The disease of bacterial respiratory tract: tuberculosis

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Introduction

Tuberculosis often affects the lungs, but may also affect other parts of the body. Many diseases do not show any symptoms, known as latent tuberculosis. About 10% of latent diseases continue to be an active disease, which, if left untreated, kills about half of those infected. The most common symptoms of active TB are a persistent cough with bloody mucus, fever, night sweats, and weight loss. It has historically been called exercise due to disease-related weight loss. Infection of other organs can cause many symptoms.

Tuberculosis spreads from person to person as people with active TB in their lungs cough, spit, talk, or sneeze. People with Latent TB do not spread the disease. Active infections are more common in people with HIV / AIDS and in smokers. Diagnosis of live TB is based on chest X-rays, as well as microscopic tests and fluid culture. Diagnosis of Fatal TB depends on a tuberculin skin test (TST) or a blood test.

Prevention of TB involves screening those at high risk, early detection and treatment of conditions, and vaccination with the bacillus Calmette-Guérin (BCG) vaccine. Those most at risk include home, workplace, and contact with people with active TB. Treatment requires long-term use of antibiotics. Antibiotic resistance is a growing problem with increasing levels of multidrug-resistant tuberculosis (MDR-TB).

Tuberculosis can enter any part of the body, but usually from the lungs (also known as pulmonary tuberculosis). Extra pulmonary TB occurs when the tuberculosis develops outside the lungs, although extracellular TB may be associated with pulmonary TB. Common signs and symptoms include fever, chills, night sweats, loss of appetite, weight loss, and fatigue. Significant nail bumps may occur. When TB starts to work, it usually involves the lungs (about 90% of cases). Symptoms may include chest pain and a prolonged cough that produces sputum. About 25% of people may have no symptoms (i.e., no symptoms at all). In some cases, people may cough up small amounts of blood, and in very rare cases, the infection may cause erosion in the lungs or Rasmussen's aneurysm, leading to severe bleeding. Tuberculosis can be a chronic illness and cause large scars on the upper parts of the lungs. The upper lungs are more susceptible to tuberculosis than the lower ones. It may be due to better airflow, or lymph nodes within the upper lungs. The main cause of TB is Mycobacterium tuberculosis (MTB), small bacillus, aerobic, and nonmotile. The high lipid content of this pathogen causes many different clinical features. It divides every 16 to 20 hours, which is a very low level compared to other viruses, which usually split in less than an hour. Mycobacteria have an outer membrane of lipid bilayer. When Gram staining is formed, MTB contaminates "Gram-positive" very weak or does not retain dye due to its high lipid and mycolic acid content in the cell wall. MTB can withstand weakened antibodies and survive in dry areas for weeks. Naturally, bacteria can grow not only within the cells of an organism, but M. can be raised in the laboratory.

Using histological stains on expectorated samples from phlegm (also called sputum), scientists could detect MTB under a microscope. Since MTB retains certain spots even after treatment with an acidic solution, it is classified as a fast acid bacillus. The most common ways to quickly detoxify acids are Ziehl-Neelsen and Kinyoun dye, which dye acidic bacilli with a bright red color compared to a green background. Auramine-rhodamine staining and fluorescence microscopy are also used.

Conflict of Interest

We have no conflict of interests to disclose and the manuscript has been read and approved by all named authors.

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