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ORIGINAL RESEARCH

Hemoglobin, Albumin, Lymphocyte and Platelet Score as a Novel Predictor of Mortality and Rebleeding in Patients with Upper Gastrointestinal Bleeding

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Purpose: Upper gastrointestinal bleeding (UGIB) poses significant risks of morbidity and mortality, necessitating effective risk stratification tools. Traditional scoring systems such as the Rockall (RS), Glasgow-Blatchford (GBS), and AIMS65 have limitations in accurately predicting mortality and rebleeding. The Hemoglobin, Albumin, Lymphocyte, Platelet (HALP) score, initially developed for cancer prognosis, has demonstrated prognostic value in various conditions. This study aims to evaluate whether the HALP score, when assessed at admission, aligns with the Rockall score and can be used to predict rebleeding and 30- day mortality in UGIB patients.

Patients and Methods: This retrospective study included 256 patients with confirmed UGIB admitted to a tertiary hospital in Istanbul, Turkey, between 2017 and 2024. Patient data, including demographics, vital signs, laboratory parameters, endoscopic findings, and clinical outcomes, were collected. The HALP score was calculated at admission to the emergency department. ROC curve analysis assessed the predictive accuracy of the HALP score for 30-day mortality, rebleeding, and its performance was compared with the Rockall score.

Results: The predictive performance of the HALP and Rockall scores for 30-day mortality and rebleeding was evaluated using ROC analysis, with AUC values of 0.772 (95% CI: 0.715–0.822) and 0.770 (95% CI: 0.714–0.820) for mortality prediction, respectively ($p = 0.9801$). For rebleeding prediction, the Rockall score had a higher AUC (0.739, 95% CI: 0.681–0.792) than the HALP score (0.688, 95% CI: 0.627–0.744), though the difference was not statistically significant ($p = 0.2969$).

Conclusion: The results of this study demonstrate that the HALP score can be used for prognosis prediction in UGIB, exhibiting comparable sensitivity and specificity to the Rockall score. Its ease of calculation using routine laboratory parameters offers a practical complement to existing scoring systems.

Keywords: upper gastrointestinal bleeding, HALP score, prognostic scoring, mortality prediction

Introduction

Upper gastrointestinal bleeding is a prevalent clinical condition in emergency departments, requiring urgent intervention. Intraluminal hemorrhages occurring in the esophagus, stomach, and duodenum, located proximal to the Treitz ligament, account for approximately 90% of all gastrointestinal (GI) bleeds and are associated with significant risks of mortality and morbidity.[1] Although 80% of these bleeds tend to resolve spontaneously, the rapid identification of appropriate treatment strategies is crucial for improving patient outcomes, particularly in high-risk patients.[2] Various scoring systems have been developed for prognostic assessment and treatment management in upper GI bleeding. Among the most widely used systems are the Rockall Score (RS), Glasgow-Blatchford Score (GBS), and AIMS65 score.[3–5] Validation studies have demonstrated the efficacy of these systems in predicting mortality in upper gastrointestinal bleeding. However,

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recent meta-analyses and studies have identified limitations in predicting both mortality and the risk of rebleeding.[6–8] These findings underscore the necessity for more effective and comprehensive prognostic tools.

In recent years, the Hemoglobin, Albumin, Lymphocyte, Platelet (HALP) score has gained recognition as a promising prognostic biomarker in various disease states.[9] Initially developed by Chen et al for gastric cancer patients, the HALP score is calculated using the following formula: HALP Score = hemoglobin (g/L) × albumin (g/L) × lymphocyte count (/L) ÷ platelet count (/L).[9] The components of the score are as follows: hypoalbuminemia reflects poor nutritional status, lymphopenia indicates immunodeficiency, anemia contributes to cardiac decompensation and tissue hypoxemia, and elevated platelet levels are associated with thromboembolic risks.

The HALP score has been shown to be effective in predicting prognosis in various gastric pathologies besides gastric malignancies.[10–14] Furthermore, it has demonstrated prognostic value in numerous non-gastrointestinal conditions, including acute decompensated heart failure, acute ischemic stroke, and non-ST elevation myocardial infarction.[15–18] These findings suggest that the HALP score is a versatile tool that can be used for risk stratification in diverse clinical scenarios. The aim of this study is to evaluate whether the HALP score, assessed at admission, aligns with the Rockall score and can be used to predict the risk of rebleeding and 30 days mortality in patients presenting to the emergency department with upper gastrointestinal bleeding.

