

Pattern of Bacterial Isolates and Antimicrobial Resistance at Ayder Comprehensive Specialized Referral Hospital in Northern Ethiopia: A Retrospective Study

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Abstract : Background: Knowledge of the pattern of bacterial isolates and their antimicrobial susceptibility is crucial for guiding empirical treatment and infection prevention and control measures. Objective: The aim of this study was to analyze the pattern of bacterial isolates and their susceptibility patterns from various specimens. Methods: Retrospectively, a total of 1067 microbiological culture results that were isolated, characterized, and identified by standard microbiological methods and whose antibiotic susceptibility was determined using CLSI guidelines between 2017 and 2019 were retrieved and analyzed. Data were entered and analyzed using the Stata release 10.1 statistical package. Result: The positivity rate of culture was 26.04% (419/1609). The most common bacteria isolated were *S. aureus* 23.8% (94), *E. coli* 15.1% (60), *Klebsiella pneumoniae* 14.1% (56), *Pseudomonas aeruginosa* 8.5% (34), and *CONS* 7.3% (29). *S. aureus* and *CONS* showed a high (58.1% - 96.2%) rate of resistance to most antibiotics tested. They were less resistant to Vancomycin which is 18.6% (13/70) and 11.8% (2/17), respectively. Similarly, the resistance of *E. coli*, *Klebsiella pneumoniae*, and *Pseudomonas aeruginosa* was high (69.4% - 100%) to most antibiotics. They were less resistant to Ciprofloxacin, which is 41.1% (23/56), 19.2% (10/52), and 16.1% (5/31), respectively. Conclusion: This study has shown that there is a high rate of antibiotic resistance among bacterial isolates in this hospital. A combination of Vancomycin and Ciprofloxacin should be considered in the choice of antibiotics for empirical treatment of suspected infections due to *S. aureus*, *CONS*, *E. coli*, *Klebsiella pneumoniae*, *Pseudomonas* such as in infections within hospital setup.

Keywords : antimicrobial, resistance, bacteria, hospital

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