



Exploring Correlation Between Biofilm Formation Ability and Resistance Potential of *Acinetobacter baumannii* Strains Isolated from Different Clinical Sources

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ABSTRACT: *Acinetobacter baumannii* belongs to ESKAPE group of pathogens and has emerged as one of the leading causes of nosocomial infections. Biofilm formation is predicted as one of the key pathogenic features of *A. baumannii*, particularly with device-related infections. Moreover, emergence of alarming rates of multidrug-resistance has narrow down the choice of currently available antimicrobials. Present study investigated correlation of multidrug resistance capacity of different *A. baumannii* strains and their biofilm forming ability on polystyrene surfaces. *A. baumannii* isolates from different clinical sources were collected from Department of Microbiology, AIIMS New Delhi. Antibiotics chosen for AST and MIC experiments were based on their usage as conventional antimicrobial regimen (levofloxacin, tetracycline, amikacin, meropenem, imipenem, ceftazidime, cefepime, piperacillin-tazobactam, cefoperazone-subactam) prescribed for treating *A. baumannii* infections and results were interpreted according to CLSI & ICMR guidelines. Biofilm forming capacity of each *A. baumannii* isolate was evaluated by qualitative and quantitative methods using microscopy and microtitre-plate-assay, respectively at 37°C & 44°C temperatures for two different time periods i.e. 24 & 48 hours. *A. baumannii* isolates from urine, pus, respiratory, peritoneal fluid and blood sources exhibited high levels of resistance against all antibiotics in increasing order of magnitude. In medically relevant surface, approximately 50% of strains were characterized as strong biofilm inducer while half of isolates were found as weak biofilm-inducers following incubation for 24h. *A. baumannii* isolates from respiratory, pus, blood and peritoneal fluid showed increased capacity to form biofilm at 37°C. At 48h, proportion of strong biofilm-former increased by 1.2 fold. Overall, highest proportion of antibiotic resistant strains from various sources expressed increased ability to form biofilm than susceptible. Recent studies shows disparity in role of antibiotic resistance strains with higher expression of biofilm formation. Biofilm provides opportunity to bacteria to survive in adverse environment and multidrug-resistant nature of pathogens had deteriorated therapeutic options. © 2016 iGlobal Research and Publishing Foundation. All rights reserved.

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