

## INTISARI

### KADAR GLUKOSA DARAH SEWAKTU, *NEUTROPHIL LYMPHOCYTE RATIO* DAN *PLATELET LYMPHOCYTE RATIO* SEBAGAI PREDIKTOR KEMATIAN SELAMA PERAWATAN PADA PASIEN DIABETES MELITUS TIPE II DENGAN PENYAKIT KRITIS

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**Latar Belakang:** Peningkatan kadar glukosa darah awal pemeriksaan berkaitan dengan risiko kematian pada pasien Diabetes Melitus. Nilai NLR PLR sebagai penanda inflamasi dapat menjadi prediktor kematian. Penelitian ini dilakukan untuk mengetahui bahwa GDS, NLR dan PLR dapat digunakan sebagai prediktor terhadap kematian selama perawatan pasien DM tipe II dengan penyakit kritis.

**Metode Penelitian:** Penelitian dilakukan secara observasional kohort retrospektif. Sampel penelitian adalah pasien DM tipe II yang dirawat di bangsal intensif di RSUP dr. Sardjito Yogyakarta. *Cut off* variabel data ditentukan dari analisis kurva *Receiver Operating Characteristic* (ROC). Uji hipotesis dilakukan dengan uji *binary logistic regression* dan uji *multivariate logistic regression*.

**Hasil Penelitian:** Total sampel 408 pasien dengan 150 (36,8%) pasien meninggal dan 258 (63,2%) pasien hidup hingga akhir perawatan. Nilai GDS  $\geq 185$  (p 0,013; OR 1,93; 95%CI 1,15-3,23); nilai NLR  $\geq 5,4$  (p <0,001; OR 3,34; 95%CI 1,95-5,69) dan nilai PLR  $\geq 211$  (p 0,014; OR 1,80; 95%CI 1,12-2,88) memiliki hubungan bermakna dengan kematian. Penentuan skoring menggunakan nilai GDS, NLR dan PLR sebagai prediktor kematian memiliki sensitifitas 86% dan spesifitas 47,7%.

**Kesimpulan:** Kadar glukosa darah, nilai NLR dan PLR pada awal perawatan, dapat menjadi faktor prognosis kematian selama perawatan pasien DM tipe II dengan penyakit kritis.

**Kata Kunci:** rasio netrofil limfosit (NLR), rasio platelet limfosit (PLR), glukosa darah, diabetes melitus (DM)

## ABSTRACT

ADMISSION BLOOD GLUCOSE LEVELS, *NEUTROPHIL LYMPHOCYTE RATIO*  
AND *PLATELET LYMPHOCYTE RATIO* AS PREDICTORS OF IN-HOSPITAL  
MORTALITY IN TYPE II DIABETES MELLITUS PATIENTS  
WITH CRITICAL ILLNESS

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**Background:** An elevated admission blood glucose level has correlation with hospital mortality in diabetes patient. The neutrophil to lymphocyte ratio and platelet to lymphocyte ratio as marker of inflammation can predict mortality. In this study, we investigated whether admission blood glucose, NLR and PLR could predict mortality in type 2 diabetes patients with critical ill.

**Methods:** A retrospective observational cohort study was conducted involving 408 type 2 diabetes patients admitted to intensive care unit at Dr. Sardjito General Hospital, Yogyakarta. Cut-off of continuous variables were determined using Receiver Operating Characteristic (ROC) curve analysis. Hypothetical analysis was conducted using binary logistic regression and multivariate logistic regression. Analysis of mortality risk factor used binary logistic regression.

**Result:** Analysis was performed on data from 408 patients, of whom 150 (36.8%) died and 258 (63.2%) survived during hospitalization. Admission blood glucose levels  $\geq 185$  (p 0.013; OR 1.93; 95%CI 1.15-3.23); NLR level  $\geq 5.4$  (p <0.001; OR 3.34; 95%CI 1.95-5.69), and PLR level  $\geq 211$  (p 0.014; OR 1.80; 95%CI 1.12-2.88) were significantly correlated with hospital mortality. Scoring system using admission blood glucose, NLR and PLR as predictors of mortality demonstrated 86% sensitivity and 47.7% specificity.

**Conclusion:** Admission blood glucose, NLR and PLR level are efficient predictor for in-hospital mortality in type 2 diabetes patient with critical ill.

**Keywords:** neutrophil to lymphocyte ratio (NLR), platelet to lymphocyte ratio (PLR), admission blood glucose (ABG), diabetes mellitus (DM)