

The impact of tuberculosis on children: Challenges in diagnosis and treatment

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INTRODUCTION

Tuberculosis (TB) is one of the oldest and most well-known diseases affecting humankind. TB primarily affects the lungs, but it can spread to other parts of the body such as the kidneys, spine, and brain. Despite being preventable and treatable, TB remains a leading cause of morbidity and mortality worldwide, especially in low- and middle-income countries. In this article, we will explore the pathophysiology of tuberculosis, its global impact, risk factors, diagnostic methods, treatment options, and current challenges in TB control. TB is an infectious disease that usually targets the lungs (pulmonary tuberculosis), but it can also affect other organs in the body (extra pulmonary tuberculosis). The disease is transmitted through airborne droplets when an infected person coughs, sneezes, or talks, releasing tuberculosis into the air. When a susceptible person inhales these droplets, the bacteria can enter the lungs, where they may remain dormant for an extended period or cause active disease. The immune system plays a key role in controlling the infection. Once the bacteria are inhaled, they are engulfed by macrophages in the lungs. However, has developed mechanisms to evade destruction within the macrophage, allowing the bacteria to multiply.

DESCRIPTION

In many individuals, the immune system is able to control the infection, leading to a Latent TB Infection (LTBI), where the bacteria remain dormant but are not actively causing disease. In some cases, however, the bacteria can overwhelm the immune system, resulting in active tuberculosis. This is typically marked by symptoms such as chronic cough, chest pain, weight loss, fatigue, fever, and night sweats. If left untreated, TB can cause severe damage to the lungs and other organs, leading to death. TB is a global health problem, with the World Health Organization (WHO) reporting that over 10 million people were diagnosed with TB worldwide in 2021. Despite significant

progress in controlling the disease, TB remains one of the top 10 causes of death globally. The majority of TB cases occur in low- and middle-income countries, with India, China, Indonesia, the Philippines, Pakistan, and Nigeria contributing to a large proportion of the global TB burden. One of the major challenges in controlling TB is the coexistence of the HIV/AIDS epidemic. Individuals living with HIV are at a significantly higher risk of developing active TB because of their weakened immune systems. TB is one of the leading causes of death among people with HIV, exacerbating the burden of both diseases in affected regions.

CONCLUSION

Another alarming trend is the rise of drug-resistant tuberculosis. Multidrug-resistant tuberculosis (MDR-TB) and extensively drug-resistant tuberculosis (XDR-TB) are forms of the disease that do not respond to standard treatments. MDR-TB is resistant to at least isoniazid and rifampicin, two of the most effective first-line TB drugs. XDR-TB is even more resistant, requiring more complex and prolonged treatment regimens. The emergence of drug-resistant TB presents a significant challenge to global TB control efforts. Several factors increase the risk of contracting TB or progressing from latent infection to active disease. People living with HIV are more likely to develop active TB due to the compromised immune system. In areas with high HIV prevalence, the dual burden of TB and HIV is a major public health issue.

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CONFLICT OF INTEREST

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