Effectiveness of antiretroviral therapy in people with and without tuberculosis in the IeDEA cohort

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BACKGROUND

- The efficacy of antiretroviral therapy (ART) regimens used to treat people with HIV (PWH) on concomitant tuberculosis (TB) treatment has been evaluated in few clinical trials or programmatic data.
- Until 2018, efavirenz-based ART were standard of care. The WHO currently recommends to use dolutegravir-based ART regimens in all PWH, with the necessity to double the dose of dolutegravir in people also receiving TB treatment.
- We sought to assess virologic response 1 year after ART initiation in ART-naïve PWH with and without TB, within the International epidemiology Databases to Evaluate AIDS (IeDEA).

METHODS

- Retrospective analysis of individual participant data collected between January 2013 and November 2022 at 15 sites from the Caribbean, Central and South America, Central and West Africa IeDEA regions.
- PWH older than 18 years who started ART and had concomitant TB at ART initiation were included in the present analysis.
- Concomitant TB was defined as TB reported at ART initiation or during the 5 months preceding ART initiation during or the first 6 months on ART.
- Our primary endpoint was virologic response defined as the proportion of participants with HIV-1 RNA <1,000 copies/mL 1 year after ART initiation.

RESULTS

- Over the 10-year period of the study, 54,679 ART-naïve PLWH started ART: 3,944 with concomitant TB and 50,735 without concomitant TB. Baseline characteristics of the participants are reported in table 1.

- One year after ART initiation (table 1 and figure 1) :
  - 29,489 **(54.3%)** had **no virologic data available**
  - Overall, among the 24,245 participants with HIV-1 RNA available: 87.0% [95% CI: 86.6%-87.4%] achieved HIV-1 RNA <1,000 cp/mL: **85.5%** [95% CI: 83.7%-87.3%] among people with concomitant TB and **87.1%** [95%CI: 86.6%-87.5%] among people without concomitant TB
- Virologic response rates were 90% [95% CI: 89.2%-90.8%] on dolutegravir and 86% [95% CI: 85.2%-86.2%] on efavirenz.

One year after ART initiation, virologic responses were similar among PWH with or without TB. However, more than 50% of people starting ART had no virologic data available, primarily due to LTFU

Table 1: Baseline characteristics and outcomes by TB status

	TB (n=3,944)	No TB (n=50,332)
Patients characteristics at ART initiation		
Age at ART initiation, median (IQR)	36.8 (30.0 – 44.6)	35.3 (28.4 – 43.6)
Sex: female, n (%)	2,033 (51.5)	27,370 (54.4)
CD4 count at ART initiation, median (IQR)	138.0 (44.0 – 289.8)	216.0 (35.0 – 400.0)
HIV-1 RNA* at ART initiation, median log_{10} (IQR)	5.4 (4.9 – 5.9)	4.9 (4.2 – 5.4)
HIV-1 RNA <1,000 copies/mL, n (%)	39 (9.0)	1,740 (18.0)
BMI, median (IQR)	21.5 (19.1 – 24.5)	22.0 (19.1– 25.4)
Type of ART initiated, n (%)		
Efavirenz	3,217 (81.6)	37,264 (74.0)
Dolutegravir	682 (17.3)	9,354 (18.6)
Other	45 (1.1)	3,714 (7.4)
Virologic outcomes 12 months after ART initiation		
HIV-1 RNA <1000 copies/mL, n (%)	1,238 (31.4)	21,084 (41.9)
HIV-1 RNA ≥1,000 copies/mL, n (%)	229 (5.8)	3,474 (6.9)
No data, n (%)	2477 (62.8)	27012 (53,7)
Death, n (%)	119 (3.0)	1,227 (2.4)
Lost-to-follow-up, n (%)	1,674 (42.4)	17,569 (34.9)
On follow-up, but no HIV-RNA available, n (%)	684 (17.3)	8,216 (16.3)

* participants with HIV-1 RNA>1,000 copies/mL

Figure 1. Outcomes one year after ART initiation by TB status (participants with data available n=24,245)

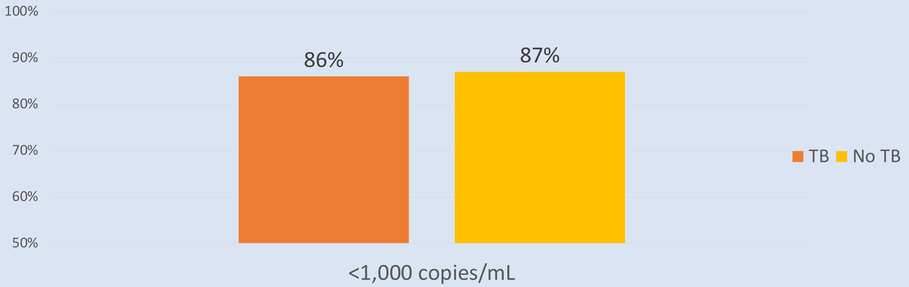
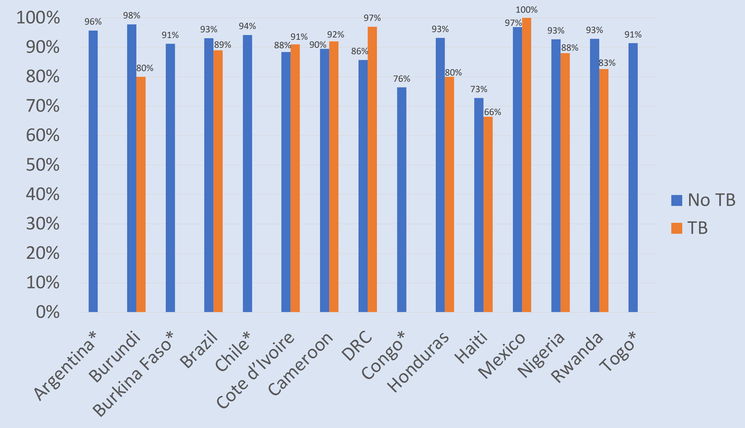


Figure 2. Overall virologic supression by country among subjects with HIV-1 viral load available 1 year after ART initiation



* Countries without TB patients with viral load available 1 year after initiating ART

DISCUSSION/CONCLUSION

- PWH with or without TB had similar rates of virologic suppression one year after ART initiation, with more than 85% of the participants achieving HIV-1 RNA <1,000 copies/mL. But these rates are raw and do not account for differential loss to follow-up and potential confounding factors.
- Both dolutegravir-based and efavirenz-based ART provided high virologic response rates.
- We observed differences between participating countries that might be explained by differences in access to care
- More than 50% of PWH starting ART had no virologic data available, including large numbers lost to follow-up, which is a concern to properly identify virological failure, prevent emergence of resistance to antiretroviral drugs and HIV-related morbidity and mortality.
- A multiregional multivariate analysis to identify factors associated with virological success is planned.

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