ORIGINAL ARTICLE

Can neutrophil-lymphocyte ratio predict mortality in acute non-variceal upper gastrointestinal bleeding?

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ABSTRACT

BACKGROUND: Acute non-variceal upper gastrointestinal bleeding (NVUGIB) is one of the common gastrointestinal problems and has a high mortality, especially in patients with poor hemodynamics. Therefore, treatment and follow-up should be managed dynamically. Neutrophil-lymphocyte ratio (NLR) and platelet lymphocyte ratio (PLR) are fast workable, cheap, and easy to calculate hematological parameters. We need easily accessible parameters as well as routine classifications such as Rockall score in the treatment and follow-up of NVUGIB patients, whose hemodynamics are unstable and progress with high mortality. In this study, we planned to evaluate NLR and PLR levels in patients with NVUGIB in the treatment follow-up with other scoring systems and their relationship with mortality in these patients.

METHODS: Two hundred and forty-nine patients who were admitted to our clinic between January 2015 and January 2017 diagnosed with NVUGIB, and who underwent necessary examinations and follow-ups, were included in the study. The patients' Glasgow Blacthford, Rockall Score, NLR, and PLR levels were calculated at the first admission.

RESULTS: One hundred and fifty-six of the patients were male (70.6%) and the mean age of all patients was 64.5±18.0 years. After follow-up and treatment, 28 (11.2%) patients died due to bleeding. High NLR and tachycardia at the time of admission and high patient age were found to be independent risk factors affecting the long of hospital stay. High Rockall score, high NLR at admission, and hypotension at admission were shown to be independent risk factors affecting mortality.

CONCLUSION: Besides the use of various scoring systems in patients with NVUGIB, we think that the use of simple hematological parameters may be appropriate and the use of these hematological parameters may be useful in the management of patients with unstable hemodynamics.

Keywords: Glasgow Blatchfort score; neutrophil-lymphocyte ratio; platelet lymphocyte ratio; Rockall score; upper gastrointestinal bleeding.

INTRODUCTION

Acute non-varicose upper gastrointestinal bleeding (NVUGIB) is one of the common gastrointestinal problems requiring hospitalization and its annual incidence ranges from 48 to 172/100,000.[1] Mortality in patients with NVUGIB has been reported in 1.1–11% in several studies, despite advances in endoscopic and medical therapy.[2,3] While patients with massive NVUGIB can apply to emergency departments with shock clinic, some patients may apply to emergency departments with milder symptoms.[4] Considering the high mortality rate associated with NVUGIB, rapid diagnosis and rapid treatment are important.

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Complete blood count is an easy, cheap, and routine examination technique that gives us information about blood content. The number and size of cell subgroups containing parameters such as erythrocytes, leukocytes, platelets, erythrocyte distribution width, platelet distribution width, platelet lymphocyte ratio (PLR), and neutrophil-lymphocyte ratio (NLR) can give us ideas about the management of various clinical conditions.[5] NLR ratio has been presented as a substitute marker for endothelial dysfunction and inflammation in different populations and is prognostic and predictive.[6] Platelets release thromboxanes and other mediators, as a result, inflammation may have been increased in patients with higher platelets. High PLR ratio has been shown to be an indicator of mortality in several studies.[5,7] There are many studies in the literature showing the importance of inflammatory biochemical and hematological markers (e.g., colorectal cancer, pancreatic adenocarcinoma, non-alcoholic steatohepatitis, liver fibrosis, and cirrhosis).[8–11] There are studies presenting the prognostic significance of NLR and PLR levels in the course of chronic diseases such as hypertension, diabetes mellitus, metabolic syndrome, and chronic kidney failure.[6,7,12]

NLR and PLR levels are fast workable, cheap, and easy to calculate parameters. In particular, we need easily accessible parameters in the treatment and follow-up of NVUGIB patients, who have unstable hemodynamics and progress with high mortality. In this study, we planned to evaluate the relationship between NLR and PLR levels with other scoring systems (Rockall score and Glasgow-Blacthford score) and mortality in these patients in the treatment and follow-up of NVUGIB patients.

