

عنوان مقاله:

Biofilm Formation and β -lactamase Enzymes: A Synergism Activity in *Acinetobacter baumannii* Isolated from Wound Infection

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خلاصه مقاله:

Background and Objective: Biofilm formation plays a crucial role in wound infections and increases the bacteria resistance to treatment. The present study investigated the relationship between the biofilm formation, ESBL, AmpC, and KPC enzymes in *Acinetobacter baumannii* isolated from the wound specimens. **Materials and Methods:** Eighty-nine *A. baumannii* isolates were collected from wound specimens and were confirmed by different biochemical tests. The biofilm-producing strains were identified using the crystal violet method. The producing strains of KPC, ESBL, and AmpC β -lactamase enzymes were detected through phenotypic tests. Further, the PCR method was employed to identify the ESBL, KPC, and AmpC. The Chi-square test and SPSS 16 were used for data analysis. **Results:** Among 89 wound isolates, 21 and 68 were collected from male and female patients, respectively. The strains resistant to ciprofloxacin (69.66%) and gentamicin (66.29%) were the most frequent strains while ceftazidime (7.86%) and colistin (1.12%) resistant strains had the lowest frequency. Furthermore, 40 isolates were considered as ESBL-producing enzymes, 33 isolates as AmpC, and 26 isolates as KPC-producing enzymes. In addition, the isolates were categorized as strong biofilms with 20 isolates, moderate biofilms with 19 isolates, and weak biofilm-producing strains with 10 isolates. The distribution of the β -lactamase genes in *A. baumannii* isolates was blaVEB (34.83%), blaPER (32.58%), blaFOX (29.21%), blaADC (30.33%), blaIMP (28.08%), and blaKPC (22.47%). **Conclusion:** Our results demonstrated that isolates with a higher level of antibiotic resistance tended to form stronger biofilms. Likewise, the results showed that the relationship between biofilm formation and antibiotic resistance might be affected by the type of β -lactamase enzyme in wound infection.

کلمات کلیدی:

Acinetobacter baumannii, β -lactamases, Biofilm, Bacterial Infections, Drug Resistance

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