Chemotherapy: Open Access
ISSN: 2167-7700
OPEN ACCESS Freely available online
Commentary

The Effectivness of First-Line Drugs in Tuberculosis Chemotherapy

Qussim Ali*

Department of Medicine, University of Taif, Taif, Saudi Arabia

DESCRIPTION

Tuberculosis (TB) remains one of the most significant global health challenges, affecting millions of people annually. While advancements in medical science have significantly reduced TB-related mortality rates, the disease continues to pose a threat especially in regions with limited healthcare resources. Chemotherapy, a knowledge in the treatment of TB, has played a pivotal role in managing the disease and preventing its spread. In this study, we discuss into the complexities of chemotherapy in tuberculosis, exploring its mechanisms, challenges and advancements.

Understanding tuberculosis

Tuberculosis is a bacterial infection caused by *Mycobacterium tuberculosis*. It primarily affects the lungs but can also target other parts of the body, such as the kidneys, spine and brain. TB spreads through the air when an infected individual coughs or sneezes, making it highly contagious. Common symptoms include coughing, chest pain, fatigue, weight loss and fever.

The role of chemotherapy

Chemotherapy in tuberculosis refers to the use of antimicrobial drugs to eradicate the bacteria causing the infection. The goal of chemotherapy is to eliminate the active bacteria, prevent the development of drug-resistant strains, and reduce the risk of transmission to others. The standard treatment regimen for TB typically involves a combination of antibiotics taken over several months to ensure complete eradication of the bacteria.

First line drugs

The most commonly used drugs in TB chemotherapy belong to the first-line category, which includes isoniazid, rifampicin, ethambutol and pyrazinamide. These drugs work by disrupting the growth and replication of the bacteria, ultimately leading to their elimination from the body. Treatment usually starts with a combination of these drugs, followed by a continuation phase to ensure complete eradication of the bacteria.

Challenges in chemotherapy

Despite the effectiveness of chemotherapy, several challenges hinder its success in combating tuberculosis. One of the primary concerns is the emergence of drug-resistant strains of *Mycobacterium tuberculosis*. Prolonged or improper use of antibiotics can lead to the development of resistance, making the infection more difficult to treat and increasing the risk of transmission to others.

Additionally, the long duration of treatment poses a challenge for patient adherence. TB treatment typically lasts for six to nine months, requiring patients to adhere to a strict medication regimen. Factors such as medication side effects, socioeconomic status and lack of access to healthcare can affect patient compliance, leading to treatment failure and the spread of drug-resistant TB strains.

Advancements in chemotherapy

In recent years, significant advancements have been made in TB chemotherapy to address these challenges. The development of new drugs, such as bedaquiline and delamanid has provided additional treatment options for drug-resistant TB cases. These drugs offer improved efficacy and reduced treatment duration, offering hope for patients with limited treatment options.

Furthermore, the implementation of Directly Observed Therapy (DOT) programs has helped improve patient adherence to treatment regimens. DOT involves healthcare providers directly observing patients as they take their medication, ensuring that each dose is taken as prescribed. This approach has been shown to improve treatment outcomes and reduce the risk of drug resistance.

Chemotherapy remains a critical component in the treatment of tuberculosis, offering hope for millions of individuals affected by this debilitating disease. While challenges such as drug resistance and patient adherence persist, ongoing study and innovation continue to drive advancements in TB chemotherapy. By addressing these challenges and embracing new treatment modalities, we can work towards a future where tuberculosis is

Correspondence to: Qussim Ali, Department of Medicine, University of Taif, Taif, Saudi Arabia, Email: qussim_ali@saedu.com

Received: 23-Feb-2024, Manuscript No. CMT-24-29970; **Editor assigned:** 27-Feb-2024, PreQC No. CMT-24-29970 (PQ); **Reviewed:** 12-Mar-2024, QC No. CMT-24-29970; **Revised:** 19-Mar-2024, Manuscript No. CMT-24-29970 (R); **Published:** 26-Mar-2024, DOI: 10.35248/2167-7700.24.12.208

Citation: Ali Q (2024) The Effectivness of First-Line Drugs in Tuberculosis Chemotherapy. Chemo Open Access. 12:208

no longer a global health threat. Through collaboration and dedication, we can strive to eradicate TB and improve the lives of those affected by this disease.