

ABSTRAK

BIOMARKER INFLAMASI SISTEMIK SEBAGAI FAKTOR PROGNOSIS KEMATIAN PADA PASIEN JEMAAH HAJI USIA LANJUT DAN NON USIA LANJUT DENGAN PNEUMONIA DI KLINIK KESEHATAN HAJI INDONESIA DI MEKAH

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Latar belakang

Platelet to Lymphocyte Ratio (PLR), *Monocyte to Lymphocyte Ratio* (MLR), *Sistemic Immune-Inflammation Index* (SII) dan *Pan Immune Inflammation Value* (PIIV) merupakan biomarker inflamasi yang baru dalam memprediksi pneumonia. Penelitian ini bertujuan untuk mengetahui apakah biomarker tersebut dapat menjadi faktor prognostik kematian pada pasien jemaah haji usia lanjut dan non usia lanjut beserta nilai *cut-off* nya.

Metode

Penelitian *cross sectional* dengan mengambil data admisi pasien jemaah haji usia lanjut dan non usia lanjut terdiagnosis pneumonia yang dirawat inap di KKHI Mekah mulai dari 1 Juni hingga 24 Juli 2023. Analisa bivariat dengan uji *Chi-Square/Fisher* dan multivariat dengan regresi logistik.

Hasil

Total ada 138 subjek. Pada kelompok usia lanjut, nilai PLR (OR=2.92; *cut-off* $\geq 165,39$; AUC=0.681; sensitifitas 65.4%; spesifisitas 60.7%), nilai SII (OR=19.32; *cut-off* ≥ 1531.75 ; AUC=0.889; sensitifitas 80.8%; spesifisitas 82.1%) dan nilai PIIV (OR=6.83; *cut-off* ≥ 228.71 ; AUC=0.746; sensitifitas 80.8%; spesifisitas 61.9%) merupakan faktor resiko kematian dan signifikan secara statistik ($p < 0.05$). Pada kelompok non usia lanjut nilai PLR (OR=n/s; *cut-off* $\geq 203,87$; AUC=0.704; sensitifitas 100.0%; spesifisitas 56,5%), dan SII (OR=14,40; *cut-off* $\geq 5864,88$; AUC=0.800; sensitifitas 80.0%; spesifisitas 78.3%) merupakan faktor risiko kematian dan signifikan secara statistik ($p < 0.05$).

Kesimpulan

Biomarker inflamasi sistemik yang menjadi faktor prognostik kematian pada jemaah haji usia lanjut yaitu PLR (*cut-off* $\geq 165,39$), SII (*cut off* $\geq 1531,75$), dan PIIV (*cut-off* $\geq 228,71$), sedangkan pada kelompok jemaah haji non usia lanjut yaitu nilai PLR (*cut-off* $\geq 203,87$) dan SII (*cut-off* $\geq 5864,88$).

Kata kunci: biomarker, PLR, MLR, SII, PIIV, pneumonia, usia lanjut, non usia lanjut, prognosis kematian

ABSTRACT

SYSTEMIC INFLAMMATORY BIOMARKERS AS A PROGNOSTIC FACTORS OF MORTALITY IN ELDERLY AND NON-ELDERLY HAJJ PATIENTS WITH PNEUMONIA AT THE KLINIK KESEHATAN HAJI INDONESIA IN MECCA

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Background

Platelet to Lymphocyte Ratio (PLR), Monocyte to Lymphocyte Ratio (MLR), Systemic Immune-Inflammation Index (SII) and Pan Immune Inflammation Value (PIIV) are new inflammatory biomarkers in predicting pneumonia. Aim of this study is to determine whether these biomarkers can be prognostic factors of mortality in elderly and non-elderly Hajj pilgrim patients and their cut-off values.

Methods

This cross-sectional study collected admission data of elderly and non-elderly Hajj pilgrims diagnosed with pneumonia and hospitalised at KKKHI Mecca from 1 June to 24 July 2023. Bivariate analysis with Chi-Square/Fisher test and multivariate with logistic regression.

Results

A total 138 subjects were included. In the elderly group, PLR values (OR=2.92; cut-off ≥ 165.39 ; AUC=0.681; sensitivity 65.4%; specificity 60.7%), SII values (OR=19.32; cut-off ≥ 1531.75 ; AUC=0.889; sensitivity 80.8%; specificity 82.1%) and PIIV value (OR=6.83; cut-off ≥ 228.71 ; AUC=0.746; sensitivity 80.8%; specificity 61.9%) were risk factors for mortality and statistically significant ($p < 0.05$). In the non-elderly group, PLR (OR=n/s; cut-off ≥ 203.87 ; AUC=0.704; sensitivity 100.0%; specificity 56.5%), and SII (OR=14.40; cut-off ≥ 5864.88 ; AUC=0.800; sensitivity 80.0%; specificity 78.3%) were risk factors for mortality and statistically significant ($p < 0.05$).

Conclusion

Systemic inflammatory biomarkers that are prognostic factors of mortality in elderly pilgrims are PLR (cut-off ≥ 165.39), SII (cut-off ≥ 1531.75), and PIIV (cutoff ≥ 228.71), whereas in non-elderly pilgrims are PLR (cut-off ≥ 203.87) and SII (cut-off ≥ 5864.88).

Key words: biomarker, PLR, MLR, SII, PIIV, pneumonia, elderly, non-elderly, mortality