

## **INFEKSI *MULTI DRUG RESISTANT ORGANISMS* DAN PENDEKATAN MULTIDIMENSIONAL SEBAGAI FAKTOR PROGNOSTIK MORTALITAS PADA INFEKSI INTRAABDOMINAL KOMPLIKATA**

### **Latar belakang**

Infeksi intra-abdominal komplikata (IIK) merupakan salah satu kasus bedah *emergency* terbanyak dengan mortalitas yang tinggi. Sistem klasifikasi/skor mortalitas pada IIK telah banyak digunakan namun nilai akurasi belum maksimal. Algoritma baru dengan pendekatan multidimensional diperlukan untuk prediksi mortalitas IIK.

### **Tujuan**

Menganalisis nilai prognostik skor APACHE II, MPI, CCI, MODS, infeksi MDRO, dan algoritma multidimensional baru McGAMA pada mortalitas pasien IIK.

### **Metode**

Penelitian dengan desain observasional kohort prospektif dilakukan pada pasien cIAI yang menjalani tindakan laparatomi pada bulan November 2023-Juli 2024 di RS Sardjito Yogyakarta. Pemeriksaan mikrobiologi berupa identifikasi dan uji kepekaan antibiotik dilakukan pada spesimen intraabdominal menggunakan Vitek II. Informasi mengenai karakteristik demografis, presentasi klinis, karakteristik laboratorik, dan outcome mortalitas dikumpulkan dengan mengikuti pasien selama 30 hari perawatan paska laparatomi sampai dengan pasien meninggal/pulang/keluar dari RS. Analisis statistik dilakukan dengan menggunakan uji t, X<sup>2</sup>, multivariat regresi logistik berganda, kurva ROC, menentukan titik potong skor, menentukan nilai sensitivitas, spesifisitas, PPV, NPV, dan akurasi dari masing-masing variabel prognostik.

### **Hasil**

Dari 91 pasien cIAI dengan laparatomi yang dilibatkan dalam penelitian, mortalitas terjadi 28,6% subyek. Infeksi MDRO terjadi pada 52,7% subyek. Skor APACHE II ( $p=0.00$ ), MPI( $p=0.00$ ), MODS( $p=0.00$ ), dan infeksi MDRO ( $p=0.03$ ) berpengaruh secara signifikan terhadap mortalitas. Nilai prognostik mortalitas (AUC, sensitivitas, spesifisitas) skor APACHE II (AUC=0.938, sensitivitas=88.5%, spesifitas=86.2%), MPI (AUC=0.920, sensitivitas=92.3%, spesivitas=81.5%), MODS (AUC=0.916, sensitivitas=76.9%, spesifitas=93.8%), CCI (AUC= 0.582, sensitivitas=61.5%, spesivitas=56.9%), infeksi MDRO (AUC=0.623, sensitivitas=61.5%, spesifitas=63.1%), dan McGAMA (AUC=0.930, sensitivitas=80,8%, spesifisitas 87,7%)

### **Kesimpulan**

Algoritma baru McGAMA yang melibatkan faktor kombinasi MODS, MPI, APACHE II ,dan MDRO memiliki nilai prediksi mortalitas yang sangat baik pada pasien dengan IIK.

**Keywords:** IIK, nilai prognostik, MDRO, McGAMA

## **MDRO INFECTION AND MULTIDIMENSIONAL APPROACHES AS PREDICTORS OF MORTALITY IN COMPLICATED INTRA-ABDOMINAL INFECTION**

### **Background**

*Complicated intra-abdominal infection (cIAI) is a frequently encountered emergency surgery case with a high mortality rate. While the mortality scoring system in cIAI has been widely adopted, its accuracy has not been fully optimized. New algorithms incorporating multidimensional approaches are required for predicting mortality in cIAI patient.*

### **Objective**

*To analyze the prognostic value of APACHE II, MPI, CCI, MODS, MDRO infections and new multidimensional algorithms (McGAMA) in the mortality of patients with cIAI.*

### **Materials and Methods**

*A prospective cohort observational study was conducted on cIAI patients who underwent laparotomy procedures in November 2023 to July 2024 at Sardjito Hospital Yogyakarta. Microbiological examinations in the form of identification and antibiotic sensitivity tests were carried out on intraabdominal specimens using Vitek II. Information on demographic characteristics, clinical presentation, laboratory characteristics, and mortality outcomes was collected by following patients for 30 days of post-laparotomy care until the patient died/was discharged from the hospital. Statistical analysis was carried out using a t-test, X2, binary logistic regression and ROC curve, determining the cut-off point of the score, sensitivity, specificity, PPV, NPV, and accuracy of each prognostic variable.*

### **Results**

*Out of the 91 cIAI patients who underwent laparotomy, mortality was observed in 28.6% of them. MDRO infection was identified in 52.7% of the subjects. Significant factors affecting mortality were APACHE II scores ( $p=0.00$ ), MPI scores ( $p=0.00$ ), MODS scores ( $p=0.00$ ), and MDRO infection ( $p=0.03$ ). The prognostic performance of mortality based on the AUC, sensitivity, and specificity scores were as follows: APACHE II (AUC=0.938, sensitivity=88.5%, specificity=86.2%), MPI (AUC=0.920, sensitivity=92.3%, specificity=81.5%), MODS (AUC=0.916, sensitivity=76.9%, specificity=93.8%), CCI (AUC= 0.582, sensitivity=61.5%, specificity=56.9%), MDRO infection (AUC= 0.623, sensitivity=61.5%, specificity=63.1%) and McGAMA (AUC=0.930, sensitivitas=80.8%, sensitivitas=87.7%).*

### **Conclusion**

*The new McGAMA algorithm, which combines factors of MODS, MPI, APACHE II, and MDRO, shows excellent predictive value for mortality in patients with cIAI.*

**Keywords:** *cIAI, prognostic score, MDRO, McGAMA*