MATERIALS AND METHODS

Patient Selection

Two hundred and forty-nine patients who were admitted to our faculty of medicine gastroenterology and emergency clinics between January 2015 and January 2017 diagnosed with NVUGIB underwent required examinations and follow-ups were included in the study. The study was approved by the University Ethics Committee (2020/2466). Patients with stable coronary artery disease (CAD), drug-controlled hypertension, or chronic kidney disease (CKD) were included in our study at the time of admission. Chronic liver disease, variceal bleeding, acute myocardial infarction, arrhythmia, heart failure, aortic dissection, valvular heart disease, cardiac contusion or hypertensive crisis, patients with pulmonary embolism or severe pulmonary disease, patients with myocarditis or pericarditis, patients with acute cerebrovascular event, sepsis, septic shock patients, cancer patients, patients with cardiac arrest, resuscitation or patients who underwent electrical cardio version were excluded from the study.

The data, at the time of admission of patients included in the study, were obtained by retrospectively scanning the database of our clinic and the medical records in the hospital automation-registration program. Demographic data (age, gender, etc.), hemodynamic findings (blood pressure and pulse), drugs used (anti-thrombotic, anti-coagulant, and non-steroidal anti-inflammatory drugs [NSAIDs]), laboratory data (hemoglobin, leukocyte count, creatinine, urea, and other laboratory tests), and concomitant diseases (CKD, CAD, etc.) of the patients were recorded by examining the records. Intensive care and service hospitalization times of patients were recorded. The types and numbers of blood products transfused to patients were determined during their hospitalization in the intensive care unit or in the service.

Patients with mean arterial pressure <60 mmHg at the time of admission were considered to be hypotensive, and patients with peripheral pulse rate >100/min were considered to be tachycardic.

Glasgow-Blacthford score[13] at the time of admission and Rockall score[14] after endoscopy were calculated for each patient. NLR and PLR levels of patients at the time of admission were calculated. Lesions detected in endoscopy were grouped according to the Forrest classification.[15] Thirty-day mortality was calculated.

Statistical Analysis

For statistical analysis, "IBM SPSS statistics for Windows Version 19.0" (Armonk, NY, IBM Corp.) computer package program used. Continuous variables are expressed as mean±standard deviation, categorical data as frequency, and percentage (n%). Whether continuous variables are normally distributed was tested using the Kolmogorov–Smirnov test. In comparison of binary groups, independent sample t-test was used for normally distributed variables and Mann–Whitney U test was used for variables that did not present normal distribution. Pearson correlation tests were used for parametric variables to determine the linear relationship between the variables. Whether various variables are independent risk factors affecting the height of NLR and PLR that were investigated using the logistic regression model. In multivariate analyzes, the independent effects of possible risk factors on predicting survival were analyzed by backward selection method using Cox regression analysis. Values for possible risk factors were determined using the Receiver Operating Characteristic to perform survival analysis. The effect of the levels of risk factors on survival was investigated with Log Rank (Mantel-Cox) test. Survival rates were calculated using the Kaplan–Meier method. Statistical significance limit was accepted as $p<0.05$.

RESULTS

General Characteristics of Patients

Two hundred and forty-nine patients who admitted with NVUGIB were included in the study. One hundred and fif-

ty-six of the patients were male (70.6%) and the mean age of all patients was 64.5±18.0 years. After 30 days of follow-up, 28 (11.2%) of the patients died due to bleeding. The mean length of hospital stay of all patients was 6.8±6.6 days, the number of patients with hypotension and tachycardia at the time of admission was 61 (24.5%) and 136 (54.6%), respectively. The Glasgow-Blatchford Score and Rockall Score at the time of admission were 12.2±3.3 (4–19), 5.8±2.0 (2–10), respectively. In our patient group, 32 (12.9%) patients had CKD, 44 (17.7%) patients had diabetes mellitus (DM) and 84 (33.7%) patients had CAD. About 67 (26.9%) patients were using antithrombotic drugs, 27 (10.8%) patients using anticoagulants, 54 (21.7%) patients using NSAIDs, and 83 (33.3%) patients were not use anticoagulants, antithrombotic, or NSAIDs. Laboratory and clinical features of patients are summarized in Table 1.

