Comparing Respiratory Pathogen in Patients with Non-cystic Fibrosis Bronchiectasis when Clinically Stable and during Exacerbation

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Background: Exacerbations of bronchiectasis are associated with increased airways and systemic inflammation and progressive lung damage. In addition, more severe and more frequent exacerbations are associated with worse quality of life, daily symptoms, lung function decline, and mortality. Therefore, in-time and proper antibiotics during exacerbation is very important.

Objective: To examine the association of pathogen in bronchiectasis patients between clinically stable and during exacerbation for determining whether or not the use of previous clinically stable sputum culture results could predict the exacerbation pathogen.

Methods: This was a retrospective cohort study to review good quality and significant sputum culture results in clinically stable and during exacerbation of 175 non-cystic fibrosis bronchiectasis patient.

Results: Most of bronchiectasis patients were diffused lesion (68.6%). Previous tuberculosis infection (50.3%), idiopathic (24%), and rheumatoid arthritis (5.1%) were the three most common causes of bronchiectasis. The first three common pathogens in clinically stable sputum results were non-mycobacterium (30.61%), Pseudomonas aeruginosa (29.59%), and Hemophilus influenza (25.51%). Whereas, the most common pathogens during exacerbation were Pseudomonas aeruginosa (50.98%), Klebsella pneumoniae (28.43%), and Hemophilus influenza (4.9%). There was the association of Pseudomonas aeruginosa in bronchiectasis sputum between clinically stable and during exacerbation, which could match for 84.8% (sensitivity 75%, specificity 75.6%, PPV 54.5%, NPV 88.6%).

Conclusion: Collecting sputum when clinically stable may be helpful to guide antibiotic therapy for exacerbation in case that the colonized sputum pathogens are Pseudomonas aeruginosa.

Keywords: Non-cystic fibrosis bronchiectasis, Sputum culture, Exacerbation, Clinically stable