CHALLENGING AND EMERGING PATHOGENS IN CYSTIC FIBROSIS (2011) OPEN ACCESS

- Overzicht

Bewaar publicatie

Titel Challenging and emerging pathogens in cystic fibrosis
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Datum 2011-11-17
Trefwoord (en) Cystic fibrosis, Pseudomonas aeruginosa, Infection, Lung function, Aspergillus fumigatus, Cross-infection, Antibiotic resistance, RSV
Taal Engels
Type proefschrift
Uitgever Utrecht University

Bacterial pathogens and especially Pseudomonas aeruginosa play an important role in cystic fibrosis (CF). Increased microbiological monitoring, improved detection techniques but also improved antibiotic treatment of classic CF pathogens, have led to a changing epidemiology of pathogens. In this thesis we show that although some emerging pathogens are associated with adverse clinical outcome upon cross-sectional analysis, the individual effects on the course of lung disease are often minimal when performing longitudinal follow-up and taking into account possible confounding factors. Apart from their individual effects interactions between pathogens can occur: we showed that RSV can facilitate P. aeruginosa infection in a mouse model. This suggests that not only the individual effects of pathogens should be investigated but also pathogen interactions. Another important change in infection epidemiology for CF patients was the occurrence of highly prevalent P. aeruginosa clones. Several reports have described the occurrence of such clones and an association with adverse clinical outcome. Recently a highly prevalent clone was found in the Dutch CF population. We showed that infection with this clone is not associated with worse lung function or a stronger lung function decline. There was also no association with increased mortality or chance of lung transplantation. However, this clone was better able to persist within patients and patients with this clone were more likely to use antibiotics. Thus, continuing prospective monitoring of the clinical impact of this clone is necessary, to study the long term effects and to evaluate the current infection control policy. Finally, we investigated the occurrence of resistant P. aeruginosa and found that the long-term use of inhaled tobramycin significantly increased this risk. This warrants

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the search and application of new and improved antibiotic treatment strategies, to prevent the long-term monotherapeutic use of tobramycin and the associated risk of antibiotic resistance.

Publicatie  http://igitur-archive.library.uu.nl/dissertations/2011-1031-...
Persistent Identifier URN:NBN:NL:UI:10-1874-213108
Metadata  XML
Repository  Universiteit Utrecht