Materials and Methods

This was a single-center, retrospective study conducted in a tertiary education and training hospital in Istanbul, Turkey. Ethical approval for the study was obtained from the local ethics committee. (Decision No: 772, Date: 29.08.2024, ISTANBUL MEDIPOL UNIVERSITY Non-Interventional Clinical Research Ethics Committee). Patient informed consent was waived by the ethics committee due to the retrospective design of the study and the absence of direct patient contact or intervention. All patient data were handled with strict confidentiality, and the study was conducted in accordance with the principles of the Declaration of Helsinki.

The electronic medical records of patients presenting to the emergency department with a preliminary diagnosis of gastrointestinal bleeding between January 1 2017, and January 1 2024, were retrospectively reviewed.

Patients were included if they were initially admitted to the emergency department, had a confirmed diagnosis of upper gastrointestinal bleeding via endoscopy, and were 18 years of age or older. The patient selection process is illustrated in Figure 1. Conversely, patients were excluded if incomplete clinical data, or lack of laboratory results obtained at emergency department admission necessary for the calculation of HALP score; albumin, hemoglobin (HGB), platelets (PLT), or international normalized ratio (INR). Pregnancy and patients with missing data on clinical outcomes were excluded.

For eligible patients, demographic characteristics, vital signs at admission, comorbid diseases, medications, laboratory results, endoscopic findings, the number of red blood cell (RBC) transfusions within the first 24 hours, and whether they experienced rebleeding or required surgery were documented. Rockall Scores were calculated based on age, pulse rate, blood pressure, comorbidities, and endoscopic findings. The score was calculated after endoscopy, using the complete Rockall scoring system, which incorporates both clinical and endoscopic parameters. The final status of patients in the emergency department—discharge, death, or hospitalization in a ward or intensive care unit (ICU)—was also recorded. Additionally, 30-day mortality, and rebleeding rates within one month were extracted from patient files.

Statistics

A post-hoc power analysis was conducted using the study's current findings and the effect size value. Considering the relevant quantities, the effect size was calculated as d = 0.80. At this effect size, with $\alpha = 0.05$ and a total of n = 256 patients, a power level of 99% was achieved.

The normality of continuous variables was assessed using the Shapiro–Wilk test. Continuous variables were expressed as median [25^{th} and 75^{th} Interquartile Ranges] values, while categorical variables were presented as n (%). For comparisons between two groups, the Mann–Whitney *U*-test was used when the normality assumption was not met. Categorical variables were compared between groups using Pearson's chi-square test, Fisher's exact chi-square test, and the Fisher-Freeman-Halton test. Statistical analyses were performed using SPSS (IBM Corp. Released 2012. IBM SPSS

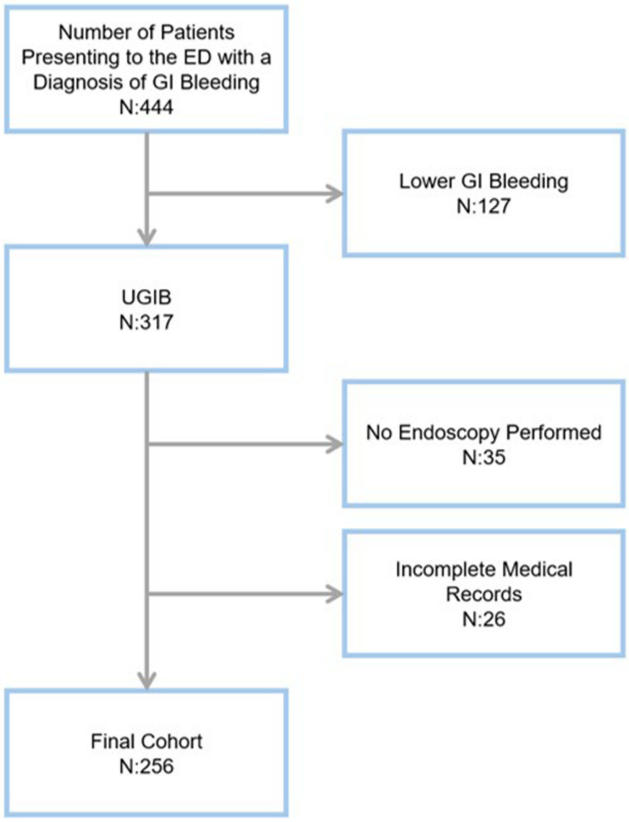

Figure 1 Patient Selection Flow Diagram.

