

STUDY ON THE PREVALENCE OF BETA LACTAMASES IN GRAM NEGATIVE CLINICAL ISOLATES

ABSTRACT

BACKGROUND:

Antimicrobial resistance is really a threat to clinical practice. Bacteria develop various mechanisms of resistance to different group of antibiotics. Antimicrobial resistance is the resistance of a microorganism to an antimicrobial drug that was originally effective for treatments of infections caused by it, by acquiring genes coding for it the consequences of antibiotic resistance lead to longer duration of illness, treatment with expensive drugs, higher mortality and increased burden on the health system. The predominant mechanism for resistance to beta lactam antibiotics is production of beta lactamases.

AIM:

The present study aims to find out the various β lactamases producing gram negative bacteria from the samples received from outpatients and inpatients admitted in our hospital.

MATERIALS AND METHODS:

A prospective study was conducted from April 2014 to March 2015 in the department of Microbiology, Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Kancheepuram district. Those who were resistant to one of the 3rd generation cephalosporin were selected as suspicious beta lactamase producer. These isolates were subjected to confirmatory test for ESBL, Amp C and Carbapenamases and MBL.

RESULTS:

492 gram negative samples were obtained during the study period (April 2014 to March 2015), among which 204 isolates showing resistance to one of the III generation cephalosporins, were taken for beta lactamase detection.

The prevalence of beta lactamase production in GNB in our study was found to be 41.4%. Total ESBL producer was 32.94%. The occurrence of beta lactamases producers in various isolates in this study showed, that *E.coli* was the common ESBL producer. Total Amp C production was 14.22%. The major Amp c producer was *Klebsiella* species. Total MBL production was 5.48%, which is very low when compared to other similar studies. The distribution of the combinations was as follows, 118 strains produced only ESBL (118/162). The combinations like (ESBL +AmpC) were found in 31 strains (31/162), (ESBL +MBL)was found in three strains (03/162) , and ESBL with AmpC and carbapenemase was seen in 10 strains (10/ 162). Similarly Amp C coexisted with MBL in 2 strains.

CONCLUSION:

The study conducted in our hospital highlights the emerging prevalence of beta lactamases hence reporting of beta lactamases production along with routine antibiotic susceptibility testing in every lab should be done, in order to guide the physicians to choose the appropriate antibiotics. All attempts should be made to prevent dissemination of beta lactamases in the community.