

22. MEDICINES USED IN TUBERCULOSIS THERAPY

Author: Matei Petru

Scientific advisor: Valica Vladimir, PhD, University Professor, Department of Pharmaceutical and toxicological chemistry, State Medical and Pharmaceutical University „Nicolae Testemitanu” Republic of Moldova

Introduction. In 2020, an estimated 10 million people fell ill with tuberculosis (TB) worldwide. Tuberculosis is a disease caused by the infection with the bacillus *Mycobacterium tuberculosis*, also called Koch Bacillus (BK). Tuberculosis is transmitted through the air from one person to another therefore it most commonly affects the lungs but also can attack other parts of the body, such as the kidney, spine, and brain. Nowadays, TB, including its drug-resistant forms, continues to be the main health problem in the world. The treatment of tuberculosis relies on several antituberculosis drugs administered in combination to achieve medicines synergy and to prevent drug resistance. New antituberculosis drugs and regimens are urgently needed to improve cure rates for people with drug resistant TB (currently around 50% globally).

Aim of study. The research is aimed to analyze bibliographic data of antitubercular drugs used as first-line and second-line medicines to find alternative drugs.

Methods and materials. Theoretic systemic research, dates and information analysis based on international facts: PubMed, Medline, Environmental Issues & Policy Index, Google Academic etc.

Results. TB can be cured with the first-line drugs combination taken daily for several months such as: Isoniazid (isonicotinic acid hydrazide, or INH with a structural similarity to that of pyridoxine), Pyrazinamide (a synthetic analogue of nicotinamide), Rifampicin (a semisynthetic macrocyclic antibiotic with a large lipid-soluble molecule produced from *Streptomyces mediterranei*), Ethambutol (a water-soluble, heat-stable compound) and Streptomycin (an aminoglycoside antibiotic). If the patients with tuberculosis are resistant to the combinations of the first-line drug or intolerant then it is necessary to turn to the combinations of second-line drugs, such as: Prothionamide, Ethionamide, Rifabutin, p-Aminosalicylic acid, Cycloserine, fluoroquinolones: Ofloxacin, Lomefloxacin, Levofloxacin; Kanamycin, Capreomycin. The second-line drugs are called reserve drugs treatment. The combinations of two-, three-, four- and five-medicines is used to achieve antitubercular medicines synergy, prevent drug resistance, provide more reliable control over the intake of medicines, reduce the risk of overdose and of individual anti-tuberculosis drugs, is convenient for use in the hospital and, especially, in outpatient settings.

Conclusion. Unfortunately, second-line drugs may have more side effects than the second-line drugs. Thus, the notion of "quality of life", which is quite common and has shown practical value in various diseases, is being used to evaluate the effectiveness of tuberculosis treatment.