

TUBERCULOSIS AND *MYCOBACTERIUM TUBERCULOSIS*

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The purpose of this study was to review and analyze the main routes of transmission of tuberculosis, including their methods of spread, prevention strategy and available therapeutic options. A literature review of the narrative type and qualitative aspect was carried out through articles published in Portuguese between the years 2019 and 2023, taken from the Google Scholar tool. The search for scientific production was based on the descriptors: Tuberculosis, *Mycobacterium tuberculosis* and Infection. Upon further analysis, it was found that tuberculosis, a disease caused by the infectious agent *M. tuberculosis*, is currently exhibiting a worrying rate of spread among the human population. The transmission of tuberculosis occurs predominantly through the air, through the inhalation of aerosols that contain bacilli. This contagion can happen when individuals with active tuberculosis, especially pulmonary tuberculosis, speak, sneeze or cough. The first defense barrier of the host against *Mycobacterium tuberculosis* infection consists of the lymphoid tissues associated with the mucosa, playing a crucial role in protection by releasing antimicrobial substances. The second defense barrier is represented by alveolar macrophages, which perform vital functions of recognition, phagocytosis, and release of pro-inflammatory cytokines, resulting in the eradication of *M. tuberculosis* infection. However, this defense mechanism is not totally effective in the treatment of tuberculosis due to the resistance developed by the infectious agent in relation to the therapeutic methods employed. Based on these facts, a new therapeutic study is being conducted using nitroreductases as a target for exploration, which aims to produce new methods of mechanism that prevent the infection caused by the bacterium *M. Tuberculose* from surviving. However, it was concluded that tuberculosis is an infection of extreme concern since it has a certain resistance to the body's innate immune response. Therefore, it is necessary to acquire some means of prevention that helps prevent contamination through this bacterium, such as: avoiding crowded places without ventilation, maintaining good hand hygiene, among others.

Keywords: Tuberculosis; *Mycobacterium tuberculosis*; Infection.

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