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PREVALENCE OF EXTENDED SPECTRUM OF BETA LACTAM RESISTANCE IN MICROBIOLOGICAL SPECIMENS RECEIVED AT THE MICROBIOLOGY LABORATORY OF THE FACULTY OF DENTAL SCIENCES UNIVERSITY OF PERADENIYA

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Antimicrobial resistance is a global concern. Beta lactams have a bactericidal activity. Some bacteria are resistant to these beta lactams. Over the last 20 years many Beta lactams, that were specifically designed to be resistant to the hydrolytic action of beta lactamases, have been developed. Extended Spectrum Beta Lactamases (ESBL) are enzymes that confer resistance to most beta lactam antibiotics, including Penicillins, Cephalosporins and the monobactam aztreonam. ESBL are mainly found in the strains of *Escherichia coli*, *Klebsiella pneumonia* and *Pseudomonas aeruginosa.* This study was done to determine the prevalence of ESBL producing organisms in the specimens received by the Microbiology laboratory, Dental Teaching Hospital, Faculty of Dental Sciences, University of Peradeniya.

A total of 35 clinical isolates were processed over a period of 6 months. Gram negative bacteria were identified using conventional biochemical tests. Susceptibility to Cefotaxime 30µg and Ceftazidime 30µg was measured as the screening test. Strains which were positive in the screening test were subjected to a confirmatory test which is a disc approximation test. A Coamoxyclav disk that has a beta lactamase inhibitory activity was placed in between the above most potent 3rd generation Cephalosporins disks. Performing antibiotic sensitivity tests and determining the susceptible strains were done according to the guidelines given by the British Society of Antimicrobial Chemotherapy (BSAC) . Percentage of isolates that showed ESBL positivity was calculated.

A total number of 35 Gram negative bacteria were recovered from 35 clinical samples of which 51% were Coliforms and the rest were non Coliforms. Of the total Coliforms 22% were ESBL producers and 47% of the non Coliforms were ESBL producers. Among all Gram negative bacteria 12/35 (34.28%) were found to be ESBL producers. The high prevalence of ESBL found in this sample cannot be ignored.

Increased prevalence of ESBL producing isolates shown in this study may be due to the excessive use of broad spectrum antibiotics. ESBL producing organisms pose a challenge to antibiotic therapy. Successful implementation of routine detection of ESBL production is essential in designing appropriate antibiotic prescribing policies and infection control programs.