Introduction

To serve its primary function of gas exchange, the lung is the organ with the largest epithelial surface area in continuous contact with the external environment. The upper and lower airways of humans are repeatedly exposed to air borne particles and microorganisms. Infectious respiratory disorders are therefore an important part of our daily activities as practicing physicians. Furthermore, the management of these infectious diseases continues to evolve. Physicians are continuously confronted with new challenges in the cost-effective management of these infectious diseases [(1)].

Antibiotic treatment is a key factor in the treatment schedules of these diseases. Optimal treatment would be an antibiotic regimen specifically suited for a specific patient, the type of infection and the infecting pathogen to assure an optimal therapeutic outcome [(2)].

Several guidelines for the management of respiratory tract infection has been published worldwide in response to the move towards evidence based practice, concern over the misuse of antimicrobial agents and the changes in susceptibility to some of these [(3)].

Aim of the work

The aim of this work is to focus on antimicrobial agents and their impact on lungs. For this reason, detailed descriptions not only of the advancement in the different classes of antimicrobial agents that are usually prescribed for treating respiratory tract infections but also of pulmonary distribution of these agents, the interrelationship between their pharmacokinetic profile and pharmacodynamic action, the interactions between antimicrobial agents and host defences and the interactions between antimicrobial agents and other drugs. Also novel informations on the correct approach to the different forms of respiratory tract infections with particular emphasis on the position of these agents in the new guideline for treatment of respiratory tract infection will add scientific value to these basic findings.