



**KUANTITAS PENGGUNAAN ANTIBIOTIK DAN POLA
RESISTENSI *K. pneumoniae* DI PBRT DAN NICU RSUP DR.
KARIADI SEMARANG**

Studi Khusus Antibiotik Sefalosporin Generasi III dan Karbapenem

**LAPORAN HASIL
KARYA TULIS ILMIAH**

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ABSTRAK

Latar Belakang: Banyak penelitian menunjukkan adanya peningkatan kuantitas penggunaan antibiotik di bangsal perawatan neonatus risiko tinggi yang berdampak pada terjadinya resistensi antibiotik. *K.pneumoniae* adalah patogen penyebab infeksi yang penting pada neonatus dengan kemampuan yang tinggi dalam mengembangkan resistensi terhadap antibiotik.

Tujuan: Menganalisis kuantitas penggunaan antibiotik sefalosporin generasi ketiga dan karbapenem serta pola resistensi *K.pneumoniae* di ruang PBRT dan NICU RSUP Dr. Kariadi.

Metode: Penelitian dilaksanakan restrospektif analitik dengan desain analisis serial waktu. Subyek penelitian adalah semua pasien yang dirawat Januari 2019-Desember 2021. Data kuantitas antibiotik diambil dari Instalasi Farmasi, total lama rawat diambil dari SIM, dan pola resistensi diambil dari laboratorium mikrobiologi RSUP Dr. Kariadi. Kuantitas antibiotik dihitung dengan metode DDD/100 pasien-hari. Analisis data menggunakan uji ANOVA *repeated measures* dan Mann Whitney.

Hasil: Kuantitas penggunaan sefotaksim di NICU 2-7 kali dari PBRT ($p<0,001$) dan terdapat peningkatan yang sangat bermakna pada akhir 2021 ($p=0,03$). Penggunaan meropenem di NICU 5-9 kali lebih tinggi daripada di PBRT ($p<0,001$) dan terdapat peningkatan dari ke waktu ($p=0,027$). *K.pneumoniae* yang sensitif terhadap sefalosporin generasi ketiga dan karbapenem lebih banyak dijumpai di PBRT daripada di NICU walau secara statistik tidak bermakna ($p>0,05$). *K.pneumoniae* yang resisten terhadap karbapenem di PBRT dan NICU hampir sama ($p>0,05$).

Kesimpulan: Penggunaan sefalosporin generasi ketiga dan karbapenem di NICU lebih tinggi daripada di PBRT. Perlu dilakukan upaya pengendalian resistensi antibiotik di PBRT dan NICU RSUP Dr. Kariadi

Kata Kunci: Kuantitas, Sefalosporin Generasi Ketiga, Karbapenem, Pola Resistensi, *K.pneumoniae*, PBRT, NICU

ABSTRACT

Background: Many studies have shown an increase in the quantity of antibiotic use in high-risk baby ward which has an impact on the occurrence of antibiotic resistance. *K.pneumoniae* is an important infectious pathogen in neonates with a high ability to develop resistance to antibiotics.

Objective: To analyze the quantity of third generation of cephalosporin and carbapenem antibiotic use and the pattern of *K.pneumoniae* resistance in the high-risk baby ward and NICU Dr. Kariadi Hospital.

Methods: The study was retrospectively with a time series analysis design. The research subjects were all patients who were treated from January 2019 to December 2021. Quantity of antibiotic data was taken from the Pharmacy Installation, total length of stay was taken from the Management Information System, and resistance patterns were taken from the microbiology laboratory of Dr. Kariadi Hospital. The quantity of antibiotics was calculated using the DDD/100 patient-day method. Data analysis used repeated measures ANOVA and Mann Whitney tests.

Results: The quantity of cefotaxime used in the NICU is 2-7 times that used in high-risk baby ward ($p<0.001$) and there is a very significant increase at the end of 2021 ($p=0.03$). The use of meropenem in the NICU was 5-9 times higher than in high-risk baby ward ($p<0.001$) and there was an increase over time ($p=0.027$). *K.pneumoniae* which was sensitive to third generation of cephalosporins and carbapenems was found more often in high-risk baby ward than in the NICU although it was not statistically significant ($p>0.05$). The resistance of *K.pneumoniae* to carbapenems in high-risk baby ward and NICU was almost the same ($p>0.05$).

Conclusion: the use of third generation of cephalosporins and carbapenems in the NICU is higher than in high-risk baby ward. Efforts are needed to control antibiotic resistance in high-risk baby ward and NICU Dr. Kariadi Hospital.

Keywords: Quantity, Third Generation of Cephalosporins, Carbapenems, Pattern of Resistance, *K.pneumoniae*, high risk baby ward, NICU