

## INTISARI

Penggunaan amikasin dan gentamisin menjadi pilihan antibiotik golongan aminoglikosida dengan indeks terapi sempit dalam terapi infeksi untuk neonatus dan penggunaannya perlu diikuti dengan monitoring terapi agar dapat mencegah toksisitas terjadi. Penelitian ini bertujuan untuk mengevaluasi kesesuaian dosis amikasin dan gentamisin pasien NICU (*Neonatal Intensive Care Unit*) dengan metode estimasi dan mengevaluasi hasil terapinya yang dilihat dari perbaikan *clinical outcome* pasien.

Penelitian ini dilakukan dengan desain *cross sectional* dan dilakukan penelusuran data rekam medik pasien neonatus mendapatkan terapi amikasin atau gentamisin saat menjalani rawat inap di NICU (*Neonatal Intensive Care Unit*) RSUP Dr. Sardjito Yogyakarta periode 1 Januari 2017 - Desember 2018. Estimasi kadar didapatkan dari dosis pemberian dan dilakukan perhitungan farmakokinetika. *Clinical outcome* yang diamati yakni tanda-tanda vital (suhu, tekanan darah, laju pernapasan, dan detak jantung) serta angka leukosit pasien. Analisis data dilakukan secara deskriptif meliputi karakteristik pasien dan perhitungan kesesuaian dosis antibiotik. Analisis statistika untuk mengetahui hubungan estimasi kadar dan variabel perancu terhadap *clinical outcome*. Uji *Chi Square* atau *Fisher Exact's Test* dan dilakukan uji *multiple logistic regression* untuk mengetahui hubungan variabel bebas dan variabel perancu.

Hasil penelitian menunjukkan 171 pasien yang memenuhi kriteria inklusi dan eksklusi, 143 pasien menerima amikasin dan 204 pasien menerima gentamisin. Pasien yang menerima amikasin dan gentamisin mengalami *clinical outcome* membaik berturut-turut sebanyak 18 pasien dan 28 pasien. Analisis bivariat menunjukkan tidak ada hubungan estimasi Cmax/MIC ( $p=0.146$ ; 1.000) amikasin dan gentamisin terhadap *clinical outcome*. Selain itu hasil analisis bivariat pada variabel perancu didapatkan terdapat hubungan lama infeksi ( $p=0.005$ ) dan *length of stay* ( $p=0.000$ ) dan *clinical outcome*. Analisis *multiple logistic regression* didapatkan ada hubungan *length of stay* terhadap *clinical outcome* ( $p=0.021$ ).

**Kata Kunci :** Aminoglikosida, estimasi kadar, *clinical outcome*, NICU

## ABSTRACT

The use of amikacin and gentamicin is the antibiotic choice of aminoglycosides with a narrow therapeutic index in the treatment of infections for neonates and their use needs to be followed by monitoring therapy in order to prevent toxicity from occurring. This study aims to evaluate the suitability of amikacin and gentamicin doses of NICU (Neonatal Intensive Care Unit) patients with estimation methods and evaluate the therapeutic results seen from the improvement of the patient's clinical response.

This research was conducted with cross sectional design and traced medical records of neonate patients receiving amikacin or gentamicin therapy while inpatient at NICU (Neonatal Intensive Care) Dr. RSUP. Sardjito Yogyakarta period January 1, 2017 - December 2018. Estimated levels were obtained from dosing and pharmacokinetic calculations were performed. Clinical outcomes observed were vital signs (temperature, blood pressure, respiratory rate, and heart rate) and the patient's leukocyte count. Data analysis was performed descriptively covering patient characteristics and calculating antibiotic dosage suitability. Statistical analysis to determine the relationship between the estimated levels and confounding variables on clinical outcome. Chi Square Test or Fisher's Exact Test and a multiple logistic regression test was performed to determine the relationship between the independent variables and confounding variables.

The results showed 171 patients fulfilled the inclusion and exclusion criteria, 143 patients received amikacin and 204 patients received gentamicin. Patients who received amikacin and gentamicin experienced improved clinical outcomes in 18 and 28 patients, respectively. Bivariate analysis showed no correlation between the estimation of  $C_{max}/MIC$  ( $p=0.146$ ; 1,000) amikacin and gentamicin levels with clinical outcome. In addition, the results of bivariate analysis on confounding variables found an association between duration of infection ( $p=0.005$ ) and length of stay ( $p=0.000$ ) and clinical outcome. Multiple logistic regression analysis found that there was a correlation between length of stay and clinical outcome ( $p=0.021$ ).

**Keywords:** Aminoglycoside, predicted concentration, clinical outcome, NICU