ABSTRACT

TITLE: CHARACTERISATION OF BACTERIAL ISOLATES WITH DETECTION OF METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS AND EXTENDED SPECTRUM BETALACTAMASE PRODUCERS IN ADULT PNEUMONIA.

INTRODUCTION:

Pneumonia is an infection of lung parenchyma due to proliferation of pathogens at alveolar level resulting in varied clinical symptoms. Pneumonia is commonly caused by viruses followed by bacteria.

AIM:

1. To isolate, identify & characterize bacteria causing adult pneumonia.
2. To find out the antibiogram with detection of MRSA and ESBL producers.

MATERIALS & METHODS:

Samples were collected from 205 clinically suspected & radiologically proven cases of Pneumonia in adult from January 2015 to June 2016 at Govt. Kilpauk medical college hospital, Chennai. Culture and sensitivity was performed for Sputum, ETA & blood by standard microbiological methods.

MRSA was detected by Cefoxitin disc diffusion method, Vancomycin MIC by Etest and mecA gene was identified by PCR. ESBL producers isolated were
confirmed by phenotypic confirmatory method and ESBL genes (CTX-M, TEM and SHV) were detected by PCR.

**RESULTS:**

Patients aged 40-60 years were commonly affected in CAP and VAP, in HAP above 60 years were affected with predominance in males. The culture positivity was 83 (55.33%) in CAP, 26 (86.66%) in HAP, 25 (100%) in VAP. Gram negative bacilli were commonly isolated with 68 (71.57%) in CAP, 24 (75%) in HAP, 20 (76.92%) in VAP.

In CAP, *Klebsiella pneumoniae* was about 42(44.21%) followed by *Staphylococcus aureus* 19 (20%). In HAP, 12 (37.50%) were *Klebsiella pneumoniae* followed by *Escherichia coli* 5 (15.62%) & *Staphylococcus aureus* 4 (12.50%). In VAP, 6 (23.07%) were *Klebsiella pneumoniae* and *Staphylococcus aureus* followed by *Pseudomonas aeruginosa* and *Acinetobacter baumanii* 12 (19.23%).

ESBL producing *Klebsiella pneumoniae* were 11(26.19%) in CAP, 4(33.33%) in HAP, 3(50%) in VAP and CTX-M was the common gene identified by PCR. MRSA isolates were 3(15.78%) in CAP, 1(25%) in HAP and 2(33.33%) in VAP. Vancomycin MIC value for MRSA (< 2µg/ml) rules out VRSA. mec A gene was positive in all MRSA isolates.
CONCLUSION:

Early diagnosis with identification of specific bacteria and its antibiogram, strict adherence to infection control policy and antibiotic stewardship will reduce the drug resistance, morbidity and mortality in pneumonia.

KEYWORDS: ESBL, MRSA, CAP, HAP, VAP, *Klebsiella pneumoniae*, Endotracheal aspirate (ETA), PCR.