ABSTRAK

KESESUAIAN FENOTIPIK MENGGUNAKAN *SIMPLIFIED CARBAPENEMASE INACTIVATION METHOD* DENGAN GENOTIPIK KARBAPENEMASE PADA ISOLAT *Acinetobacter baumannii* RESISTEN KARBAPENEM

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Latar belakang Resistensi bakteri terhadap antibiotik menjadi isu kesehatan global diseluruh dunia. Munculnya *Carbapenem Resistant Acinetobacter baumanni* (CRAB) menjadi isu penting di seluruh dunia. *CRAB* yang mampu bertahan hidup di lingkungan rumah sakit, merupakan sumber infeksi terjadinya *outbreak* global dan epidemik. Deteksi organisme penghasil karbapenamase merupakan hal penting dalam pengendalian infeksi disebabkan organisme penghasil karbapenamase lebih mudah menyebar diantara pasien dibandingkan dengan organisme yang tidak menghasilkan karbapenamase. Deteksi bakteri penghasil karbapenemase yang akurat, mudah dilaksanakan, *cost* efektif dan waktu tunggu yang pendek menjadi hal penting dalam penatalaksanaan terapi pasien terinfeksi CRAB. *Simplified Carbapenem Inactivation Method* (sCIM) merupakan metode deteksi karbapenemase pada bakteri gram negatif yang lebih sederhana dan akurat dibandingkan modified *Carbapenem Inactivation Method*.
Tujuan Penelitian: Menentukan kesesuaian deteksi fenotipik metode sCIM dengan genotipik karbapenemase isolat tersimpan *carbapenem resistant Acinetobacter baumannii* RSUD Dr. Soetomo Surabaya.
Metode Penelitian: Desain penelitian ini adalah studi analitik observasional dengan pendekatan *cross sectional* untuk melihat kesesuaian fenotipik menggunakan sCIM dengan genotipik karbapenemase isolat tersimpan *carbapenem resistant Acinetobacter baumannii* RSUD Dr. Soetomo Surabaya.
Hasil Penelitian: Jumlah total isolat penelitian adalah 40 isolat tersimpan *Acinetobacter baumannii* yang dilakukan uji kepekaan antibiotika menggunakan VITEK 2 compact. Dijumpai 15 dari 26 isolat *Acinetobacter baumannii* yang membawa gen penyandi karbapenemase OXA-23 dengan hasil sCIM positif. Sensitivitas dan spesifisitas sCIM mendeteksi karbapenemase pada *Acinetobacter baumannii* adalah 57,7% dan 100 %. Kesesuaian uji deteksi fenotipik metode sCIM dengan genotipik karbapenemase dengan nilai kappa 0,488 (p=0,000).
Kesimpulan: sCIM dengan nilai sensitivitas rendah akan tetapi spesifisitas tinggi dalam deteksi karbapenemase dan memiliki kesesuaian dengan genotipik karbapenemase pada *Acinetobacter baumannii*.

Kata kunci :CRAB, karbapenamase, *Simplified Carbapenem Inactivation Method*

ABSTRACT

COMPATIBILITY OF PHENOTYPICAL TEST USING SIMPLIFIED CARBAPENEMASE INACTIVATION METHOD TO GENOTIPIC CARBAPENEMASE IN CARBAPENEM-RESISTANT *Acinetobacter baumannii* ISOLATE

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Background: Antibiotics resistance is becoming a global health issue worldwide. The emergence of Carbapenem Resistant *Acinetobacter baumanni* (CRAB) is an important issue throughout the world. CRAB, which is able to survive in a hospital environment, is a source of infection for global outbreaks and epidemics. Detection of carbapenamase-producing organisms is important in infection control purpose because carbapenamase-producing organisms are more easily spread among patients than organisms that do not produce carbapenamase. Detection of carbapenemase-producing bacteria that is accurate, easy to implement, cost effective and short turn around time are important in the management of therapies for patients infected with CRAB. Simplified Carbapenem Inactivation Method (sCIM) is a more simple and accurate carbapenemase detection method for gram negative bacilli compared to modified Carbapenem Inactivation Method.
Objective: To determine the compatibility of the phenotypic detection test of the sCIM method to the genotypic carbapenemase in carbapenem resistant *Acinetobacter baumannii* isolates Dr. Soetomo Surabaya.
Methods: The design of this study was an observational analytic study with a cross sectional approach to analyze the compatibility sCIM to genotypic carbapenemase in carbapenem resistant *Acinetobacter baumannii* Dr. Soetomo Surabaya.
Results: The total number of research isolates were 40 stock isolate *Acinetobacter baumannii* that had been tested for antibiotic sensitivity using VITEK 2 compact. Out of 26 isolates that had OXA-23 carbapenemase genes, there were 15 isolat with positive sCIM results. The sensitivity and specificity of sCIM detecting carbapenemase in *Acinetobacter baumannii* are 57.7% and 100%. The compatibility of the phenotypic detection test of the sCIM to genotypic carbapenemase with kappa value of 0.488 ($p = 0.000$).
Conclusion: sCIM has low sensitivity but high specificity in carbapenemase detection and compatibility with genotypic carbapenemase in *Acinetobacter baumannii*

Keywords: CRAB, carbapenamase, Simplified Carbapenem Inactivation Method