


The Prognostic Value of Blood Parameters in Patients Diagnosed with Ischemic and Hemorrhagic

 Nedim Uzun¹

¹ Health Sciences University, Istanbul Gaziosmanpaşa Health Application and Research Center, Istanbul, Turkey

To the Editor,

I have carefully reviewed the study titled “Prognostic Value of Blood Parameters in Patients Diagnosed With Ischemic And Hemorrhagic Cerebrovascular Events” by Sema Ayten, published in the Eurasian Journal of Critical Care, Volume 6, Issue 3, pages 119-122. The study retrospectively evaluates the relationship between the neutrophil-to-lymphocyte ratio (NLR) and hospital length of stay in patients with ischemic and hemorrhagic stroke. In this letter, I aim to discuss the strengths, methodological limitations, and contributions of the study to the literature. Additionally, I will provide a current evaluation of the clinical use of inflammatory biomarkers, share conflicting findings in this field, and offer suggestions for future research.

Strengths and Contributions to the Literature; The most notable aspect of the study is its separate analysis of the prognostic value of NLR in both ischemic and hemorrhagic stroke groups. Given the conflicting findings in the literature (e.g., studies showing NLR’s association with mortality[1,2,3] and those indicating no such association[4,5]), the results of this study present an important point of discussion. The authors emphasize that there is no significant correlation between NLR and hospital length of stay, suggesting that NLR alone may have limited utility as a prognostic marker. This finding is particularly relevant in clinical practice, considering the heterogeneity of inflammatory processes.

However, the study has some limitations. First, only 16 patients were included in the hemorrhagic stroke group. This small sample size may weaken the statistical

power and increase the risk of Type II error. Additionally, the retrospective design limits the control of potential confounding factors (e.g., comorbidities, treatment protocols). Measuring NLR at a single time point (upon admission) may also restrict the assessment of dynamic inflammatory responses. Future studies could benefit from serial measurements of NLR and its combination with other inflammatory biomarkers to yield more comprehensive results.

The Role of Inflammatory Biomarkers in Other Clinical Scenarios; The findings of the study by Ayten et al. suggest that NLR is not consistent across all clinical scenarios. However, other studies have demonstrated the significant role of NLR and similar biomarkers in various emergency conditions. For example, in distinguishing testicular torsion from epididymo-orchitis, the pan-immune inflammation value (PIV) showed excellent diagnostic power (AUC: 0.81), while NLR, systemic immune-inflammation index (SII), and systemic inflammation response index (SIRI) demonstrated acceptable performance[6]. Similarly, in patients with Stanford Type B acute aortic dissection, the monocyte-to-lymphocyte ratio (MLR) and NLR excellently predicted in-hospital mortality (AUC: 0.826-0.822)[7]. In incarcerated inguinal hernias, NLR, SII, SIRI, and PIV showed acceptable diagnostic performance (AUC: 0.738-0.765), reflecting dynamic inflammatory responses[8]. Furthermore, in acute cholecystitis patients, NLR and SII demonstrated superior predictive power for 30-day mortality (AUC: 0.87-0.78), supporting their use in critical clinical decisions[9].

Corresponding author: Nedim Uzun

e-mail: nedimuzun@gmail.com

Received: 12.03.2025 • **Revision:** 12.03.2025 • **Accepted:** 10.04.2025

DOI: 10.55994/ejcc.1656073

©Copyright by Emergency Physicians Association of Turkey -
Available online at <https://dergipark.org.tr/tr/pub/ejcc>

Cite this article as: Uzun N . The Prognostic Value of Blood Parameters in Patients Diagnosed With Ischemic And Hemorrhagic. Eurasian Journal of Critical Care. 2025;7(1): 49-50

ORCID:

Nedim Uzun: orcid.org/0000-0001-9593-5869

Conflicting Findings and Limitations; Inflammatory biomarkers do not appear to be consistent across all clinical scenarios. As noted by Ayten et al., the lack of a significant relationship between NLR and hospital length of stay in stroke patients[1] suggests that these biomarkers may behave differently in heterogeneous pathophysiological processes. In distinguishing complicated appendicitis, the hemoglobin-albumin-lymphocyte-platelet (HALP) score showed limited diagnostic power (AUC: 0.64), indicating its inferior clinical utility compared to NLR and SII[10].

Clinical Recommendations and Future Studies; Common limitations of these studies include their retrospective design, small sample sizes, and single-center nature. Prospective, large-cohort studies are critical for standardizing these biomarkers and integrating them into clinical protocols. In particular, multidisciplinary approaches (e.g., combining imaging and biomarkers) could enhance diagnostic accuracy.

Conclusion: Inflammatory biomarkers such as NLR, SII, SIRI, and PIV can play a significant role in emergency departments due to their low cost and accessibility. However, further research is needed to clarify their context-specific performance and resolve conflicting findings.

Sincerely,

Financial Support: This research did not receive any specific financial support from public, commercial, or non-profit funding agencies.

Author Contributions: Concept, Supervision, Materials, Data Collection and/or Processing, Analysis and/or Interpretation, Writing – NU

Conflict of interest: No conflict of interest was declared by the authors.

References

1. Wang F, Hu S, Ding Y, et al. Neutrophil-to-lymphocyte ratio and 30-day mortality in patients with acute intracerebral hemorrhage. *J Stroke Cerebrovasc Dis.* 2016;25(1):182-187.
2. Tokgoz S, Kayrak M, Akpınar Z, et al. Neutrophil lymphocyte ratio as a predictor of stroke. *J Stroke Cerebrovasc Dis.* 2013;22(7):1169-1174.
3. Lattanzi S, Cagnetti C, Provinciali L, Silvestrini M. Neutrophil-to-lymphocyte ratio and neurological deterioration following acute cerebral hemorrhage. *Oncotarget.* 2017;8(34):57489.
4. Yılmaz E, Bayram Kaçar A, Bozpolat A, et al. The relationship between hematological parameters and prognosis of children with acute ischemic stroke. *Childs Nerv Syst.* 2018;34:655-661.
5. Arian C, Çınaroğlu OS, Efgan MG, Kanter E, Bora ES. A new adjunct in the differentiation of encephalitis and meningitis after negative cerebrospinal fluid culture: systemic inflammatory immune index. *Eur Res J.* 2023;9(5):1129-1134.
6. Vural N, Duyan M, Sarıdaş A, et al. The Predictive Value of Inflammatory Biomarkers in Distinguishing Testicular Torsion and Epididymo-Orchitis in the Emergency Department. *Med J West Black Sea.* 2024;8(3):276-282.
7. Duyan M, Sarıdaş A, Vural N. Predictors of In-hospital Death in Patients with Stanford Type B Acute Aortic Dissection. *Eurasian J Crit Care.* 2022;4(3):96-100.
8. Vural N, Duyan M, Sarıdaş A, et al. Evaluation of Inflammatory Biomarkers in Predicting Strangulation in Incarcerated Inguinal Hernias. *Med J West Black Sea.* 2024;8(3):276-282.
9. Vural N, Duyan M, Sarıdaş A, et al. Evaluation of Inflammatory Biomarkers Affecting Mortality in Acute Cholecystitis. *Bratisl Med J.* 2024;125(6):365.
10. Sarıdaş A, Vural N, Duyan M, et al. Comparison of the Ability of Newly Inflammatory Markers to Predict Complicated Appendicitis. *Open Med.* 2024;19:20241002.