pre and post test counseling was done to all TB patients. The confidentiality was maintained as per national guidelines.

## Results

Among 300 newly TB patients, 14 (4.7%) patients were HIV positive. There were 196 (65.3%) males and 104 (34.7%) females. The maximum number (57, 29.1%) of males and (37, 36.5%) females were in 21-30 years of age group (Table1). All 14 TB & HIV co-infected patients were males. Among these, 8 (57.2%) were in 31-40 years and rest 6 (42.8%) in 21-39 years age group. These

age groups are sexually very active. Maximum number 236 (78.7%) patients were from Sunsari, followed by Jhapa (16, 5.4%) and Morang districts (Table 2). Among 14 TB and HIV co-infected patients, 12 were from Sunsari and one each from Morang and Jhapa districts.

Out of 196 males patients, 145 (74%) were diagnosed pulmonary and rest 51 (26.0%) extra pulmonary TB (Fig. 1). Similarly among 104 female patients, 73 (70.2%) were diagnosed as pulmonary TB and rest 31 (29.8%) were extra pulmonary TB.

Among 300 TB cases, 100 (33.3%) males and 63 (21.0%) females were sputum positive and rest negatives. There was previous history of TB present in 34 (11.3%) patients. Out of these 34 patients with previous history of TB, 22 were males and 12 females (Fig 2.).

There were 6 (42.8%) sputum positive pulmonary TB cases, 4 (28.6%) sputum negative pulmonary TB cases and rest 4 (28.6%) extra pulmonary TB cases among 14 TB/HIV co-infected patients.

## Discussion

This study shows high (4.7%) HIV infection rate among TB patients in comparison to the other studies conducted by National TB Center (NTC)<sup>5</sup> in 2001/2002 (2.44%) and by SAARC TB & HIV/AIDS Center (STC)<sup>4</sup> in 2005 (1.5%). The possible reasons are these studies were multi-centric & covering larger sample size than the present study. But study done in Tansen Hospital<sup>3</sup> of Nepal showed very high (10.76%) prevalence of TB/HIV co-infection. Another study in Kathmandu<sup>6</sup> also showed high prevalence (6.7%). Similar study from Netherlands<sup>7</sup> has reported higher prevalence (4.1%) of HIV

infection among TB patients, which is near to this study result.

The TB-HIV problem is currently seems small but has been growing at an alarming rate. 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 the 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. They were in reproductive age group of 20-40 years. Similar with other studies<sup>3,4,6,7,8,9</sup>. The present study showed that 71.4 % of the TB/HIV co-infected cases were suffering more commonly with pulmonary TB than with extra-pulmonary TB (28.6 %). The pulmonary TB (85.7%) was more common than extra-pulmonary TB (14.3%) was also reported by the study done in Western Nepal<sup>3</sup>.

Among 14 TB/HIV co-infections, 6 (42.8%) were sputum positive pulmonary TB, 4 (28.6%) sputum negative pulmonary TB and 4 (28.6%) extra-pulmonary TB. This is similar to study reported from Western Nepal.

The study has shown high (4.7%) TB/HIV co-infection in comparison to above mentioned studies.<sup>4,5</sup> This is an alarming situation. Similar operational research can be conducted in different parts of Nepal to know the exact scenario of TB/HIV co-infection, which is necessary for formulating national policy & guidelines for TB/HIV control in the country.

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