COLISTIN INHALATION FOR TREATMENT OF LUNG INFECTIONS – INDICATIONS BEYOND CYSTIC FIBROSIS

Rüdiger Siekmeier[1], Thomas Hofmann[2], Gerhard Scheuch[3]

[1]Drug Regulatory Affairs, Pharmaceutical Institute, University Bonn, Germany

[2]Aumapharma LLC, Doylestown, USA

[3]Vectura, Gemünden, Germany

Inhalation of antibiotics, e. g. tobramycin, colistin/colistimethate and aztreonam is an established therapy for treatment of cystic fibrosis (CF) and beyond these a number of other antibiotics were approved for inhalative administration or are under study for treatment of this disease. Inhalation of colistin/colistimethate often serves as an alternative for tobramycin, e. g. in case of bacterial resistance of Pseudomonas aeruginosa in chronic pulmonary infections. However, even though colistin/colistimethate has a broad spectrum against gram-negative bacteria data regarding inhalation therapy for treatment of other diseases are sparse. In our literature review we analysed publications on inhalation of colistin/colistimethate focusing on recent publications for clinical indications other than CF, e. g. non-CF bronchiectasis and ventilation associated pneumonia (VAP). Most publications were found for inhalation of colistin/colistimethate administered by means of nebulizers or dry powder aerosol (DPI) for treatment of CF and bronchiectasis especially in cases of infections or exacerbations caused by Pseudomonas aeruginosa. A minor number of clinical publications and even experimental studies were found for inhalation of colistin/colistimethate for treatment of pneumonia, especially VAP. Inhalative administration of colistin/colistimethate typically serves for treatment of multiresistant gram-negative bacteria, especially Acinetobacter baumannii and Klebsiella pneumoniae. Inhalative treatment was save, however administration of high doses bears the risk of nephrotoxicity after drug absorption. In summary, inhalation of colistin/colistimethate may serve for treatment of severe pulmonary infections with multiresistant gram-negative bacteria, e. g. in patients with ventilator associated pneumonia.