INHALATION OF MACROLIDES – A NOVEL APPROACH OF TREATMENT OF PULMONARY INFECTIONS IN CYSTIC FIBROSIS, BRONCHIECTASIS AND COPD?

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Systemic antibiotic treatment is established for a large number of pulmonary diseases, e. g. cystic fibrosis (CF), bronchiectasis and chronic obstructive pulmonary disease (COPD) where recurrent bacterial infections cause a progressive decline in lung function. In the last decades inhalative administration of antibiotics has been established, especially tobramycin and colistin. Other compounds (e. g. azlocillin and chinolones) have also been approved or are subject of clinical studies. However, inhalation studies with macrolides are sparse even though these compounds are established in systemic treatment of exacerbations. Interestingly, these compounds are characterized not only by their antibiotic effect but also by anti-inflammatory properties which may play a role in treatment. Here we analysed – based on a PUBMED search – publications on preparation and administration of macrolide aerosols focusing on recent publications. Only few publications were found. In brief, studies with solutions and dry powder aerosols (DPI) were published. A number of publications investigated physicochemical properties of aerosols. It was demonstrated that macrolide aerosol particles may serve for inhalation and will achieve sufficient lung deposition. The disadvantage of the bitter taste of macrolides can be masked by microcapsulation of the antibiotic. Results of animal experiments demonstrated that higher concentrations in alveolar macrophages and epithelial lining fluid than in plasma were achieved after aerosol administration than after oral administration. Published data demonstrate the feasibility of macrolide inhalation. Modern methods of aerosol administration will allow deposition of high local doses for local antiinfective/antiinflammatory treatment without systemic side effects improving patient treatment.