Conversion and Reversion Rate amongst Health Care Workers with Latent Tuberculosis Infection in North Central Nigeria

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Introduction: Interferon-gamma release assays (IGRAs) have been associated with reversion and conversion when used in serial testing for TB infection. However, relatively few studies reported HCWs exposure and IGRA responses over time, particularly in Nigeria. We, therefore, evaluated the rate of reversion and conversion amongst health care workers with latent tuberculosis infection in North Central Nigeria.

Methods: In this longitudinal cohort study, we enrolled HCWs over a period of 3 months from selected HIV clinics in North Central Nigeria. After ethics, approval consented participants were screened using a standardized structured semi-interviewer-based assessment. QuantiFERON-TB Gold-Plus (QFT-Plus) was used for IGRA testing at baseline and follow-up testing. IGRA conversion was defined as a positive QFT-Plus (IFN-γ ≥ 0.35 IU/mL) result after two consecutive QFT-Plus negatives (IFN-γ < 0.35 IU/mL) results whereas IGRA reversion was defined as a negative QFT-Plus result after two consecutive QFT-Plus positive tests. STATA version 15.0 was used for statistical analysis.

Result: Of the 1043 participants tested at baseline, 643 participants (excluding 400 QFT-Plus positive results) were enrolled and serially tested for follow-up visits (Month 6, 12 and 24). Using month 6 as a baseline, the IGRA conversion rate was 9.5% (39/409) at month 12 and 12.1% (37/305) at month 24 while IGRA reversion rates were 36.4% (51/140) and 40% (34/85) respectively.

Conclusion: There is a high burden of conversion rate amongst healthcare workers in north-central, Nigeria. Understanding immunological markers that triggered their conversion or reversion is critical to informing treatment decisions and future research.