ABSTRACT 04

Colistin Sensitivity Testing of Acinetobacter baumannii: A Case of Phenotypic Resistance Without Genotypic Evidence

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Objectives: This study's objectives are to determine the susceptibility of clinical isolates of *A. baumannii* towards colistin, and to detect resistance genes in the isolates that reduced susceptibility towards the drug. ***Methods:*** Thirty-seven (37) clinical isolates of *A. baumannii* from patients admitted to HSAAS in 2021 were collected. Minimum inhibitory concentrations (MICs) for colistin were determined using the broth microdilution method and interpreted following the Clinical and Laboratory Standards Institute (CLSI). Whole-genome sequencing (WGS) was performed on isolates exhibiting phenotypic resistance to identify known colistin resistance genes. ***Results:*** Out of the 37 isolates tested, 36 (97.3%) were sensitive to colistin, whereas one isolate (2.7%) demonstrated phenotypic resistance. WGS revealed that this resistant isolate lacked known genes related to colistin resistance such as the *mcr* gene and changes in the *pmrA* and *pmrB* genes. ***Conclusion:*** The findings indicate that colistin remains largely effective against A. baumannii in the clinical setting, with a high sensitivity rate among the isolates tested. A phenotypically resistant isolate that lacks known resistance genes raises the possibility of unidentified novel resistance mechanisms or regulatory factors. We need to study these mechanisms more closely and at the molecular level to understand how colistin continues to work to treat nosocomial infections caused by *A. baumannii*.

Keywords: *Acinetobacter baumannii*, colistin, antibiotic resistance, MIC, broth microdilution, whole genome sequencing, nosocomial infection

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