Statistics for Windows, Version 25.0, Armonk, NY: IBM Corp). A p-value of <0.05 was considered to indicate statistical significance. Positive predictive value, negative predictive value and accuracy analyses were conducted using MedCalc Statistical Software (MedCalc Software Ltd, Ostend, Belgium).

Results

A total of 256 patients were included in the study. Among the 256 patients who underwent endoscopic evaluation, 25 (9.8%) had esophageal variceal bleeding, while 231 (90.2%) had non-variceal sources of bleeding. Among the non-variceal cases, the most common endoscopic finding was peptic ulcer disease, observed in 110 patients (42.9%), followed by pangastritis in 29 patients (11.3%), erosive gastritis in 24 patients (9.4%), gastrointestinal malignancy in 23 patients (9.0%), and normal endoscopy findings in 21 patients (8.2%). Less frequent findings included esophagitis in 9 patients (3.5%), angiodysplasia in 6 patients (2.3%), polypoid lesions in 6 patients (2.3%), and Mallory-Weiss tears in 3 patients (1.2%).

During the one-month follow-up period, mortality occurred in 21 patients, while 235 patients survived. Among the survivors, 226 patients (88.3%) were admitted to the general ward, and 26 patients (10.2%) required intensive care unit (ICU) admission. Additionally, 6 patients (2.3%) required surgery following endoscopy.

Patients in the mortality group had a significantly higher median age compared to survivors (76 years vs 63 years, $p = 0.004$), while no significant difference was observed in gender distribution (76.2% female vs 61.7% female, $p = 0.241$). Systolic and diastolic blood pressure values were significantly lower in the mortality group (SBP: 107 mmHg vs 116 mmHg, $p = 0.017$; DBP: 55 mmHg vs 68 mmHg, $p = 0.001$), whereas heart rate did not differ significantly ($p = 0.707$) (Table 1).

In terms of laboratory findings, hemoglobin, lymphocyte count, and albumin levels were significantly lower in the mortality group, while LDH levels were significantly higher (Table 2). Prognostic score analysis showed that both the Rockall score (median: 7 vs 4, $p < 0.001$) and HALP score (median: 11.35 vs 24.29, $p < 0.001$) were significantly different in the mortality group (Table 3).

Table 1 Comparison of Participants' Demographic Characteristics and Vital Signs Between Patients with and without Mortality Within One month

	Survived n:235	Deceased n:21	p value
Age, *years*, median [IQR]	63 [48–78]	76 [68–85]	0.004[a]
Female gender, n(%)	145 [61.7]	16 [76.2]	0.241[b]
Heart failure, n(%)	33 [14]	2 [9.5]	0.564[c]
CAD, n(%)	53 [22.6]	7 [33.3]	0.264[c]
Renal failure, n(%)	28 [11.9]	5 [23.8]	0.119[c]
Hepatic failure, n(%)	16 [6.8]	2 [9.5]	0.641[c]
DM, n(%)	44 [18.7]	5 [23.8]	0.570[c]
Malignancy, n(%)	24 [10.2]	6 [28.6]	0.012[c]
ASA, n(%)	51 [21.7]	6 [28.6]	0.468[c]
Clopidogrel, n(%)	23 [9.8]	4 [19]	0.186[c]
Warfarin, n(%)	28 [11.9]	1 [4.8]	0.322[c]
NOAC, n(%)	18 [7.7]	1 [4.8]	0.627[c]
HR, *bpm*, median [IQR]	96 [83–100]	100 [78–106]	0.707[a]
SBP, *mmHg*, median [IQR]	116 [102–132]	107 [90–121]	0.017[a]
DBP, *mmHg*, median [IQR]	68 [59–77]	55 [48.5–71.5]	0.001[a]

Notes: a: Mann–Whitney *U*-Test, b: Fisher's Exact Chi-Square Test, c: Pearson Chi-Square Test.
Abbreviations: CAD, Coronary Artery Disease; DM, Diabetes Mellitus; ASA, Acetylsalicylic Acid; NOAC, Novel Oral Anticoagulant; HR, Heart Rate; SBP, Systolic Blood Pressure; DBP, Diastolic Blood Pressure.