Endoscopy was performed in the first 6–12 h after admission to all patients. When the endoscopy results of the patients were evaluated, it was observed that bleeding was caused by duodenal ulcer in 171 (68.7%) patients, gastric ulcer in 55 (22.1%) patients, Mallory-Weiss lesion in 11 (4.4%) patients, and various non-varicose esophageal lesions in 12 (4.8%) patients. *Helicobacter pylori* positivity was present in 72.3% of the patients. Detailed evaluation of the type of ulcer as a result of patients' endoscopy and *H. pylori* positivity is shown in Table 2.

Risk Factors Related to Mortality

About 28 (11.2%) patients died due to bleeding after follow-up and treatment. There was a statistically significant difference (p<0.001) between deceased patients and living patients group at the time of admission; Rockall score (respectively 8.3±1.2, 5.8±1.9), Glasgow-Blatchford Score (respectively 15.8±2.5, 11.7±3.2), NLR values (respectively 8.97 ± 4.86, 4.81±2.45), and PLR values (respectively 232.7±102.7, 165.2±93.8). ROC analysis was performed to determine the cutoff values of Rockall Score, Glasgow-Blatchford Score, NLR, and PLR to discriminate the dying patients from living patients. The cutoff value was 7.5 for the Rockall score (AUC:

Table 1. Clinical, demographical, and laboratory data of the groups

	Survived patients (n=221) (88.8%)	Dead patients (n=28) (11.2%)	All patients (n=249) (100%)	p
Age	63.6±18.3 (18–94)	71.9±15.1 (32–92)	64.5±18.0 (18–94)	0.007
Male (%)	156 (70.6)	16 (57.1)	172 (69.1)	0.147
Hemoglobin (gr/dl)	8.8±2.3	8.2±1.6	8.7±2.3	0.176
White blood cell (x10^3)	12.5±7.6	12.4±5.8	12.5±7.3	0.929
Creatinine (mg/dl)	1.3±1.1	1.9±2.1	1.4±1.4	0.015
Blood urea nitrogen	88.2±49.0	110.1±52.8	90.7±49.9	0.028
Tachycardia (%)	112 (50.7)	24 (85.7)	136 (54.6)	<0,001
Hypotension(%)	42 (19)	19 (67.9)	61 (24.5)	<0.001
Rockall Score	5.8±1.9 (2–10)	8.3±1.2 (6–10)	5.8±2.0 (2–10)	<0.001
Glasgow-Blatchford Score	11.7±3.2 (4–19)	15.8±2.5 (9–19)	12.2±3.3 (4–19)	<0.001
Mean number of erythrocyte suspension transfusions	2.8±3.2 (0–21)	6.1±5.9 (1–25)	3.2±3.7 (1–25)	<0.001
Hospitalization (days)	6.6±6.9 (1–55)	8.3±5.3 (2–25)	6.8± 6.6 (1–55)	0.207
Length of stay in intensive care unit (days)	2.3±4.1 (0–28)	6.3±4.8 (1–11)	2.8±4.3 (0–28)	<0.001
Drug use				0.045
Antitrombotic use (%)	53 (24.0)	14 (50)	67 (26.9)	
Antitrombotic + anticoagulant use (%)	16 (7.2)	2 (7.1)	18 (7.2)	
Non steroidal anti-inflammatory drug use (%)	51 (23.1)	3 (5.6)	54 (21.7)	
Anticoagulant use (%)	26 (11.3)	1 (3.6)	27 (10.8)	
Does not use (%)	75 (33.9)	8 (28.6)	83 (33.3)	
Neutrophil lymphocyte ratio	4.81±2.45	8.97±4.86	5.28±3.10	<0.001
Platelet lymphocyte ratio	165.2±93.8	232.7±102.7	172.8±97.0	<0.001
Presence of chronic renal disease (%)	26 (11.8)	6 (21.4)	32 (12.9)	0.150
Presence of diabetes mellitus (%)	39 (17.6)	5 (17.9)	44 (17.7)	0.978
Presence of coronary artery disease (%)	71 (32.1)	13 (46.4)	84 (33.7)	0.132

Table 2. Ulcer classification of our patient group and *H. pylori* positivity in our patients

