

HUBUNGAN ANTARA *NEUTROPHIL-TO-LYMPHOCYTE RATIO* TERHADAP FRAKSI EJEKSI VENTRIKEL KIRI PADA PASIEN INFARK MIOKARDIUM AKUT DENGAN ELEVASI SEGMENT ST YANG DILAKUKAN INTERVENSI KORONER PERKUTAN PRIMER

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ABSTRAK

Latar Belakang: Infark miokardium akut dengan elevasi segmen ST (IMA-EST) merupakan salah satu spektrum sindrom koroner akut (SKA) yang memiliki beban mortalitas dan morbiditas yang tinggi. Terapi reperfusi berupa intervensi koroner perkutan (IKP) primer direkomendasikan untuk pasien IMA-EST. Oklusi total pembuluh darah jantung pada IMA-EST menyebabkan terjadinya disfungsi miokardium. Fraksi ejeksi ventrikel kiri (FEVK) merupakan parameter untuk penilaian fungsi sistolik ventrikel dan berguna untuk prognosis penyakit jantung. *Neutrophil-to-lymphocyte Ratio* (NLR), suatu biomarker sederhana, telah banyak diteliti sebagai prediktor kejadian kardiovaskuler mayor pada pasien SKA dan mortalitas pada pasien IMA-EST. Diperlukan biomarker sederhana untuk stratifikasi risiko pasien IMA-EST terhadap kejadian penurunan FEVK setelah dilakukan IKP primer.

Tujuan: Untuk mengetahui hubungan antara NLR dengan fraksi ejeksi ventrikel kiri pada pasien IMA-EST yang menjalani IKP primer.

Metode: Penelitian ini merupakan penelitian observasional analitik dengan desain potong lintang. Subjek penelitian berjumlah 196 pasien dengan diagnosis IMA-EST yang dilakukan IKP primer pada Agustus 2019—November 2020. Data didapatkan dari registri SCIENCE (*Sardjito Cardiovascular Intensive Care*) secara *consecutive sampling*. Analisis data menggunakan uji korelasi *Pearson* dan uji korelasi *Phi* mengetahui korelasi antara NLR dengan FEVK. Nilai *cut-off* NLR didapatkan dari kurva *receiver operating characteristic* (ROC).

Hasil: Tidak terdapat korelasi negatif yang signifikan antara NLR dengan FEVK, baik secara keseluruhan ($r=-0,065$; $p=0,362$) maupun setelah dilakukan pengelompokan berdasarkan nilai *cut-off* NLR 5,73 dan FEVK 50% ($r=-0,107$; $p=0,133$). Berbagai faktor perancu seperti *onset*, *wire crossing time*, *total ischemic time*, lokasi infark, riwayat merokok, hipertensi, diabetes, dan stroke didapatkan tidak berpengaruh secara signifikan terhadap FEVK.

Kesimpulan: Tidak terdapat korelasi negatif yang signifikan antara NLR dengan FEVK pada pasien IMA-EST yang dilakukan IKP primer.

Kata Kunci: Fraksi Ejeksi Ventrikel Kiri (FEVK), Intervensi Koroner Perkutan Primer, *Neutrophil-to-lymphocyte Ratio* (NLR)

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***CORRELATION BETWEEN NEUTROPHIL-TO-LYMPHOCYTE RATIO
AND LEFT VENTRICULAR EJECTION FRACTION IN ST-ELEVATION
MYOCARDIAL INFARCTION PATIENTS UNDERGOING PRIMARY
PERCUTANEOUS CORONARY INTERVENTION***

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ABSTRACT

Background: ST-elevation myocardial infarction (STEMI) is one of the acute coronary syndrome (ACS) spectrum which has a high burden of mortality and morbidity. Reperfusion therapy in the form of primary percutaneous coronary intervention (PCI) is currently recommended for STEMI patients. Total occlusion of coronary vessels during STEMI leads to myocardial dysfunction. Left ventricular ejection fraction (LVEF) is a parameter to assess ventricular systolic function and is known as a prognostic factor in heart diseases. Neutrophil-to-lymphocyte Ratio (NLR), a simple biomarker, has been widely studied as a predictor of major adverse cardiac events in ACS patients and mortality in STEMI patients. Simple biomarkers are needed to stratify the risk of STEMI patients against decreased LVEF after primary PCI.

Objective: This study aims to investigate the correlation between NLR and LVEF in STEMI patients undergoing primary PCI.

Methods: This is an analytic observational study with a cross-sectional design. A total of 196 STEMI patients undergoing primary PCI on August 2019–November 2020 were included in this study. Data were consecutively obtained from SCIENCE (Sardjito Cardiovascular Intensive Care) registry. Data analyses used in this study were Pearson's Correlation Test and Phi Correlation Test to determine the correlation between NLR and LVEF. NLR cut-off value was obtained from the receiver operating characteristic (ROC) curve analysis.

Results: There was no significant negative correlation between NLR and LVEF both in whole analysis ($r = -0,065$; $p = 0,362$) and in sub-group analysis ($r = -0,107$; $p = 0,133$) based on the cut-off value of NLR (5,73) and LVEF (50%). Various confounding factors, including onset, wire crossing time, total ischemic time, location of infarction, smoking, hypertension, diabetes, and stroke were found to have no significant effects on LVEF.

Conclusions: There was no significant negative correlation between NLR and LVEF in STEMI patients undergoing primary PCI.

Keywords: Neutrophil-to-lymphocyte Ratio (NLR), Left ventricular ejection fraction (LVEF), primary percutaneous coronary intervention (PCI)

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