Table 2 Comparison of Participants' Laboratory Findings Between Patients with and without Mortality Within One month

30-Day Mortality			
	Survived n:235	**Deceased n:21**	**p value**
HGB, *g/dL*, median[IQR]	9.4 [7.5–11.4]	6.9 [5.15–10.7]	0.016[a]
Lymphocyte, 10^9*/L*. median[IQR]	1.7 [1.1–2.3]	1.2 [0.8–1.55]	0.005[a]
PLT, */mL*, median[IQR]	232 [183–293]	238 [181–358]	0,389[a]
LDH, *U/L*, median[IQR]	191 [151–239]	245 [179,5–291.5]	0.025[a]
Albumin, *g/L*, median[IQR]	35 [32–39.6]	27 [25.5–33]	<0.001[a]
INR	1.1 [1.01–1.37]	1.27 [1.09–1.39]	0.095[a]

Notes: a: Mann–Whitney *U*-Test.
Abbreviations: HGB, Hemoglobin; PLT, Platelet; INR; LDH, Lactate Dehydrogenase; International Normalized Ratio.

Among the 43 patients who experienced rebleeding within one month and the 213 patients without rebleeding, those in the rebleeding group had a significantly higher median age (74 years vs 63 years, $p < 0.001$) with no significant difference in gender distribution (65.1% female vs 62.4% female, $p = 0.863$). No significant differences were observed in systolic and diastolic blood pressure or heart rate values ($p > 0.05$) (Table 4). Hemoglobin and albumin levels were

Table 3 Comparison of Participants' Rockall and HALP Scores Between Patients with and without Mortality Within One month

30-Day Mortality			
	Survived n:235	**Deceased n:21**	**p value**
Rockall Score	4 [3–6]	7 [4.5–8]	<0.001[a]
HALP Score	24.29 [13.89–39.5]	11.35 [5.06–17.10]	<0.001[a]

Notes: a: Mann–Whitney *U*-Test.
Abbreviations: HALP, Hemoglobin, Albumin, Lymphocyte, and Platelet.

significantly lower, while LDH levels were significantly higher in the rebleeding group (Table 5). The Rockall score was significantly higher in the rebleeding group (median: 6 vs 4, $p < 0.001$), whereas the HALP score was significantly lower (median: 15.51 vs 25.8, $p < 0.001$) (Table 6).

To assess the predictive performance of the HALP and Rockall scores for mortality and rebleeding, ROC curve analyses were conducted. For mortality prediction, the AUC values of the HALP and Rockall scores were 0.772 (95%

Table 4 Comparison of Participants' Demographic Characteristics and Vital Signs Between Patients with and without Rebleeding Within One month

30-Day Rebleeding			
	No bleeding n:213	**Rebleeding n:43**	**p value**
Age, *years*, median [IQR]	63 [47–76]	74 [67–84]	<0.001[a]
Female gender, n(%)	133 [62.4]	28 [65.1]	0.863[b]
Heart failure, n(%)	24 [11.3]	11 [25.6]	0.025[c]
CAD, n(%)	46 [21.6]	14 [32.6]	0.166[c]
Renal failure, n(%)	23 [10.8]	10 [23.3]	0.042[c]
Hepatic failure, n(%)	16 [7.5]	2 [4.7]	0.503[b]
DM, n(%)	40 [18.8]	9 [20.9]	0.832[c]
Malignancy, n(%)	22 [10.3]	8 [18.6]	0.126[c]
ASA, n(%)	47 [22.1]	10 [23.3]	0.843[c]
Clopidogrel, n(%)	19 [8.9]	8 [18.6]	0.059[b]
Warfarin, n(%)	25 [11.7]	4 [9.3]	0.646[b]
NOAC, n(%)	15 [7]	4 [9.3]	0.606[b]
HR, *bpm*, median [IQR]	95 [82.5–109]	102 [81–101]	0.471[b]
SBP, *mmHg*, median [IQR]	116 [103–132]	115 [93–130]	0.151[b]
DBP, *mmHg*, median [IQR]	67 [58–77]	65 [51–72]	0.061[b]

Notes: a: Mann–Whitney *U*-Test, b: Fisher's Exact Chi-Square Test, c: Pearson Chi-Square Test.
Abbreviations: CAD, Coronary Artery Disease; DM, Diabetes Mellitus; ASA, Acetylsalicylic Acid; NOAC, Novel Oral Anticoagulant; HR, Heart Rate; SBP, Systolic Blood Pressure; DBP, Diastolic Blood Pressure.

