Tuberculosis Infection And Disease In Perinatally HIV-infected Adolescents on ART and HIV negative Adolescents: A Cohort Study

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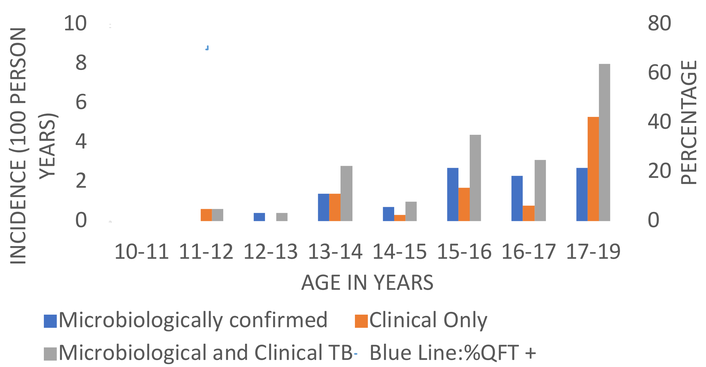
BACKGROUND

- Limited data on TB in perinatally-infected adolescents living with HIV (PHIV+)
- We examined the incidence and determinants of QuantiFERON conversion and TB disease in the **Cape Town Adolescent Antiretroviral Cohort.**

METHODS

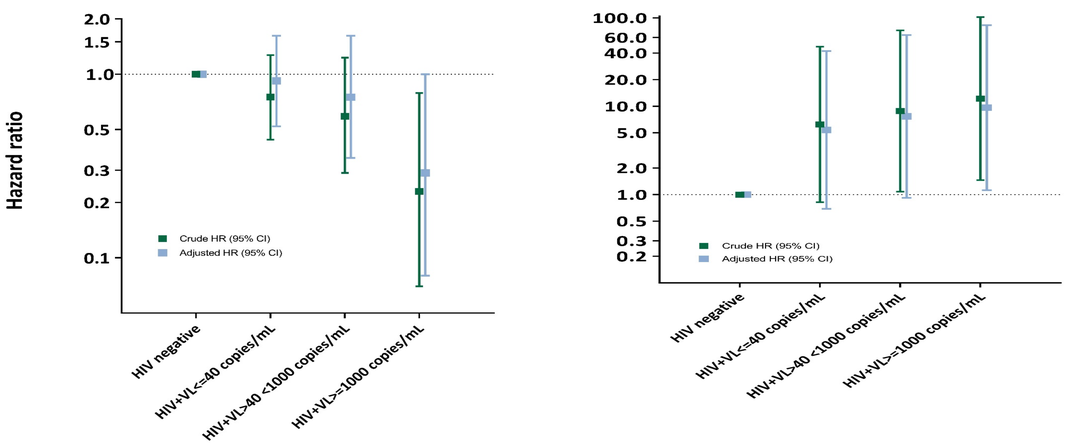
- PHIV+ adolescents between 9-14y, on ART >6m and age-matched HIV- children enrolled between 2013-2015 and followed until October 2018.
- Screening for TB, CXR and sputum for X-pert MTB/RIF, microscopy and culture was done annually
- QuantiFERON (QFT, Qiagen, South Africa) done at enrollment and repeated annually if prior QFT was negative
- Time to event analyses to describe the incidence of LTBI and TB disease.

FIGURE 1. Cumulative prevalence of QFT positivity and TB incidence by age in HIV+ participants



HIV+ participants had a similar rate of QFT conversion compared to HIV- [7.4 (5.9-9.4) vs 8.7 (CI:5.6-13.7) per 100- person years (PY), p= 0.31]. HIV+ participants had a higher rate of TB [2.7 (CI:1.99-3.67) vs 0.3 (0.04-2.16) per 100- PY. Crude IRR= 8.56 (1.18-61.92)

FIGURE 2. Relative hazard of (a) IGRA conversion and (b) incident tuberculosis disease comparing HIV-positive to HIV-negative youth in strata of HIV viral control during follow-up



RESULTS

- 496 PHIV+ and 103 HIV- (median age 12 years [IQR:10.7-13.3] 50% male)
- PHIV+ median CD4 of 713 cell/μL (IQR:564-954) and 376 (76%) had viral load <40 cps/ml.
- 298 (61%) of PHIV+ had a history of TB disease before enrolment (vs 3% in HIV-, p<0.01)
- No difference in QFT positivity at enrolment (HIV+=31% vs HIV-=24%, p=0.05).
- VL> 1000 was associated with a decreased risk of QFT conversion but had a higher risk of incident TB. (Figure 2)

CONCLUSIONS

- High incidence of TB disease despite ART.
- QFT may not be a useful tool for predicting TB risk in adolescents that are not virally suppressed.
- INH prophylaxis, ensuring adequate viral suppression and other interventions needed to reduce TB incidence.

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