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Pathogen prevalence comparison between cystic fibrosis patients with and without cystic fibrosis-related diabetes

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Chronic respiratory tract infection leading to respiratory failure is the major cause of morbidity and mortality for patients with cystic fibrosis (CF). Pathogens causing infective exacerbations must be treated appropriately to minimize lung function attrition. Two distinct patient populations were compared to identify trends in recognized pathogens isolated from lung secretions: CF patients with a diagnosis of CF-related diabetes (CFRD) and CF patients without CFRD. Electronic medical records from 2008-2017 were scrutinized, and 4,157 bacterial isolates from 5,324 cultures performed on 88 patients with CFRD were compared to 17,766 isolates from 23,831 cultures from 722 patients without CFRD. Identification of microorganisms was performed using standard clinical microbiology techniques in accordance with guidelines published by the Cystic Fibrosis Foundation in a medical laboratory accredited by the College of American Pathologists. Patients with CFRD had a 7% higher probability of having an organism recognized as a respiratory pathogen isolated than patients without CFRD, but CFRD patients had nearly twice the chance of being infected with *Burkholderia cepacia*, the organism often attributed to end-stage CF disease (growth in 4.3% of cultures from CFRD patients vs. growth in 2.2% of cultures from non-CFRD patients). The findings from this study raise the question of whether or not the CFRD disease state impacts the probability of a patient becoming infected with *B. cepacia* specifically, and what, if any, are the mechanisms of that process. One possible explanation for these results is the correlation between increasing age and higher prevalence of diabetes and the established evidence that age is usually higher when CF patients become infected with *B. cepacia*. Due to the impact, a diagnosis of *B. cepacia* infection has on the CF patient, any factors which impede or promote the growth of that organism will have clinical significance.

Biography

David Chattin is working as a Research Scientist in Microbiology Laboratory, National Jewish Health, and Denver.

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