Table 5 Comparison of Participants' Laboratory Findings Between Patients with and without Rebleeding Within One month

30-Day Rebleeding			
	No bleeding n:213	**Rebleeding n:43**	**p value**
HGB, *g/dL*, median[IQR]	9.5 [7.7–11.7]	8.1 [5.9–10.5]	0.002[a]
Lymphocyte, 10^9/*L*. median[IQR]	1.7 [1.1–2.3]	1.3 [1–2]	0.086[a]
PLT, */mL*, median[IQR]	231 [182–287]	238 [185–352]	0.180[a]
LDH, *U/L*, median[IQR]	189 [149.5–234]	211 [177–278]	0.008[a]
Albümin, *g/L*, median[IQR]	35.2 [32–40]	31 [27–34.5]	<0.00[a]
INR	1.1 [1.01–1.39]	1.17 [1.05–1.32]	0.314[a]

Notes: a: Mann–Whitney *U*-Test.
Abbreviations: HGB, Hemoglobin; PLT, Platelet; INR; LDH, Lactate Dehydrogenase; International Normalized Ratio.

Table 6 Comparison of Participants' Rockall and HALP Scores Between Patients with and without Rebleeding Within One month

One-Month Rebleeding			
	Rebleeding (-) n:213	**Rebleeding (+) n:43**	**p value**
Rockall Score	4 [2–5.5]	6 [4–8]	<0.001[a]
HALP Score	25.8 [13–40.45]	15.51 [7.22–20.65]	<0.001[a]

Notes: a:Mann–Whitney *U*-Test.
Abbreviations: HALP, Hemoglobin, Albumin, Lymphocyte, and Platelet.

CI: 0.715–0.822) and 0.770 (95% CI: 0.714–0.820), respectively (p = 0.9801). The corresponding sensitivity, specificity, and predictive values are presented in Table 7.

For rebleeding prediction, the Rockall score demonstrated a higher AUC (0.739, 95% CI: 0.681–0.792) compared to the HALP score (0.688, 95% CI: 0.627–0.744), though the difference was not statistically significant (p = 0.2969). Sensitivity, specificity, and predictive values for rebleeding prediction are detailed in Table 8.

Table 7 Sensitivity, Specificity, Positive and Negative Predictive Values of Rockall and HALP Scores in Predicting One month Mortality

Score	**Cut-off value**	**Accuracy[95% CI]**	**Sensitivity [95% CI]**	**Specificity[95% CI]**	**PPV[95% CI]**	**NPV[95% CI]**	**p-value**
Rockall	>6	81.3[75.9–85.8]	52.4[29.8 – 74.3]	83.8[78.5 – 88.3]	22.5[14.9–32.3]	95.2[92.6–96.9]	p<0.001
HALP	≤19.01	64.8[58.7–70.7]	85.7[63.7 – 97.0]	63.4[56.9 – 69.6]	16.5[13.1–20.5]	97.4[93.9–98.9]	p<0.001

Abbreviations: CI, Confidence Interval; PPV, Positive Predictive Value; NPV, Negative Predictive Value; HALP, Hemoglobin, Albumin, Lymphocyte, and Platelet.

Table 8 Sensitivity, Specificity, Positive and Negative Predictive Values of Rockall and HALP Scores in Predicting One month Rebleeding

Score	**Cut-off value**	**Accuracy[95% CI]**	**Sensitivity [95% CI]**	**Specificity[95% CI]**	**PPV[95% CI]**	**NPV[95% CI]**	**p-value**
Rockall	>5	72.3[66.4–77.7]	52.38[29,8 – 74.3]	83.83[78,5 – 88.3]	32.1[25.1–40.0]	89.9[86.1–92.7]	p<0.001
HALP	≤20.65	64.8[58.7–70.7]	76.7[61.4–88.2]	62.4[55.6 – 69]	29.2[24.5–34.4]	93.0[88.4–95.9]	p<0.001

Abbreviations: CI, Confidence Interval; PPV, Positive Predictive Value; NPV, Negative Predictive Value; HALP, Hemoglobin, Albumin, Lymphocyte, and Platelet.