	All patients (n=249)	Presence of *H. pylori* (n=180)
Bulbus ulcer (%)	171 (68.7)	132 (77.2)
Forrest 1a (%)	12 (7.0)	
Forrest 1b (%)	30 (17.5)	
Forrest 2a (%)	26 (15.2)	
Forrest 2b (%)	33 (13.5)	
Forrest 2c (%)	36 (21.1)	
Forrest 3 (%)	44 (25.7)	
Gastric ulser (%)	55 (22.1)	36 (65.4)
Forrest 1a (%)	3 (5.5)	
Forrest 1b (%)	12 (21.8)	
Forrest 2a (%)	6 (10.9)	
Forrest 2b (%)	6 (10.9)	
Forrest 2c (%)	12 (21.8)	
Forrest 3 (%)	16 (29.1)	
Esophageal lesions (%)	23 (9.2)	12 (52.2)
Mallory-Weiss syndrome (%)	11 (47.8)	
Other lesions (%)	12 (52.2)	

0.881, 95% CI: 0.824–0.937), 13.5 for the Glasgow-Blatchford score (AUC: 0.850, 95% CI: 0.777–0.922), 5.81 for the NLR (AUC: 0.806, 95% CI: 0.716–0.895), and 175.15 for the PLR (AUC: 0.704, 95% CI: 0.606–0.801).

There was a statistically significant difference in survival when compared the log-rank test with Kaplan–Meier curves drawn for under and over cutoffs determined for Rockall Score (Mantel-Cox test: Chi-square 62.831, p<0.001), Glasgow-Blatchford Score (Mantel-Cox test: Chi-square 31.796, p<0.001), NLR (Mantel-Cox test: Chi-square 38.842, p<0.001), and PLR (Mantel-Cox test: Chi-square 11.252, p=0.001). Kaplan Meier curves are shown in Figures 1–4.

Risk factors that may be associated with mortality were evaluated by cox logistic regression analysis. High Rockall score (OR: 7.984, 95%: 3.054–20.874, p<0.001), high NLR (OR: 3.661, 95%: 1.264–10.602, p=0.017) at the time of admission, and presence of hypotension (OR: 3.143, 95%: 1.361–7.260, p=0.007) at the time admission were shown to be independent risk factors affecting mortality.

Factors Affecting Hospitalization Time

About 221 (88.8%) of patients were discharged from the hospital. The mean hospitalization time of the patients who recovered and discharged from the hospital was 6.6±6.7 (1–55). About 113 (51.1%) patients were discharged in 5 days or less. There was a statistically significant difference between patients staying in the hospital for 5 days or less and patients staying in the hospital for more than 5 days at the Glasgow-Blatchford score at the time of admission (re-

Table 3. Clinical, demographical, and laboratory data of the groups

	Early discharge (n=113) (21.1%)	Late discharge (n=108) (48.9%)	All patients (n=221) (100%)	p
Age	57.4±19.9 (18–89)	70.0±13.6 (39–94)	63.6±18.3 (20–92)	<0.001
Male (%)	82 (72.6)	74 (68.5)	74 (70.5)	0.509
Hemoglobin (gr/dl)	9.0±2.2 (5.1–16.6)	8.5±2.4 (3.7–15.5)	8.8±2.3 (3.7–16.6)	0.073
White blood cell (x10^3)	9.3±3.9	12.4±7.8	10.8±6.3	<0.001
Tachycardia (%)	44 (38.9)	68 (63)	112 (50.7)	<0.001
Hypotension (%)	20 (17.7)	22 (20.4)	42 (19)	0.613
Mean number of erythrocyte suspension transfusions	1.7±1.5 (0–6)	3.9±4.1 (0–21)	2.8±3.2	<0.001
Length of stay in intensive care unit (days)	0.8±1.1 (0–3)	3.9±5.3 (0–28)	2.3±4.1 (0–28)	<0.001
Hospitalization (days)	3.3±0.8 (1–5)	10.1±8.2 (11–55)	6.6±6.7 (1–55)	<0.001
Glasgow-Blatchford Score	10.8±3.3 (4–17)	12.6±2.8 (7–19)	11.7±3.2 (4–19)	<0.001
Rockall Score	5.0±1.9 (2–9)	6.0±1.9 (2–10)	5.5±2.0 (2–10)	<0.001
Neutrophil lymphocyte ratio	4.1±1.6	5.5±2.9	4.8±2.4	<0.001
Platelet lymphocyte ratio	178.2±101.9	151.6±82.7	165.2±93.8	0.035
Presence of chronic renal disease (%)	13 (11.5)	13 (12)	26 (11.8)	0.902
Presence of diabetes mellitus (%)	10 (8.8)	29 (26.9)	39 (17.6)	<0.001
Presence of coronary artery disease (%)	28 (24.8)	43 (39.8)	71 (32.1)	0.017

