ETHIOPIAN INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 12, Issue 02, February-2025 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980 2024: 7,662

Oripov Shavkatjon Yuldashevich

Department of Phthisiology and Pulmonology,

Andijan State Medical Institute, Andijan, Uzbekistan

LATENT TUBERCULOSIS: DEBUNKING COMMON MISCONCEPTIONS

Abstract: Latent tuberculosis (LTBI) affects a large portion of the global population yet remains widely misunderstood. Although individuals with LTBI are asymptomatic and non-infectious, they can progress to active tuberculosis (TB) under certain conditions. This article addresses the most common misconceptions about latent TB, clarifies its clinical and public health significance, and highlights evidence-based strategies for screening and management.

Keywords: Latent tuberculosis, Active tuberculosis vs. latent TB, Mycobacterium tuberculosis, Asymptomatic TB infection, TB transmission misconceptions, Non-infectious TB, Public health awareness

Introduction

Tuberculosis, caused by Mycobacterium tuberculosis, is among the top ten causes of death globally. While active TB is symptomatic and contagious, many more people harbor M. tuberculosis in a dormant state, referred to as latent TB infection (LTBI). The World Health Organization (WHO) estimates that approximately one-quarter of the global population has LTBI. Despite its high prevalence, LTBI often remains misunderstood, leading to suboptimal prevention and control measures. This article aims to clarify common misconceptions surrounding latent TB, thereby promoting evidence-based practices in public health and clinical settings.

Common Misconceptions About Latent TB

"Latent TB is harmless and always remains latent."

Reality: While LTBI is asymptomatic and not transmissible, 5–10% of individuals with LTBI may develop active TB over their lifetime. Certain risk factors—such as HIV infection, diabetes, malnutrition, or immunosuppressive therapy—can substantially increase the likelihood of reactivation. Therefore, identifying and managing LTBI is crucial to prevent future active TB cases.

"Anyone with latent TB can infect others."

Reality: Individuals with LTBI do **not** spread M. tuberculosis. Only those with active pulmonary TB can transmit the bacteria through airborne droplets. People with latent infection harbor the bacteria in a dormant state contained within granulomas, posing no immediate risk of contagion.

"A negative skin test or IGRA means there is no TB infection."

Reality: The Tuberculin Skin Test (TST, or Mantoux test) and Interferon-Gamma Release Assays (IGRAs) are useful tools for detecting LTBI, but they are not foolproof.

False negatives can occur in immunocompromised individuals or due to technical errors in administering or interpreting the tests.

A single negative test result does not definitively rule out LTBI, especially in high-risk populations.

"People with LTBI must be isolated or quarantined."

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 12, Issue 02, February-2025 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980 2024: 7,662

Reality: Quarantine measures apply to contagious infections. As LTBI is non-infectious, those diagnosed do **not** need isolation. Public health recommendations focus on screening and preventive treatment for people at higher risk of progressing to active disease (e.g., individuals with HIV or close contacts of TB patients).

"If you received the BCG vaccine, you cannot get TB or test positive."

Reality: The Bacillus Calmette–Guérin (BCG) vaccine primarily protects young children from severe TB forms (e.g., miliary TB, TB meningitis). Protection wanes over time, and individuals can still contract M. tuberculosis later in life. Moreover, a history of BCG vaccination can lead to a positive TST, but IGRAs (e.g., QuantiFERON®-TB Gold, T-SPOT®.TB) are less affected by prior BCG vaccination.

"Latent TB infection has no effective treatment options."

Reality: Several preventive treatment regimens effectively reduce the risk of LTBI reactivation. Traditional therapy involves 6–9 months of isoniazid, but newer, shorter regimens—such as 3 months of once-weekly isoniazid and rifapentine (3HP) or 4 months of daily rifampin—have shown high efficacy and better adherence rates.

"All individuals with LTBI eventually progress to active TB."

Reality: Most people with LTBI do not develop active disease. Progression rates vary based on immune status, comorbidities, and overall health. Targeted screening and timely preventive therapy minimize the chance of reactivation in high-risk individuals.

"Latent TB does not affect global TB elimination efforts."

Reality: The reservoir of latent infection is a major obstacle in achieving TB elimination goals. Untreated LTBI can serve as a potential source of future active TB cases. Effective LTBI screening and preventive treatment are essential to breaking the chain of TB transmission and moving toward elimination.

Importance of Correcting Misconceptions

Misunderstandings about LTBI can hinder public health interventions and discourage individuals from seeking preventive care. Correcting these misconceptions is critical to:

Encourage targeted testing of high-risk groups (people living with HIV, recent TB contacts, etc.).

Improve adherence to preventive treatment regimens.

Inform healthcare policies that allocate resources for latent TB screening and management programs

Strategies for Proper LTBI Management

Risk-Based Screening

Testing those at high risk (e.g., immunocompromised individuals, healthcare workers in TB-endemic regions, recent contact with an active TB case).

Accurate Diagnostic Tools- Combining risk assessment with TST or IGRA to confirm LTBI status. In cases of discordant or doubtful results, repeat testing or additional clinical evaluation may be necessary.

Preventive Treatment - Selecting an appropriate regimen (e.g., 3HP, 4R, or 6–9H) based on local guidelines, patient comorbidities, and potential drug interactions [3]. Emphasizing adherence by

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 12, Issue 02, February-2025 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980 2024: 7,662

providing counseling, patient education, and, when possible, directly observed therapy (DOT) or electronic reminders.

Strengthening Public Health Infrastructure - Integrating LTBI programs into broader TB control efforts. raining healthcare providers to distinguish between latent and active TB. Utilizing digital tools for better case tracking, follow-up, and reporting.

Future Perspectives

- **New Diagnostic Markers**: Ongoing research aims to discover biomarkers that more accurately predict LTBI progression, enabling more targeted treatment.
- **Innovative Vaccines**: Next-generation vaccines are under clinical evaluation to reduce both TB incidence and the risk of LTBI reactivation.
- **Personalized Medicine**: Pharmacogenetic testing may eventually help tailor prophylactic regimens to individual patient profiles, optimizing effectiveness and minimizing adverse events.

Conclusion

Latent TB infection is often overshadowed by active TB in public awareness, yet it remains a critical component of global TB control. Misconceptions about LTBI can lead to inadequate prevention measures, misplaced fear of contagion, or neglect of necessary screening and treatment. By clarifying these misunderstandings and implementing evidence-based interventions, healthcare professionals and policymakers can significantly reduce the burden of TB worldwide and move closer to the ambitious goal of TB elimination.

References:

1. World Health Organization (WHO). Global Tuberculosis Report. Geneva: WHO; 2022.
2. Centers for Disease Control and Prevention (CDC). Latent Tuberculosis Infection: A Guide for Primary Health Care Providers. CDC; 2021.
3. Nematovna, O.J., 2024. COURSE AND TREATMENT METHODS OF ACUTE INTESTINAL INFECTIONS IN CHILDREN. International Multidisciplinary Journal for Research & Development, 11(01).
4. Mancuso JD, Goldberg S, Mody RM, et al. Risk of Latent Tuberculosis Infection Among Healthcare Workers in the United States. J Occup Environ Med. 2021;63(4):333-339.
5. Lin PL, Flynn JL. Understanding latent tuberculosis: a moving target. J Immunol. 2010;185(1):15-22.