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Distribution, frequency and sensitivity pattern of extended spectrum beta-lactamases in archived isolates of sterile fluids in a tertiary care hospital in Delhi

Soumya Sachdeva

Vardhman Mahavir Medical College and Safdarjang Hospital, India

Introduction: The '2nd- and 3rd-generation' cephalosporins, presently used in the clinical setting; have been found to be effective against beta lactamase producing bacteria. However resistance against these antibiotics has emerged in the form of ESBLs or the extended spectrum beta lactamases.

Objective: Detection of Extended spectrum beta lactamases from archived isolates recovered from sterile fluids 2009-2010. **Methods:** The study was performed at the Department of Microbiology, for a period of two months. A Total 50 archived multi drug resistant gram negative bacillary isolates from various sterile fluid samples were randomly selected preserved from October 2009 to June 2010; and were included in the study. These were first subcultured and then antibiotic sensitivity was performed as per CLSI 2009. Disc diffusion test was applied to screen for antibiotic resistance. Screening for ESBL was carried out using DDST (Double disc synergy test), and the results were further confirmed using E strip MIC method.

Results: The archived isolates included samples from male (%), female (%), adult (%) and pediatric (%) patients. The isolates belonged to family Enterobacteriaceae-E.coli (n=16), *Klebsiella* (n=11), *Acinetobacter* (n=23). The maximum isolates showed resistance to Piperacillin and piperacillin-tazobactam (n=37) followed by ceftazidime and ceftazidime-clavulanate (n=36), on disc diffusion test. Total 72 % of the isolates reported to be positive for ESBL. The highest ESBL producers were recorded in *E.coli* (87.5%), followed by *Klebsiella* (72.72%) and then by *Acinetobacter* (60.86%). Out of the total isolates, 10% were found to be resistant to Imipenem and positive for MBL by the E strip method.

Conclusion: This study elucidates the wide prevalence of the ESBL producing bacteria which are now being recovered from CNS infections and also that MBL resistance is the current budding threat to mankind.

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Biography

Soumya Sachdeva has completed her MBBS (Bachelors of Medicine and Surgery) at the age of 24 years from Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, India. She is very passionate about medical research and has 5 publications in PubMed and 2 others in peer reviewed journals. She also is the editor board of Journal of Young Medical Researchers, wikidoc.org and is also the Ambassador for International Journal of Medical Students (IJMS).

soumyasachd@gmail.com

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