Table 4. Correlation of NLR with other factors

	Rockall S.		GBS		Number of ES transfusions		Length of stay in ICU (days)		Hospitalization (days)	
	p	P	p	P	p	P	p	P	p	P
NLR	<0.001	0.325	<0.001	0.253	0.074	0.114	<0.001	0.329	0.223	<0.001
GBS	<0.001	0.564	–	1	<0.001	0.412	<0.001	0.336	0.164	0.010
Rockall S.	–	1	<0.001	0.564	<0.001	0.272	<0.001	0.346	0.206	0.001
PLR	0.439	0.049	0.676	-0.027	0.890	0.009	0.899	0.008	-0.038	0.550

P: Pearson Correlation Coefficient; GBS: Glasgow-Blatchford Score; ES: Erythrocyte suspension; ICU: Intensive care unit; NLR: Neutrophil lymphocyte ratio; PLR: Platelet lymphocyte ratio.

spectively 10.8±3.3, 12.6±2.8; p<0.001) and NLR values (respectively 4.1±1.6, 5.5±2.9, p<0.001) (Table 3). Risk factors that may affect hospitalization time were evaluated by logistic regression analysis. High NLR (OR: 1.185, 95%: 1.033–1.360, p=0.016) at admission, tachycardia (OR: 2.685, 95%: 1.475–4.887, p=0.001) at admission, and high patient age (OR: 1.036,

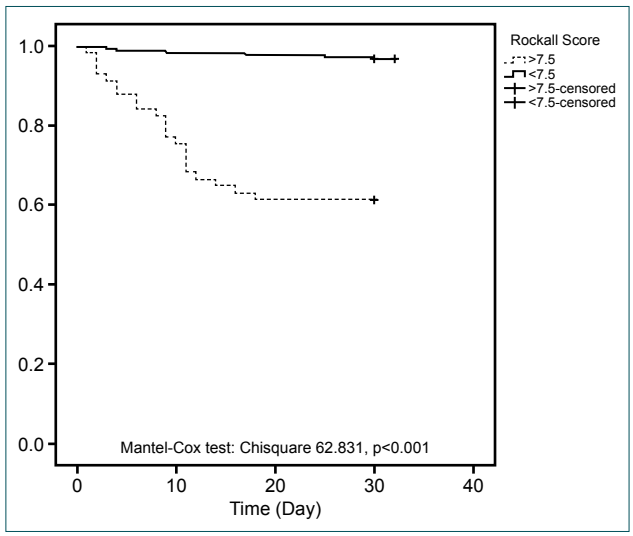

Figure 1. Kaplan–Meier Curve showing the Relationship of Rockall score with Mortality.

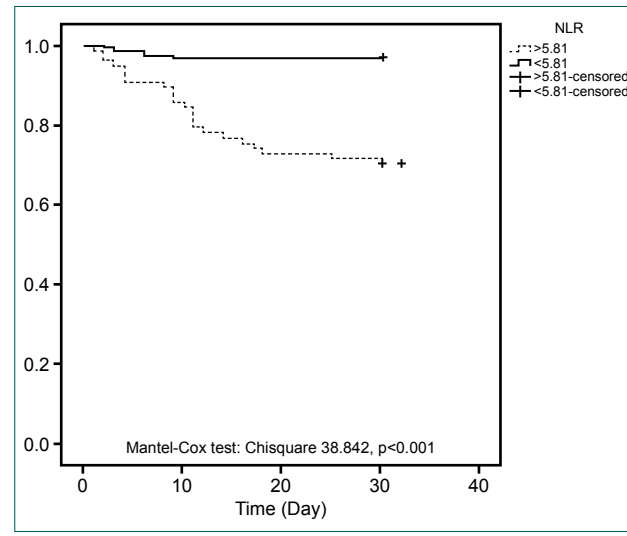

Figure 3. Kaplan–Meier Curve showing the relationship of NLR with Mortality. NLR: Neutrophil lymphocyte ratio.

