To Analyse Prevalence Of Bacterial And Fungal Infections In Bronchoalveolar Lavage And Sputum Samples In Patients With Lung Infections In A Tertiary Hospital In North India.

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Abstract
Introduction: *Acute respiratory illness such as the common cold, pharyngitis, laryngitis, tracheitis,bronchitis, bronchiolitis, pneumonia, and bronchopneumonia, pose serious problems owing to their great prevalence with associated high mortality rates and economic costs. Lung infections are a significant cause of morbidity and mortality worldwide, often presenting with a diverse range of microbial etiologies. This study helps in understanding the spectrum of bacterial and fungal pathogens that cause these infections and hence crucial for appropriate diagnosis, treatment, and management.*
Objective: *To study prevalence of bacterial and fungal pathogens isolated from various respiratory samples (sputum, BAL) from patients with lung infection.*
Study design: *Descriptive cross sectional study.*
Materials and methods: *Patients aged more than 18 years, both males and females, admitted in PGIMS, Rohtak with symptoms suggested of respiratory infection included in the study and their sputum and Bronchoalveolar lavage samples were collected with respect to criteria. The sample size calculated with anticipated prevalence was 150. The recorded data was compiled and entered in spreadsheet and then subjected to statistical analysis using SPSS 20 software. A p value of <0.05 was considered statistically significant.*
Results:*A total of 150 patients (70% males and 30% females) were recruited in the study of which in the majority of patients (94 patients, 62.7%) of the study population, no pathogenic organism was isolated in culture. Pseudomonas aeruginosa was isolated in 25 patients (16.7%), Klebsiella pneumoniae in 16 patients (10.7%), and Acinetobacter baumannii in 10 patients (6.7%). Staphylococcus aureus was detected in 3 patients (2%), while Escherichia coli and Haemophilus influenzae were each isolated in 1 patient (0.7%). In the majority of patients (126 patients, 84%) of the study population, no fungal elements were detected in BAL culture. Candida species were isolated in 13 patients (8.7%), Aspergillus fumigatus in 7 patients (4.7%), and Aspergillus flavus in 3 patients (2%). Zygomycetes were detected in 1 patient (0.7%).*
In the majority of patients (104 patients, 69.3%) of the study population, MTB was not detected by CBNAAT. MTB was detected in 46 patients (30.7%).
Conclusion: *The spectrum of pathogenic organisms hence obtained were much similar to previous studies and it was seen that Bronchoalveolar lavage has a higher sensitivity than sputum for diagnosing LRTI, but the specificity is similar. The study was conducted in the Department of respiratory medicine at Pt.B D Sharma PGIMS, Rohtak aimed at understanding the bacterial and fungal flora in patients with clinical and radiological features suggestive of lower respiratory tract infections . The study was done over a period of one year.We conclude that predominant isolates of sputum culture from lower respiratory tract infection were Pseudomonas aeruginosa followed by Klebsiella pneumoniae and Acinetobacter baumannii respectively. The most common fungi isolated from sputum cultures were Candida sp.*
Keywords: *Spectrum of pathogens, Lung infections, North India.*