

HISTORY OF THE ANTIBIOTICS DISCOVERY AND THEIR INFLUENCE ON THE PULMONOLOGY DEVELOPMENT

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Abstract

For millennia, humanity has been helpless against various kinds of infections, which often was epidemic and claimed the lives of millions. Many of these diseases affected the lungs. Since that time people have thought about infectious diseases and their causes.

The aim of this work was to study the history of the antibiotics discovery and their influence on the pulmonology development based on the literature data.

Ancient civilizations used mould and plants to treat infections. In ancient China, over 2500 years ago, the healing properties of mouldy soybeans were used to treat boils, carbuncles, and similar conditions. The first steps in observing microbes were taken by Robert Hooke in 1665, and in 1674, Antoni van Leeuwenhoek first observed living microorganisms. In 1859, the French chemist and bacteriologist Louis Pasteur formulated the first principles of microbiology. In 1884 the German physician Robert Koch discovered four “Koch’s postulates,” which establish a causal relationship between microorganisms and disease. The first antibiotic, discovered in nature in 1893, was mycophenolic acid. After extensive testing, in 1910 Paul Ehrlich discovered the organic arsenic compound salvarsan, active against *Treponema pallidum* and *Trypanosoma*. In 1928 Alexander Fleming discovered penicillin, which was considered a miracle because it could treat all types of infections caused by *Staphylococci* and *Streptococci*, two pathogens that cause a significant number of known infectious diseases. In 1932 Gerhard Domagk discovered the first sulphonamide drug, prontosil. The discovery of streptomycin, the first aminoglycoside antibiotic with anti-tuberculosis activity, in 1943 by Selman Waksman and his graduate student, Albert Schatz, was an important milestone in the history of antibiotics. The scientists who discovered prontosil, penicillin, and streptomycin were awarded the Nobel Prize in Physiology or Medicine in different years.

The invention of antibiotics had a significant impact on the treatment of respiratory diseases and divided the history of pulmonology into several stages. Pneumonia and tuberculosis were the main causes of death until the 20th century, and with the introduction of antibacterial therapy, the survival of these patients increased. There was a change in disease patterns, as a result of which pulmonology became a branch of medicine where the main pathology is caused by diseases of dirty air — chronic obstructive pulmonary disease, asthma and lung cancer. But now we are observing the return of infections to the problematic issues of respiratory medicine due to the resistance of pathogens to antibacterial agents and the increase in the prevalence of immunodeficiency states.

Key words: antibiotics, antibacterial agents, microbiology, history of pulmonology.

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