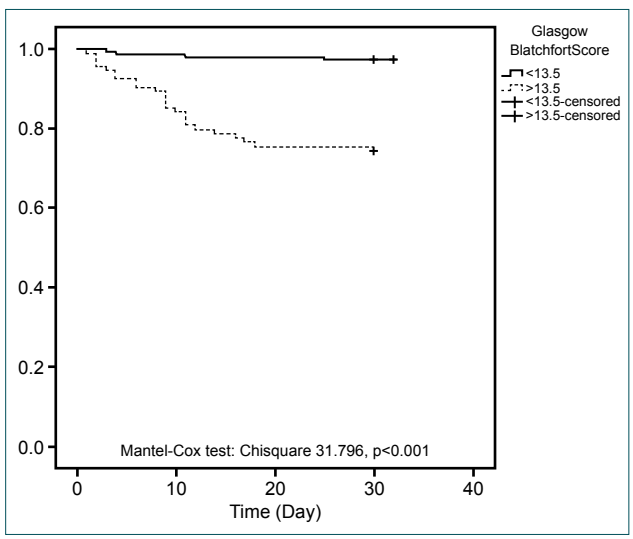

Figure 2. Kaplan–Meier Curve showing the Relationship of Glasgow-Blatchford Score with Mortality.

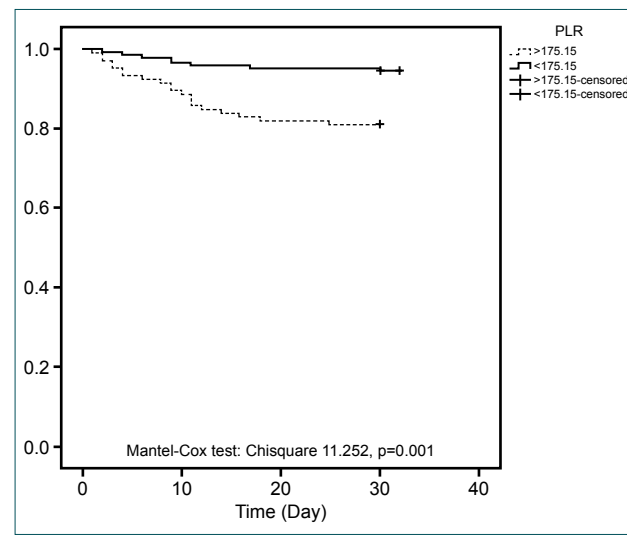

Figure 4. Kaplan–Meier Curve showing the relationship of PLR with Mortality. PLR: Platelet lymphocyte ratio.

95%: 1.017–1.056, p<0.001) were found to be independent risk factors affecting the long hospitalization time.

Factors Affecting NLR and PLR Levels

Pearson correlation analysis revealed that NLR levels correlated with hospital stay, intensive care hospital stay, Rockall score, and Glasgow-Blatchford score (Table 4). Risk factors that may affect NLR and PLR values in patient group were evaluated with logistic regression analysis. Presence of hypotension (OR: 3.046, 95%: 1.563–5.937, p=0.001) and DM (OR: 4.906, 95%: 2.392–10.061, p<0.001) at the time of admission were shown to be independent risk factors affecting the elevation of NLR. The presence of tachycardia at the time of admission was an independent risk factor affecting the elevation of PLR.

DISCUSSION

Our results show that it is important to dynamically manage the treatment and follow-up of patients with high comorbidity, elderly, and hemodynamically unstable NVUGIB. NVUGIB is progressing with high mortality, especially in patients with high comorbidity and hemodynamically unstable, despite medical developments, advanced endoscopic interventions, and better intensive care conditions.[2] Therefore, management and follow-up of patients with NVUGIB should be dynamic. Guidelines recommend that patients should be assessed based on their risk assessment score.[16,17] Rockall score is one of the scores used for this purpose. In studies conducted in various patient groups, Rockall scoring predicts mortality and re-bleeding. However, calculation and use of Rockall score are limited in patients with unstable hemodynamics.[18–20] We need easily accessible, reliable, and inexpensive tests for patients with high-risk factors, hemodynamically unstable, and limited use of the Rockall score. In our study, we obtained results that showed that hematological parameters such as NLR and PLR with Rockall score can be valuable in predicting mortality.

