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Distribution of AdeABC efflux system genes in *Acinetobacter baumannii* isolates isolated from blood cultures of hospitalized patients and their relationship with Carbapenem resistanceHamza Ari¹, Okanaydogan¹, Mehmet Demirci² and Fatma Koksak Cakirlar¹¹Cerrahpasa Faculty of Medicine, Turkey²Beykent University, Turkey

Statement of the Problem: *Acinetobacter baumannii* is an important nosocomial pathogen leading various infections. The major efflux mechanism associated with carbapenem resistance in *A. baumannii* is the chromosomally encoded tripartite efflux system, AdeABC. Its' over expression is regulated by adeRS genes which encode two-component regulatory system. This study investigated the distribution of the AdeABC efflux pump genes and their relationship to carbapenemases production in *A. baumannii* isolates isolated from blood cultures of hospitalized patients.

Methodology & Theoretical Orientation: A total of 97 *A. baumannii* were isolated from blood cultures of hospitalized patients in Cerrahpasa medical faculty hospital in Istanbul, Turkey. The Phoenix Automated System was used to identify isolates and determine antibiotic susceptibility. AdeRS mutations and adeB gene expression of drug efflux genes were analyzed by sequencing and qPCR, respectively.

Findings: Of our 97 isolates, 61 were carbapenem resistant. Resistance rates of carbapenem resistant *A. baumannii* (CRAB) isolates were found to be 100% for ceftazidime, 96.7% for cefepime, piperacillin-tazobactam, ciprofloxacin, trimethoprim-sulfamethoxazole, 86.8% for amikacin, 75.4% for gentamicin and netilmicin. All isolates were positive for the adeB genes. Significant over expression (3.45-52.18) of adeB was observed in 49 CRAB isolates whereas only 12 CRAB isolates (0.23-0.54) and non-CRAB isolates (0.109-0.783) had less increased levels. In 80.3% of CRAB isolates were positive for the adeRS genes. The p.Val120Ile change in the AdeR amino acid sequence was determined in 42.8% in adeB-overexpressing CRAB isolates. The p.His158Leu and p.Pro116Ser changes were found in 36.7% of these isolates. None of the CRAB isolates had p.Val120Ile, p.His158Leu and p.Pro116Ser changes. In the AdeS amino acid sequence, p.Gly293Ser, p.Leu105Phe and His227Asp changes were most commonly found in adeB-overexpressing CRAB isolates, whereas pGly293Ser change was detected in only %8 of non-CRAB isolates.

Conclusion: The results showed that were significantly associated with between the AdeABC efflux system and both carbapenem and multiple drug resistance in our *A. baumannii* isolates.

Biography

Fatma Koksak Cakirlar has been working as lecturer in Istanbul University Cerrahpasa Medical Faculty, Department of Medical Microbiology, Istanbul, Turkey and she works on hospital infections, drug resistance, nano-technology and rapid diagnostic devices.

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