ABSTRACT

Inflammation is a major underlying factor in various diseases in Indonesia. Complete Blood Count (CBC) examination can be used to assess hematological indices related to inflammation, such as the Neutrophil-to-Lymphocyte Ratio (NLR), Monocyte-to-Lymphocyte Ratio ratio (MLR), and Platelet-to-Lymphocyte Ratio (PLR), which serve as inflammatory markers and prognostic predictors in various medical conditions. However, reference intervals for these biomarkers may vary between populations due to environmental, lifestyle, and genetic factors that influence physiological conditions.

This study aimed to determine the reference intervals of NLR, MLR, and PLR in a healthy adult population. A retrospective cross-sectional observational study was conducted using secondary data from healthy adult candidates for residency training programs who underwent medical examinations at the Department of Clinical Pathology and Laboratory Medicine, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, during April–May 2023. Reference intervals were established using the 2.5th to 97.5th percentiles, and differences between sex groups were analyzed.

The reference intervals for NLR and PLR were 0.91–3.30 and 71.84–217.30 in males, and 1.05–4.04 and 86.71–274.43 in females, respectively. The reference interval for MLR ranged from 0.08 to 0.34. Significant differences were observed in NLR and PLR based on sex, with higher values in females, while MLR showed no significant sex-related differences and may therefore be applied as a combined reference interval.

Keywords: NLR, MLR, PLR, Reference Interval.

INTISARI

Inflamasi merupakan penyebab utama berbagai penyakit di Indonesia. Pemeriksaan darah lengkap (*Complete Blood Count*) dapat digunakan untuk menilai indeks hematologi terkait inflamasi, seperti *Neutrophil-to-Lymphocyte Ratio* (NLR), *Monocyte-to-Lymphocyte Ratio* (MLR), dan *Platelet-to-Lymphocyte Ratio* (PLR), yang berperan sebagai penanda inflamasi dan prediktor prognosis pada berbagai kondisi medis. Namun, interval referensi biomarker tersebut dapat berbeda antar populasi akibat pengaruh lingkungan, gaya hidup, dan faktor genetik.

Penelitian ini bertujuan untuk menentukan interval referensi NLR, MLR, dan PLR pada populasi dewasa sehat. Studi observasional cross sectional retrospektif dilakukan menggunakan data sekunder calon mahasiswa PPDS yang menjalani pemeriksaan kesehatan di Departemen Patologi Klinik dan Kedokteran Laboratorium FK-KMK UGM periode April–Mei 2023. Interval referensi ditetapkan berdasarkan persentil ke-2,5 hingga 97,5, serta dianalisis perbedaan berdasarkan jenis kelamin.

Hasil menunjukkan interval referensi NLR dan PLR pada laki-laki masing-masing 0,91–3,30 dan 71,84–217,30, serta pada perempuan 1,05–4,04 dan 86,71–274,43. Interval referensi MLR berada pada rentang 0,08–0,34. NLR dan PLR berbeda signifikan berdasarkan jenis kelamin, dengan nilai lebih tinggi pada perempuan, sedangkan MLR tidak menunjukkan perbedaan bermakna sehingga dapat digunakan sebagai interval referensi gabungan.

Kata kunci: NLR, MLR, PLR, Interval Referensi.