Although the mechanisms in NVUGIB are not clear, there are various opinions accepted in the literature. Mucosal barrier and submucosal blood vessels must be damaged for bleeding to occur. Disruption of the mucosal barrier is often associated with *H. pylori* infection and/or use of NSAIDs or low-dose acetylsalicylic acid (LDA).[21] Mucosal damage and ulcer formation are considered as a result of the interaction between *H. pylori* and the host immune response. Various pathogenic structures in *H. pylori* strains induce host immune response.[21,22] Many cytokines have an important role in the inflammatory response to *H. pylori* infection.[21] Studies have shown that NSAIDs and LDA damage the gastroduodenal mucosa with both systemic and local effects.[23] NSAIDs and LDA reduce the hydrophobicity of the mucous layer through their local effects. Thus, it can let the lower epithelium exposed to luminal acid and pepsin. NSAIDs also disrupt mitochondrial oxidative phosphorylation in epithelial cells, this causes decreased ATP and glutathione levels, cellular dysfunction and mitochondrial swelling, free radicals, calcium release into the cytosol and eventually loss of tight intersections, apoptosis, and cell death. All these factors contribute to the increase and degradation of mucosal permeability.[23,24] NSAIDs systematically contribute to mucosal damage by inhibiting cyclooxygenase (COX) 1 and COX 2-related prostaglandin secretion. Decrease in prostaglandin levels decreases mucosal bicarbonate secretion while increasing acid secretion. In addition, prostaglandin levels regulate the development of mucous cells and mucosal blood flow. Considering all these events, a decrease in prostaglandin levels disrupts the mucosal barrier and causes ischemia. The ischemic effect of NSAIDs causes inflammation, leukocyte migration, and damage to blood vessels.[23,24]

We have tried to explain the NVUGIB pathogenesis and the triggering of the immune system due to bleeding in detail above. We think that the severity of bleeding correlates with immune response and inflammation. Indeed, in our study, especially high NLR levels were correlated with the patients' Rockall score and Glasgow-Blatchford score and were associated with the mortality of the patients. This emphasizes the idea that inflammatory parameters can be valuable in the treatment and follow-up of patients. Neutrophils and lymphocytes are cells that play a primary role in inflammatory processes, and their number temporarily changes in inflammation. Limited data exist on NLR in patients with NVUGIB. NLR may reflect the balance between innate (neutrophils) and adaptive (lymphocytes) immune responses and high NLR may be associated with increased concentration of various proinflammatory cytokines.[25] Little information is available about the prevalence of leukocytosis and its significance, but the development of leukocytosis is a well-known fact among patients with NVUGIB.[26] In a study by Chalasani et al.,[26] patients with NVUGIB were evaluated and leukocyte count >20,000/mm^3 was detected in more than 5% of patients. In the same study, leukocytosis was associated with poor prognosis because it reflects the severity of bleeding and blood loss. On the other hand, it has been stated that patients with leukocytosis have a high risk of tachycardia and hypotension, and indirectly leukocytosis may affect the severity of bleeding. However, there was no significant difference in mortality between NVUGIB patients with and without leukocytosis. There are a limited number of studies in the literature linking mortality with high NLR in patients with NVUGIB.[27–29]

When the length of hospital stay of our patients was evaluated, we showed that patients with a long stay in the hospital had a higher Glasgow-Blatchford score and higher NLR levels. We think that this may be due to the severity of bleeding and, accordingly, the severity of inflammation. Glasgow-Blatchford score is a scoring system used mostly for triage and planning the treatment of patients.[30] The high Glasgow-Blatchford score and its correlation with the length of hospital stay patients is a valuable finding. The fact that there is a strong correlation between NLR and the Glasgow-Blatchford score

and that we did not show NLR as an independent risk factor affecting hospital stay shows the importance of simple hematological parameters in patient follow-up.

The mortality rate in our patient group is 11.3% and appears to be high. We attribute that this high rate to the fact that our patient group is elderly, there are many comorbid diseases and that we are accepting patients whose hemodynamics are unstable because we are a tertiary health facility.

Limitation of this study is the retrospective study design. Due to the retrospective design, we think that some additional factors that may cause the increase of NLR and PLR levels may have been overlooked.

