Bacterial isolates from cerebrospinal fluid and their antimicrobial susceptibility pattern in Imam Reza Hospital, Mashhad: a two-year surveillance study (2015–2017)

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ABSTRACT

Introduction: CNS infections are life-threatening and significant causes of morbidity and mortality, especially in developing countries. Bacterial infections have been known as the most common cause of the CNS infections. This study was done for identifying the bacterial pathogens and their antimicrobial susceptibility pattern in the patients admitted in Imam Reza Hospital, Mashhad.

Materials and Methods: This study was done on a retrospective analysis for a period of two years from January 2015 to December 2017. Demographic data and clinical information such as gender, admission date, specimen collection date and antimicrobial susceptibility test result were obtained from the microbiology laboratory database and administrative record system. Antimicrobial susceptibility was performed on all isolated bacteria by Kirby Bauer's disc diffusion method. Interpretation was based on Clinical Laboratory Standard Institute (CLSI, 2015) criteria. Also, the minimum inhibitory concentration (MIC) was determined for vancomycin by MIC test strips.

Results: In this study, 509 cerebrospinal fluid (CSF) were collected from suspected patients. 110 samples showed growth of organisms with an isolation rate of 21.6%. The most common pathogens isolated were Acinetobacter baumanii 14 (13.6%), followed by Enterococcus (12.7%), Staphylococcus haemolyticus (9.1%), Escherichia coli (7.2%), and Staphylococcus aureus (5.5%). Among different isolates, 81.2% were resistance to Cefotaxime. This followed by Ceftriaxone (80.8%), Ceftazidime (72.2%) and Erythromycin (65.9%).

Conclusion: The present findings can serve as an index of actual antibiotic resistance specifically in cerebrospinal fluid. Knowledge of bacteriological and antimicrobial profile of cerebrospinal fluid is important so that such life-threatening infections can be treated effectively on an urgent basis.