



BACTERIOLOGICAL PROFILE AND ANTIBIOGRAM OF COPD PATIENTS ADMITTED IN TERTIARY CARE HOSPITAL OF NORTH BIHAR

Microbiology

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ABSTRACT

Introduction : Chronic obstructive pulmonary disease common is very in smoker and old age . Infection is common cause of acute exacerbation of COPD. It increases morbidity and day of stay of admitted patients in hospital. Our study purpose is to identify causative microorganism and sensitivity pattern of isolates.**Material & methods :** This is retrospective study, done in COPD patient admitted in hospital . Sputum sample collected aseptically, culture done on blood agar and Mac Conkey's agar. Positive cases obtained on culture were included in this study. Isolates were identified by standard bacteriological protocol as per CLSI guideline.**Result:** Out of 100, 60 bacterial isolates recovered from sputum sample, commonly isolated species are Klebsiella pneumonia, Staphylococcus aureus, Pseudomonas spp, E.coli, and Acinetobacter baumannii.**Conclusion:** To decrease morbidity and hospital stay in COPD patients, early diagnosis and initiation of appropriate treatment of patients is necessary.

KEYWORDS

INTRODUCTION:

Chronic obstructive pulmonary disease (COPD) is a chronic inflammatory lung disease that causes obstructed air flow from the lungs(1). Symptoms include breathing difficulty, cough, mucus (sputum) production and wheezing. It's caused by long-term exposure to irritating gases or particulate matter, most often from cigarette smoke (2). The most common cause of an exacerbation is infection in the lungs or airways (breathing tubes). This infection is often occurs from a virus, but also caused by bacteria(3). Infection is a major cause of morbidity and mortality in COPD patients(4). Bacterial infections are common cause of acute exacerbation of COPD & responsible for more than 40% of all exacerbations. Chronic obstructive pulmonary disease common is very common in smoker and old .Our study purpose is to identify causative organism and sensitivity pattern for isolates(5,6).

MATERIAL & METHODS:

A retrospective study was carried out in Sri Krishna medical college, Muzaffarpur, during the time period of January 2018 to December 2019. Which comprised of 200 patients diagnosed with chronic obstructive pulmonary disease. All pts admitted in our hospital with sign and symptom of acute exacerbation of COPD taken in study. Sputum sample collected in a sterile wide mouthed screw capped container aseptically. All sample examined for direct microscopy by gram's stain and culture by standard microbiological protocol. Antibiotic sensitivity pattern of the all bacterial isolates were performed by Kirby-Bauer Disc Diffusion Method according to CLSI standards guideline(7).

RESULT:

A total of 100,60 sputum samples were culture positive for pathogenic bacterial isolates. The most commonly bacteria isolated was Klebsiella pneumoniae followed by Staphylococcus aureus, Pseudomonas aeruginosa, E.coli, and Acinetobacter baumannii. All gram negative isolate was sensitive to amikacin, meropenam, piperacillin+tazobactam, cefuroxime, ceftriaxone and cefpodoxime(7,8).

Pseudomonas aeruginosa was another common isolate was sensitive to Ciprofloxacin, Piperacillin+tazobactam, Amikacin, and Imipenem. Gram positive isolate Staphylococcus aureus was sensitive to cefuroxime, cefpodoxime, ceftazidime, amoxicillin-clavulanic acid, ciprofloxacin, linezolid and vancomycin(8,9,10).

Table: 1 Frequency of bacterial isolates

Species	Frequency	Percentage
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Klebsiella pneumonia	24	60.0
Pseudomonas spp.	11	18.3
Staphylococcus aureus	14	23.3
E.coli	7	11.3
Acinetobacter baumannii	4	6.66
	60	100

DISCUSSION:

In our study, bacterial isolates identified in 60 % of all admitted patients, based on direct microscopy and sputum culture. the most frequently isolated organisms was Klebsiella pneumoniae (60%). Gram negative isolates is 76.7% and gram positive isolates were 23.3%. Among the gram negative isolates, K. pneumoniae was the most common isolated organism i.e. 60% followed by Staphylococcus aureus 23.3%, then Pseudomonas, E.coli, Acinetobacter spp. The antibiotic sensitivity pattern shows that most Gram positive and Pseudomonas spp. isolates were sensitive to Amikacin followed by Ciprofloxacin which is similar to study conducted by Chawla et al(11).

CONCLUSION:

The bacteriological profile of the COPD patients and their antimicrobial sensitivity pattern shows Klebsiella pneumoniae is the most common pathogen microorganism in these cases. Piperacillin-tazobactam is most effective antibiotic against most of the gram negative organism. Most of gram positive microorganism is sensitive to amoxicillin-clavulanic acid . so we conclude that these antibiotic used as the first line empirical therapy in COPD pts and also at the same time proper antibiotic policy implemented in a hospital to prevent the emergence of drug resistance and decrease hospital stay of admitted patients.

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