Conclusion

We think that it may be appropriate to use simple hematological parameters in addition to the use of various scoring systems in patients with NVUGIB and the use of these hematological parameters may be appropriate in the management of patients with unstable hemodynamics. However, our study should be supported by multicenter prospective studies.

Ethics Committee Approval: This study was approved by the Necmettin Erbakan University Meram Faculty of Medicine Ethics Committee (Date: 08.05.2020, Decision No: 2020/2466).

Peer-review: Internally peer-reviewed.

Authorship Contributions: Concept: R.D., M.A., H.A.; Design: R.D., M.A., H.A.; Supervision: R.D., M.A., H.A.; Resource: R.D., B.T., Y.K., A.K., M.H.G., M.B., S.K.; Materials: R.D., B.T., Y.K., A.K, M.H.G., M.B., S.K.; Data: R.D., B.T., Y.K., A.K., M.H.G., M.B., S.K.; Analysis: R.D., B.T., Y.K., A.K., M.H.G., M.B., S.K.; Literature search: R.D., B.T., Y.K., A.K., M.H.G., M.B., Ş.K.; Writing: R.D., B.T., M.A., Y.K., A.K., M.H.G., M.B., S.K., H.A.; Critical revision: R.D., B.T., M.A., Y.K., A.K., M.H.G., M.B., S.K., H.A.

Conflict of Interest: None declared.

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ORİJİNAL ÇALIŞMA - *ÖZ*

Nötrofil lenfosit oranı akut varis dışı üst gastrointestinal kanamada mortaliteyi öngörebilir mi?

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AMAÇ: Akut non varisiyel üst gastrointestinal kanama (NVUGIB) sık görülen gastrointestinal problemlerden biridir ve mortalitesi özellikle hemodinamisi kötü olan hastalarda yüksek seyretmektedir. Bu nedenle tedavi ve takibinin dinamik olarak yönetilmesi gerekmektedir. Nötrofil-lenfosit oranı (NLR), trombosit lenfosit oranı (PLR) hızlı çalışılabilir, ucuz ve hesaplanması kolay hematolojik paremetrelerdir. Özellikle hemodinamisi stabil olmayan ve yüksek mortalite ile seyreden NVUGIB hastalarının tedavi-takibinde Rockall score gibi rutin kullanılan sınıflamalar yanın da kolay ulaşılabilir parametrelere ihtiyacımız vardır. Biz bu çalışmamız da NLR ve PLR düzeylerinin NVUGIB olan hastaların tedavi-takibinde diğer skorlama sistemleri ile ve bu hastalardaki mortalite ile olan ilişkisini değerlendirmeyi planladık.
GEREÇ VE YÖNTEM: Kliniğimiz de Ocak 2015–Ocak 2017 tarihleri arasında başvuran, NVUGIB tanısı konan, gerekli tetkik ve takipleri yapılan 249 hasta çalışmaya alındı. Hastaların ilk başvuru anındaki Glasgow Blacthford, Rockall score, NLR ve PLR düzeyleri hesaplandı.
BULGULAR: Hastaların 156'sı erkek (%70.6) olup tüm hastaların ortalama yaşı 64.5±18.0 yıl idi. Takip ve tedavi sonrasında sonrasında kanamaya bağlı 28 (%11.2) hasta öldü. Başvuru anında NLR oranın yüksek olması, başvuru anında taşikardi olması ve hasta yaşının fazla olması hastane yatış süresinin uzun olmasını etkileyen bağımsız risk faktörleri olarak saptandı. Rockall skorunun yüksek olması, başvuru anında NLR yüksek olması, başvuru anında hipotansiyon varlığını mortaliteyi etkileyen bağımsız risk faktörleri olduğu gösterildi.
TARTIŞMA: Sonuç olarak NVUGIB olan hastalarda çeşitli skorlama sistemlerinin kullanımı yanında basit hematolojik paremetrelerin kullanımının uygun olabileceğini ve hemodinamisi stabil olmayan hastaların tedavi yönetiminde bu hematolojik parametrelerin kullanımının yararlı olabileceğini düşünüyoruz.
Anahtar sözcükler: Glasgow Blatchfort Skoru; NLR; PLR; Rockall Skoru; üst gastrointestinal kanaması.

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