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Latent Tuberculosis among Human Immunodeficiency Virus (HIV) Positive Patients: Prevalence and Correlates

Tuberculose Latente chez les Patients Séropositifs Pour le Virus de l'Immunodéficience Humaine (VIH) Positifs: Prévalence et Corrélatés

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ABSTRACT

BACKGROUND: Tuberculosis is the most common opportunistic infection affecting HIV-infected individuals and it remains the most common cause of death in patients with AIDS. Detection of latent tuberculosis and treatment largely prevents the development of active disease.

OBJECTIVE: This study was to determine the prevalence and factors associated with latent TB in HIV-positive patients.

METHODOLOGY: This is an analytical cross-sectional study which involved 160 consented patients. Active tuberculosis was excluded using signs, symptoms and laboratory tests. All participants were tested using Quantiferon TB Gold Plus test kits. Data analysed with SPSS version 25.0 included patient's demographics, clinical and laboratory features. $P < 0.05$ was considered significant.

RESULTS: The mean age of HIV-infected patients was 42.69 ± 9.91 years and the mean age of the control was 41.29 ± 9.20 years with no significant statistical difference. The prevalence of latent tuberculosis among HIV-infected patients was found to be 22.50% while among controls was 10.0% which was statistically significant ($p=0.001$). CD4 cells count was observed to inversely predict latent tuberculosis (OR = 1.41; CI = 1.01–3.73) while viral load was found to directly predict latent tuberculosis (OR = 1.63; CI=1.04–4.25).

CONCLUSION: The prevalence of latent tuberculosis infection is significantly higher among HIV-positive patients when compared with HIV-negative patients. Also, the prevalence of HIV infection was higher amongst the female and less educated population. **WAJM 2022; 39(7): 670–677.**

Keywords: Acid-Fast Bacilli; Body mass index; Extrapulmonary; Human Immunodeficiency Virus; Interferon-gamma; Immunodeficiency; latent TB; Ziehl-Neelsen stain.

RÉSUMÉ

CONTEXTE: La tuberculose est l'infection opportuniste la plus courante chez les personnes infectées par le VIH et reste la cause la plus fréquente de décès chez les patients atteints du SIDA. La détection de la tuberculose latente et le traitement empêchent largement le développement de la maladie active.

OBJECTIF: Cette étude visait à déterminer la prévalence et les facteurs associés à la tuberculose latente chez les personnes séropositives.

MÉTHODOLOGIE: Il s'agit d'une étude transversale analytique qui a porté sur 160 patients consentants. La tuberculose active a été exclue à l'aide de signes, de symptômes et de tests de laboratoire. Tous les participants ont été testés à l'aide de kits de test Quantiferon TB Gold Plus. Les données analysées avec SPSS version 25.0 comprenaient les caractéristiques démographiques, cliniques et de laboratoire des patients. $P < 0,05$ a été considéré comme significatif.

RÉSULTATS: L'âge moyen des patients infectés par le VIH était de $42,69 \pm 9,91$ ans et l'âge moyen du groupe témoin était de $41,29 \pm 9,20$ ans., sans différence statistique significative. La prévalence de tuberculose latente chez les patients infectés par le VIH était de 22,50 % alors qu'elle était de 10,0 % chez les témoins, ce qui était statistiquement significative ($p=0,001$). On a observé que le nombre de cellules CD4 de prédire de façon inverse la tuberculose latente (OR = 1,41; IC = 1,01- 3,73), tandis que la charge virale prédit directement la tuberculose latente (OR = 1,63 ; IC = 1,04-4,25).

CONCLUSION: la prévalence de l'infection tuberculeuse latente est significativement plus élevée chez les patients séropositifs par rapport aux patients séronégatifs. De même, la prévalence de l'infection par le VIH était plus élevée chez les femmes et les personnes peu moins éduquée. **WAJM 2022; 39(7): 670–677.**

Mots clés: Bacilles acido-alcool-résistants, indice de masse corporelle, extrapulmonaire, virus de l'immunodéficience humaine, interféron gamma, immunodéficience, tuberculose latente, Ziehl-Neelsen.

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Abbreviations: AFB, Acid-Fast Bacilli; BMRC, Biomedical Research Centre [England]; BMI, Body Mass Index; CD, Cluster of Differentiation; CDC, Centers for Disease Control and Prevention; CXR, Chest X-ray; GPC, General Patient Clinic; HAART, Highly Active Antiretroviral Therapy; HIV, Human Immunodeficiency Virus; IBM, International Business Machine; IGRA, Interferon Gamma Release Assay; IPT, Isoniazid Preventive Therapy; LTBI, Latent Tuberculosis Infection; MAC, *Mycobacteria Avium* Complex; MTB, *Mycobacterium Tuberculosis*; PCV, Packed Cell Volume; SD, Standard Deviation; SPSS, Statistical Package for the Social Sciences; TB, Tuberculosis; UBTH, University of Benin Teaching Hospital; WHO, World Health Organisation; Z-N, Ziehl-Neelsen.