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Factors associated with latent tuberculosis infection among HIV positive adults 18 years in South Africa in 2016 - 2017: a cross-sectional study

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Factors associated with latent tuberculosis infection among HIV positive adults ≥ 18 years in South Africa in 2016 - 2017: A cross-sectional study.

Introduction: Latent tuberculosis infection (LTBI) is a major public health concern as it is one of the main sources of Tuberculosis (TB). Approximately 10% of individuals with LTBI will develop TB disease. HIV infected individuals are among the populations at highest risk of LTBI and progressing to active TB disease. Understanding prevalence and risk factors of LTBI is important in guiding implementation of strategies such as TB preventive therapy (TPT) and vaccination. The main aim of this study was to estimate factors associated with LTBI among HIV positive adults in South Africa.

Methods: Secondary data analyses were conducted on baseline data of HIV-positive adults enrolled for the $WHIP_3$ TB trial conducted in South Africa in 2016-2017. Participants' medical history, vital signs, CD4 count, and QuantiFERON-TB (QFT) results were collected through self-reporting, physical examination, medical records, and LTBI blood testing respectively. Descriptive statistics and logistic regression analysis using Stata 15® were used to describe the study population and determine factors associated with LTBI and $CD8^+$ T-cell response.

Results: 1087 of 2511 study participants tested positive, giving a 43.3% LTBI prevalence. Higher LTBI prevalence was associated with increasing age (OR 1.01 [95%CI 1.0;1.03]), having a previous TB diagnosis (OR 1.34 [95%CI 1.10;1.63]) and having a CD4 count > 200cells/mL^3 (OR 1.60 [95%CI 1.25;2.05]). $CD8^+$ T-cell response was associated with having a previous TB diagnosis (OR 1.85 [95%CI 1.35;2.53]).

Conclusion: Given the high prevalence of LTBI among HIV infected adults in South Africa, findings of this study should guide implementation of TPT and facilitate planning of the vaccine trials.

Key words: Tuberculosis, Latent Tuberculosis Infection, IGRA, $CD8^+$ T-cell response