INHALATION OF ANTI-INFECTIVES IN CYSTIC FIBROSIS AND BRONCHIECTASIS – CURRENT STATUS OF TREATMENT

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In the last decades inhalation of antibiotics (liquid and powder) became an established treatment in cystic fibrosis (CF) patients but also in patients with non-cystic fibrosis bronchiectasis. It was followed by a strong increase in life expectancy and quality of life mainly in CF patients. A number of drugs (amikacin, aztreonam, tobramycin, colistin, ciprofloxacin, combination fosfomycin/tobramycin) has been approved for CF by U.S. or European reg-ulatory authorities (FDA, EMA) for treatment of infections caused by gram-positive (e. g Staphylococcus aureus) or gram-negative (e. g. Enterobacter species, Pseudomonas aeruginosa) bacteria. Due to potential bacterial resistance and side effects even after inhalation other inhalative therapies are under study (e. g. levofloxacin, vancomycin, gallium, nitric oxide (NO), molgramostim (GM-CSF)). In our literature review we analyzed publications on inhalation of anti-infectives (approved anti-infectives and anti-infectives under study) for treatment of patients with CF and bronchiectasis focusing on most recent studies. As expected, more publications were found for drugs already approved than for drugs under study as well as for CF patients than patients with non-cystic fibrosis bronchiectasis. In both patient groups most typical targets of treatment are P. aeruginosa, Enterobacter ssp. and S. aureus. Beyond publications of studies with approved antibiotics phase 2 and phase 1 studies were found investigating effect and safety of inhalation of various other antibiotics (e. g. levofloxacin, vancomycin) or anti-infectives (e. g. NO, molgramostim) in CF patients. In summary, the number of phar-maceuticals for treatment of respiratory tract infections of CF patients and patients with non-cystic fibrosis bronchiectasis has largely increased in the last years. However, only a subset of these antibiotics is approved for treatment of patients with non-cystic fibrosis bronchiectasis. There are also studies investigating the inhalation of other compounds (antibiotics and other anti-infectives) which might be introduced in future treatment.