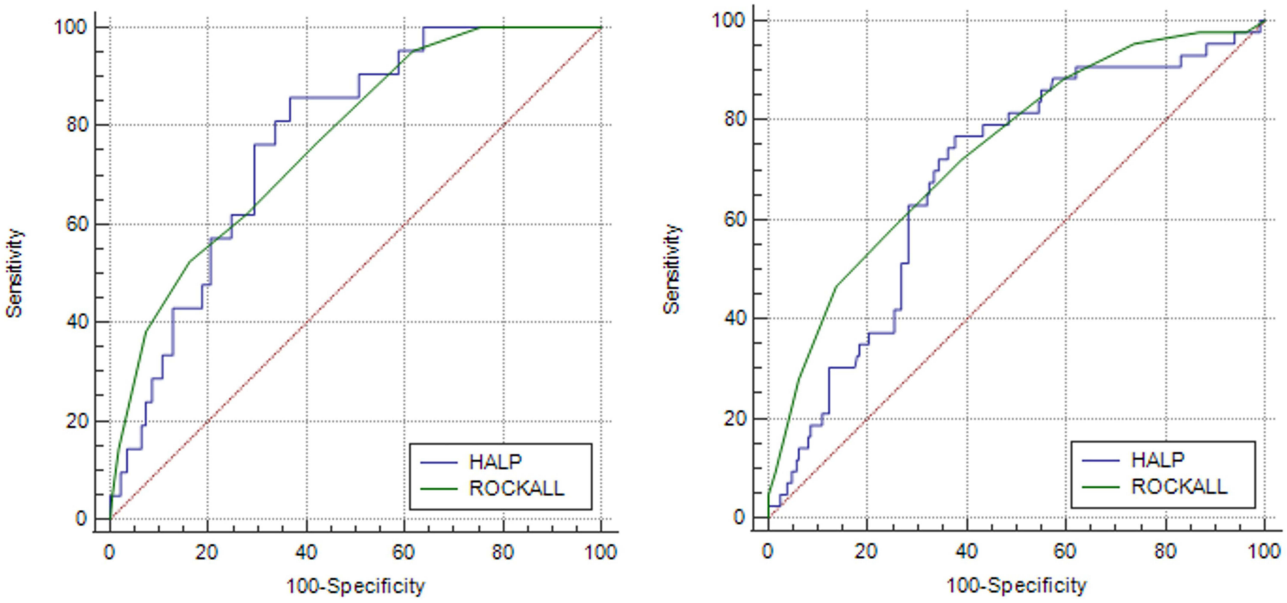

Figure 2 Comparison of HALP and Rockall Scores for Mortality and Rebleeding.

The ROC curves comparing the predictive abilities of the HALP and Rockall scores for mortality and rebleeding are presented in Figure 2.

Discussion

To the best of our knowledge, this is the first study to evaluate the prognostic utility of the HALP score in patients with upper gastrointestinal bleeding, particularly in predicting rebleeding risk and mortality. While the Rockall score is commonly used for risk stratification in UGIB, its predictive accuracy is not perfect. Similarly, our findings suggest that the HALP score, despite being a simpler, laboratory-based tool, demonstrated comparable performance. According to ROC analysis, the AUC values for predicting mortality were 0.772 (95% CI: 0.715–0.822) for HALP and 0.770 (95% CI: 0.714–0.820) for Rockall, with no significant difference between the two (p = 0.9801). For rebleeding prediction, the AUC values were 0.688 (95% CI: 0.627–0.744) for HALP and 0.739 (95% CI: 0.681–0.792) for Rockall (p = 0.2969), indicating moderate predictive performance for both scores. These findings suggest that while neither scoring system provides flawless prediction, HALP may serve as an alternative approach due to its reliance on routine laboratory parameters and ease of calculation.

Current scoring systems used for UGIB patients have been developed to predict mortality and rebleeding risk, assess the need for early treatment, and estimate in-hospital mortality. The predictive accuracy of the Rockall score for mortality varies across studies, and exceptionally high accuracy rates have generally not been reported. In a study by Reda et al, conducted on a small cohort of 50 patients, the AUC value of the Rockall score for mortality was calculated as 0.962, indicating very high predictive accuracy.[19] However, validation studies involving larger patient populations have reported lower predictive power. In a study by Enns et al in Canada with 1869 patients, the AUC value of the Rockall score for mortality was 0.73, demonstrating a valid but limited predictive performance.[20] Similarly, in a study by Vreeburg et al, the AUC value for mortality was 0.81, which, while relatively high, did not indicate perfect predictive accuracy.[21] These findings suggest that the predictive accuracy of the Rockall score for mortality varies across different studies and that it may not serve as an absolute prognostic tool on its own.

