

Neglected Tropical Diseases Vs Tuberculosis in HIV-A Cohort Study

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Background

There is geographical overlap of neglected tropical diseases (NTD) and HIV/AIDS, and the frequent occurrences of these disorders call for an integrated approach for their control. Albeit, a new agenda of disease elimination and control on accelerating progress of HIV, tuberculosis, malaria, hepatitis and neglected tropical diseases, has been set for 2016-2030.¹ India alone accounts for 40% of world's neglected diseases. For example, there is approximately 200,000–400,000 new cases of visceral leishmaniasis (VL) occurring annually worldwide 2014; over 90% of VL occur in six countries, namely Bangladesh, Brazil, Ethiopia, India, South Sudan, and Sudan.² At one hand, leprosy causes chronic disabling condition among HIV patients; on the other hand, VL exacerbates immune suppression, causing full blown AIDS. Both VL and tuberculosis infections are opportunistic infections, while leprosy appears as a missed disease among HIV patients.

Materials and Methods

This is an observational study (prospective), carried out on the HIV positive patients attending ART centre, District Hospital, Khagaria (the northern part of India), from January' 2016 to April' 2017. The patients, between 6 years to 60 years old, were included in the study. However, lost to follow up (LFU) patients and those died during screening and follow up were excluded from the study. Patients were examined for leprosy, VL, and tuberculosis. Diagnoses for leprosy, VL, and tuberculosis co infections were established by clinical examinations along with skin slit or skin smear examination for leprosy, ELISA with rK-39 strip, and subsequent confirmation by microscopic examination of splenic aspirate for VL, Chest X-ray and sputum examination by immunofluorescence microscopy and Nucleic acid amplification test for tuberculosis. Their CD4 T cells were estimated during screening examination. Prevalence of neglected tropical diseases and tuberculosis were estimated. CD4 T cell status of these infections were compared.

Results and Discussion

Basic characteristics of patients with HIV mono and HIV co infections with NTD and tuberculosis have been shown in the Table 1.

In the study, four co infected patients of VL (9.7 per 1000 HIV population) were identified. However, up to 9 percent of people with AIDS could have newly acquired or reactivated VL.³ Three cases of leprosy (7.2 per 1000 HIV population) were identified; of which, two were suffering from paucibacillary leprosy and one was suffering from multibacillary leprosy. The prevalence of leprosy and VL, is very low in comparison to the HIV/Tb, but statistically the prevalence of HIV/NTD and HIV/Tb were highly significant ($p < .0001$). The low prevalence of NTD is relevant in face of the ominous trend of rural dissemination of HIV/AIDS. It would expectedly increase the number of cases of co infection of NTD and HIV. The prevalence of tuberculosis (13.3 percent) among HIV patients is high in this northern part of India. Mean(SD) of CD4+ T cells among patients of HIV/NTD and HIV/Tb were 320.42(187.43) and 286.29(178.17). They are significantly lower ($p < .01$) than the CD4 cell status i.e. 383.68(272.36) of mono HIV infected patients.

References

1. Accelerating progress on HIV, tuberculosis, malaria, hepatitis and neglected tropical diseases: A new agenda for 2016-2030. www.who.int (Accessed on May 1' 2017).
2. Leishmaniasis. Fact sheet No. 375. Geneva: World Health Organization 2014. Available from: <http://www.who.int/mediacentre/factsheets/fs375/en/> (Accessed on May 1' 2017).
3. Leishmania and HIV in Gridlock, www.who_ctd_leish_98-9. (Accessed on May 2' 20017).

Table 1: Showing prevalence, mean (SD) of age, CD4 count of HIV, HIV-NTD, and HIV-TB patients

Infection (n-412)	Prevalence (%)	Male:female	Age mean (SD)	CD4 cell mean (SD)
HIV (n-340)	85.4	1.1:1	33.28(12.24)	383.68(272.36)
HIV-NTD (n-7)	1.3	6:1	38.28(07.36)	320.42(187.43)
HIV-Tb. (n-65)	13.3	3.3:1	35.67(10.61)	286.29(178.17)