

Title Comparative Study Assessing the Effect of Tigecycline and Moxifloxacin in Prevention of *Acinetobacter baumannii* Biofilm.

Abstract: Background & Aim of work: In recent years there has been an increase in life-threatening infections caused by *Acinetobacter baumannii* with multiple antibiotic resistance, especially, in case of biofilm formation. This study aimed at assessing the rate of multidrug resistance (MDR) among *A.baumannii* isolates, incidence of biofilm formation and evaluating the role of, recently produced medications from 2 different antibiotic classes; tigecycline (glycylcyclines) and moxifloxacin (flouroquinolones), in prevention of *Acinetobacter* biofilm formation.

Methods: The current investigation was carried out on 30 strains of *A. baumannii* isolated from different samples at King Khalid University Hospital. Strains were identified and characterized for their antibiotic sensitivity. The MICs tests were conducted to all yields for tigecyclin and moxifloxacin antibiotics. The frequency of biofilm formation and strength was determined by modified microtitre plate method. Finally, prevention of biofilm formation was done using 1X MIC, 2X MIC and 0.5X MIC concentrations of tigecyclin and moxifloxacin.

Results: All *A. baumannii* isolates were found to be MDR strains, resistance to tested antibiotic discs were found to be 100% in 23.3% of the tested strains, 90% of them were biofilm formers. MIC to tigecyclin was found to be 100% sensitive to all yields with MIC₉₀ and MIC₅₀ equal to 0.5 µg/ml and 0.25 µg/ml respectively. However, 83.3 % of the strains were resistant to moxifloxacin with MIC₉₀ and MIC₅₀ equal to 32 µg/ml. In testing their ability in avoidance of biofilm formation, unexpectedly, the reduction in biofilm formation were more noticed in the tested concentrations of moxifloxacin with high significance compared with controls in the 3 concentrations tested with ($p < 0.001$). While, tigecycline gave a gradual reduction; double MIC, MIC, 0.5 MIC concentrations showed the significance of ($p < 0.001$, < 0.01 and < 0.05) respectively.

Conclusion and Recommendations: Most *A. baumannii* isolates are MDR isolates with high tendency of biofilm formation, tigecyclin was the most effective tested antibiotic used on the planktonic cells while its effect on biofilm was exceeded by moxifloxacin. Further investigation is needed to understand the molecular basis of such an interesting finding.

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