In our study, the AUC value of the Rockall score for predicting mortality was 0.770, which is largely consistent with previously reported findings. The predictive power of the Rockall score for rebleeding has generally been reported as low in the literature (AUC: 0.775, 0.70, 0.61).[19–21] In our study, the AUC value of the Rockall score for rebleeding prediction was 0.739 (95% CI: 0.681–0.792), which aligns with previous findings and indicates limited predictive accuracy.

Similarly, the HALP score also demonstrated low to moderate predictive performance for rebleeding (AUC: 0.688, 95% CI: 0.627–0.744).

Furthermore, our results suggest that combining the Rockall score, which includes vital signs, comorbidities, and endoscopic assessments, with the HALP score, which is based on laboratory parameters, may provide a more effective method for predicting rebleeding.

The Glasgow-Blatchford Score is widely used for risk stratification in UGIB patients but has limited accuracy in predicting rebleeding and mortality.[22] Unlike the Rockall score, GBS does not incorporate endoscopic findings and is primarily used to guide hospitalization and discharge decisions in emergency settings.

The AIMS65 score, which includes albumin, INR, altered mental status, blood pressure, and age, has been shown to predict in-hospital mortality (AUROC: 0.80).[5] Since albumin and INR reflect nutritional and coagulation status, AIMS65 shares similarities with the HALP score. Studies have reported that AIMS65 has higher predictive accuracy for mortality compared to the Rockall and GBS scores.[22] Given the role of albumin in mortality prediction, the HALP score may offer similar prognostic value.[23]

AIMS65 and the Rockall score have been reported to have limited capacity in predicting ICU admission.[5,24] Since the HALP score integrates markers of nutritional status and inflammation, it may provide a broader assessment of patient condition. By relying solely on routine laboratory parameters, the HALP score may serve as a practical tool for risk stratification.

While GBS has shown strong performance in predicting rebleeding, the Rockall score and AIMS65 have demonstrated limited effectiveness in this area.[5,24,25] HALP, as a laboratory-based score, may serve as an additional prognostic tool in rebleeding risk assessment. Although AIMS65 is effective in predicting delayed mortality, the HALP score allows for early risk evaluation without requiring clinical or endoscopic data.[5]

The HALP score provides valuable prognostic insight into outcomes including mortality, and rebleeding, offering a significant contribution to existing scoring systems. Future studies should focus on validating the HALP score in larger patient populations and diverse clinical settings. Integrating HALP into clinical practice may enhance early risk stratification and improve outcomes for UGIB patients.

This study has several limitations that should be acknowledged. The retrospective design may have introduced selection bias and limited the ability to establish causal relationships. Conducting the study in a single tertiary hospital may also restrict the generalizability of the findings to other healthcare settings or populations. Additionally, the lack of long-term follow-up data prevents an evaluation of outcomes beyond one month, such as delayed rebleeding or mortality. While the HALP score incorporates systemic and nutritional parameters, it does not account for other important prognostic factors, including detailed comorbid conditions or endoscopic findings, which could influence clinical outcomes. One of the limitations of this study is the absence of data regarding the Glasgow-Blatchford Score (GBS), which is widely used in the risk stratification of upper gastrointestinal bleeding. Therefore, a direct comparison between the HALP score and GBS could not be performed.

Future studies addressing these limitations, including multicenter prospective analyses and the integration of HALP with other established prognostic tools, are essential to validate its clinical utility and define its utility in UGIB management.

Conclusion

This study demonstrates that the HALP score, assessed at admission, might serve as a prognostic tool for predicting rebleeding and short-term mortality in upper gastrointestinal bleeding patients. A HALP score ≤19.01 was significantly associated with higher mortality risk, while a cutoff of ≤20.65 predicted rebleeding. The HALP score performed comparably to the Rockall score in mortality prediction and showed moderate accuracy for rebleeding. Given its simplicity and reliance on routine laboratory parameters, HALP may serve as a practical adjunct to existing risk stratification tools. Future prospective studies are needed to validate its clinical utility and refine its role in UGIB management.

Disclosure

The author(s) report no conflicts of interest in this work.

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