Isolation of *Aspergillus* species in respiratory specimens from adult patients with acute exacerbation of non-cystic fibrosis bronchiectasis; Data from Pakistan

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Background:

Bronchiectasis unrelated to cystic fibrosis (Non-CF) is increasingly being recognized as a chronic respiratory illness in developing countries. Patients present with frequent respiratory infections and exacerbation of their illness. In such patients role of fungal isolation during these episodes is not clear¹. Limited evidence suggests that isolation and persistence of fungi are frequent in patients with non-CF especially in patients with prior antibiotic therapy². Although non-CF bronchiectasis is common in Pakistan, no data exists regarding the spectrum of fungi isolated from the bronchiectasis patient population during an episode of exacerbation.

Objectives:

To determine isolation rate of *Aspergillus* species in respiratory specimens from adult patients with acute exacerbation of non-cystic fibrosis bronchiectasis presenting to Aga Khan University, Hospital (AKUH), Karachi, Pakistan

Methods:

This cross sectional study (2015-2017) was performed at AKUH, Karachi, Pakistan. Clinical and laboratory details of adult patients presenting to AKUH pulmonology clinics with acute exacerbation of non CF bronchiectasis was retrieved from medical records. Microbial cultures (bacterial, fungal and mycobacterial) were performed in the AKU laboratory. All specimens were processed and reported using American Society of Microbiology standards

Ethical Approval: Study was approved from the ERC of the Aga Khan University

Results:

- Of the 338 non-cystic fibrosis bronchiectasis patients presenting to AKUH, 206 patients submitted 437 sputum samples
- Aspergillus* species were isolated from 27/206 (13%) patients
- Predominant species was *A. flavus* (16 patients), *A. niger* (11 patients) and *A. fumigatus* (8 patients)
- In 60 patients where clinicians specifically requested for fungal culture *Aspergillus* species isolation rate was 18/60 (30%) higher as opposed to 9/144 (6%) in patients where *Aspergillus* species was isolated from routine bacterial culture

Spectrum of fungal isolation (n=27)

Conclusion:

Despite of variability in processing of respiratory specimens cultures, *Aspergillus* species was isolated in significant proportion of patients presenting with acute exacerbation of non-cystic fibrosis bronchiectasis at AKUH. Clinical significance needs to be assessed by prospective evaluation using standardized microbiological methods, *Aspergillus* specific serological tests and appropriate treatment regimens

Images show mold as the only pathogen (left), mixed with bacterial pathogens (center) and multiple molds in the same sample (right)

1. Chotirmall Shet al. Mycopathologia 2018 183: 45.

2. Maiz L et al. Respiration 2015;89:396-403.