

Tuberculosis: A comprehensive overview of a serious infectious disease

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INTRODUCTION

Tuberculosis (TB) is a serious infectious disease primarily affecting the lungs but can also impact other parts of the body. Caused by the bacterium *Mycobacterium Tuberculosis*, TB has been a major health challenge for centuries and remains a significant global health issue. Despite advancements in medicine, TB continues to cause considerable morbidity and mortality, especially in low-resource settings. Understanding TB its causes, symptoms, diagnosis, and treatment is essential for effective management and prevention. TB is caused by the bacterium *Mycobacterium Tuberculosis*. The infection spreads through airborne droplets released when an individual with active TB coughs, sneezes, or talks.

DESCRIPTION

Prolonged exposure to someone with active TB increases the risk of contracting the disease. Conditions such as HIV/AIDS, diabetes, and certain cancers can impair the immune system, making individuals more susceptible to TB. Living in close quarters with someone who has active TB increases the risk. Regions with high rates of TB, especially parts of Africa, Asia, and Eastern Europe, have a higher incidence of the disease. Alcohol and drug abuse can weaken the immune system and increase susceptibility to TB. Poor nutritional status can compromise immune function and increase the risk of infection. TB can present in two forms: Latent TB Infection (LTBI) and active TB disease. In this stage, the bacteria are present in the body but are inactive, causing no symptoms and not spreading to others. LTBI can remain dormant for years without causing illness. When the bacteria become active, they multiply and cause symptoms. Often lasting for more than three weeks and sometimes producing blood-streaked sputum. Pain or discomfort in the chest area. Recurrent fevers and drenching night sweats. Significant and unintended weight loss. General feelings of tiredness and weakness. Diagnosis of TB involves a combination of clinical evaluation, tests. Review of symptoms, exposure history, and overall health assess-

ment. Also known as the Mantoux test, involves intradermal injection of Purified Protein Derivative (PPD) to test for an immune response. A positive result indicates exposure to TB bacteria but does not distinguish between latent and active TB. Interferon-gamma Release Assays (IGRAs) are used to detect TB infection. Imaging helps identify abnormalities in the lungs and assess the presence of active TB disease. Analysis of sputum samples for the presence of *Mycobacterium Tuberculosis* and drug resistance. Tests include smear microscopy and culture. Techniques like nucleic acid amplification tests (NAATs) provide rapid results and can detect drug-resistant strains. Typically treated with a course of antibiotics to prevent progression to active TB. Common regimens include isoniazid for 6 months-9 months or rifampin for 4 months. Requires a combination of antibiotics to effectively kill the bacteria and prevent resistance. The standard treatment regimen includes.

CONCLUSION

Four-drug therapy with isoniazid, rifampin, ethambutol, and pyrazinamide for the first two months. Typically involves isoniazid and rifampin for an additional four to seven months. Adherence to the full course of treatment is crucial to prevent the development of drug-resistant TB. Tuberculosis remains a significant global health concern, with complex challenges related to its management and prevention. Understanding TB's causes, symptoms, and treatment is essential for reducing its impact and improving public health outcomes. Through effective diagnosis, treatment, and preventive strategies, progress can be made in controlling this persistent and serious disease.

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CONFLICT OF INTEREST

The author's declared that they have no conflict of interest.

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