

TUBERCULOSIS AND LUNG DISEASE

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How common is breakthrough tuberculosis disease among people with HIV receiving Isoniazide preventive therapy? Observations from a multisite study in Ethiopia

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Introduction: Isoniazide preventive therapy (IPT) is a proven means to prevent tuberculosis (TB) disease from surfacing among people living with HIV (PLHIV). However, there is concern that patients often develop tuberculosis disease while receiving IPT, defined here as breakthrough tuberculosis, which may affect follow-up outcome. In this study, we evaluated the magnitude and determinants of breakthrough tuberculosis.

Methods: A multisite retrospective cohort study from year 2005 to 2013 involving 11 randomly selected hospitals from Addis Ababa, SNNPR, and Gambela regions of Ethiopia was carried out to assess the occurrence of breakthrough tuberculosis. Multinomial logistic regression was used to study factors associated with it.

Results: 4,484 patients in chronic HIV care received IPT of which 80% also received antiretroviral therapy (ART). 88/4,484 (1.9%) patients developed tuberculosis of which

29/4,484 (0.6%) were diagnosed while receiving IPT. The incidence of breakthrough tuberculosis was 2.3 per 1000 person-years of observation (95% CI: 1.6-3.3 per 1000 PY). 7/29 (24%) breakthrough TB cases were diagnosed within the first month of IPT initiation. 9/19 (47%) breakthrough TB cases were diagnosed within the first six months of ART initiation. Baseline CD4 count ≥ 350 and being on ART were associated with having less odds of developing breakthrough TB (OR=0.1 (95%CI: 0.1-0.2), p value<0.01).

Conclusion: Breakthrough TB was uncommon in the study setting. A significant proportion of it occurred in the first month of treatment and could be due to difficulty to diagnose TB with AFB+/- Chest X-ray or failure to strictly follow TB screening algorithm to rule out TB after adequate follow-up.

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