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Colistin resistant *Acinetobacter baumanii* in a tertiary care hospital of Pakistan: A retrospective single center study

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Statement of the Problem: Multidrug resistant (MDR) *A. baumannii* is a prominent cause of hospital acquired infection. It is a gram-negative Coccobacilli mostly found in soil and is exclusively isolated from hospital environment, but its natural habitat is still unknown. *A. baumannii* is an opportunistic pathogen mostly infecting immunocompromised patients. It can survive on inanimate objects for a long period of time, therefore allowing it to endure in the hospital environment. A surveillance study conducted in the United States revealed that 10% of patients admitted in intensive care unit acquired pneumonia due to *A. baumannii*. The purposes of this study were to determine the resistance pattern of *A. baumannii* to colistin and carbapenem group of antibiotics in a tertiary care hospital located in Karachi, Pakistan and compare it with regional and international resistance pattern.

Methodology & Theoretical Orientation: A total of 705 clinical specimens over the period of July 2016 to June 2017 which included pus, wound swabs, ear swabs, eye swabs, urine, blood, tracheal aspirates and sputum samples were collected. All specimens (wound swabs, ear swabs, eye swabs, sputum, aspirates) were inoculated onto sheep blood agar, cultures were examined macroscopically for growth. Antimicrobial susceptibility was performed by Kirbauer disc diffusion techniques on muller hilton agar plate and standard disc zones were measured according to CLSI guideline. SPSS version 23 was used for statistical analysis. Prevalence and resistance pattern were deduced as well.

Results: A total of 705 clinical specimens were cultured and analyzed for antimicrobial resistance pattern. 61% of the isolates belonged to male patients, while 39% of the isolates belonged to female patients. The isolates were tested against amikacin, aztreonam, sulbactam/cefperazone, ceftazadime, colistin, gentamicin, imipenem, meropenem, tigecycline and piperacillin/tazobactam. 57% and 74% of the isolates were resistant to amikacin and aztreonam respectively. While 60% and 69% of the isolates were resistant to sulbactam/cefperazone and ceftazadime respectively. A total of 14 (2%) isolates out of 705 clinical isolates were also found to be resistant to Colistin.

Conclusion: *Acinetobacter baumanii* isolates show a progressive trend of resistance to carbapenems and colistin. Hence judicious usage of carbapenems and colistin coupled with strict infection control protocols should be implemented. Susceptibility testing for colistin resistance should also be implemented in patients who have gone under treatment with colistin methansulfonate for severe infections.

Speaker Biography

Syed Bilal Tanvir holds an MD degree and a master's in clinical microbiology from Queen Mary, University of London. He completed his postgraduate training in clinical microbiology at Barts and London School of Medicine and Dentistry and the Blizard Institiute. He is currently working in the position of a faculty member at Dar Al Uloom University Hospital, Riyadh, Saudi Arabia. He has previously presented his research in Jeddah, Karachi, Bahrain and London as well. His research interests include surveillance of antimicrobial resistance, systematic review and meta-analysis on newer antimicrobials and surveillance of gram-negative nosocomial infections.

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