

## Prevalence of *bla*<sub>OXA</sub> genes in carbapenem-resistant *Acinetobacter baumannii* isolates from clinical specimens from Nopparatrajathanee hospital

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## Abstract

Objectives: This study aimed to investigate the prevalence of blaoXA genes in carbapenem-resistant Acinetobacter baumannii (CRAB) isolates from Nopparatrajathanee hospital, and the resistance rate against the other antimicrobial agents used for A. baumannii treatment. Methodology: The susceptibility of 170 CRAB isolates from July to October 2018 at Nopparat Rajathanee Hospital was tested against seven antimicrobial agents by disk diffusion method. While their susceptibility to colistin was determined by the broth microdilution method. The distribution of carbapenem-resistant genes of bla<sub>OXA-51 like</sub>, bla<sub>OXA-53 like</sub>, bla<sub>OXA-58 like</sub>, and bla<sub>OXA-24 like</sub> in the CRAB isolates was determined using multiplex polymerase chain reaction. The MBL-type carbapenemase genes and ISAba1-bla<sub>OXA-51</sub> like gene in the CRAB isolates were also detected using conventional PCR. Result and Discussion: Most CRAB isolates (99.42%) were resistant to more than 3 categories of antimicrobial agents. Moreover, 31.18% of CRAB were extensively drug-resistant. Although colistin and tigecycline were the 2 most effective antimicrobial agents, the resistance rates were 7.06% and 4.12% respectively. All isolates were detected the intrinsic resistance gene of A. baumannii, the blaoxA-51 like gene. The frequencies of blaoxA-51 like with blaoxA-23 like; blaoxA-51 like with blaoxA-24 like; blaoxA-51 like with blaoxA-23 like and blaoxA-58 like; and ISAba1-blaoxA-51 like were 77.06%, 4.71%, 3.53%, and 14.12%, respectively. None of the isolate was positive for MBL-type carbapenemase genes. This research showed that the dominant carbapenems resistance gene among the CRAB in this hospital was blaoxA-23 like. And also confirmed the horror of drug resistance problems of A. baumannii with limited treatment options, which should raise awareness for everyone.

Keywords: carbapenem-resistant Acinetobacter baumannii, OXA-type carbapenemase genes, extensively drug-resistant

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