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The Neutrophil-to-Lymphocyte Ratio on Admission as Important Predictor of Mortality in Patients with Acute Myocardial Infarct

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ABSTRACT (upto 300 words)

Background

The neutrophil-to-lymphocyte ratio (NLR) in peripheral blood has recently emerged as a potential biomarker predicting worse clinical conditions ranging from infectious disease to cardiovascular disease. Therefore, the study aimed to evaluate the optimal cutoff level of NLR level for predicting mortality in acute myocardial infarction (AMI) patients.

Methods

We retrospectively analyzed the data and laboratory characteristics of 332 consecutive cases of AMI patients in Prof. dr. R. D. Kandou General Hospital from September 2020 to December 2021. Patients with acute infections, HIV/AIDS, who used corticosteroids in the last three months, and antibiotics in the last 24 hours were excluded. NLR was computed from the absolute values of neutrophils and lymphocytes from the complete blood count (CBC). In addition, the CBC at admission event was collected. Finally, the optimal cutoff level of NLR was analyzed using ROC curves to discriminate those survivors versus non-survivors during hospitalization.

Results

The value of NLR in predicting death (AUC = 0.88, p = 0.0001) was higher than the platelet-lymphocyte ratio (PLR) (AUC = 0.79, p = 0.0001), the neutrophil-monocyte ratio (NMR) (AUC = 0.61, p = 0.075), and the lymphocyte-monocyte ratio (LMR) (AUC = 0.17, p = 0.0001). The optimum cutoff NLR level to predict mortality was 7.36, with a sensitivity 72% and a specificity of 90.55%. Patients with NLR levels ≥ 7.36 had a higher probability of mortality when comparing with those who with NLR levels < 7.36 (OR = 24.65, 95% CI (9.5 – 63.94), p = 0.0001).

Conclusion

NLR could be the early and important predictor of mortality in AMI patients.

BIOGRAPHY (upto 200 words)

Visakha Revana Irawan has completed her medical degree at the age of 23 years from Atma Jaya Medical School, Indonesia. She is a medical resident that currently learn in Department of Internal Medicine, Faculty of Medicine, Sam Ratulangi University / Prof. dr. R. D. Kandou General Hospital, Indonesia. She is very keen to further increase her expertise regarding the research of Internal Medicine.

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