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ORIGINAL ARTICLE / ÖZGÜN ARAŞTIRMA MAKALESİ

Factors Associated with Thirty-Day Emergency Department Revisits for Upper Gastrointestinal Bleeding: Insights from a Five-Year Retrospective Study

Üst Gastrointestinal Kanama Nedeniyle 30 Gün İçerisindeki Acil Servis Tekrar Başvurularıyla İlişkili Faktörler: Beş Yıllık Retrospektif Bir Çalışmadan Bulgular

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ABSTRACT

Aim: This study aims to identify key factors associated with 30-day emergency department (ED) revisits among patients discharged after upper gastrointestinal bleeding (UGIB), providing insights to optimize patient management and improve outcomes.

Material and Methods: A single-center retrospective cohort study was conducted at a tertiary university hospital between January 1, 2018, and December 31, 2022. Adult patients (>18 years) diagnosed with UGIB were included, while those with incomplete data or transferred to other facilities were excluded. Data on demographics, clinical features, laboratory parameters, endoscopic findings, and revisits were analyzed. Univariate and multivariate logistic regression models were used to identify predictors of UGIB-related ED revisits.

Results: Among 862 patients, the 30-day revisit rate was 19.9% (n=172), with 84 revisits related to UGIB. Female gender, malignancy, anticoagulant use, prior UGIB history, and lower discharge hemoglobin levels were identified as significant predictors of UGIB-related revisits. Patients with Forrest IA ulcers had a 42.9% revisit rate, while those with Forrest III ulcers showed a significantly lower rate of 5.5%. Erythrocyte suspension was used more frequently in the revisit group (83.3% vs. 61.2%, p<0.001), reflecting the severity of these cases.

Conclusion: UGIB-related revisits are influenced by several factors, including anticoagulant use, malignancy, prior UGIB history, and endoscopic findings. Tailored discharge planning, patient education, and risk stratification are critical to reducing revisits. Future studies should focus on prospective validation and the development of predictive models for targeted interventions.

Keywords: Upper gastrointestinal bleeding, Forrest classification, discharge planning, readmission

ÖZ

Amaç: Bu çalışmanın amacı, üst gastrointestinal kanama (ÜGİK) sonrası taburcu edilen hastalarda 30 günlük acil servis (AS) başvurularıyla ilişkili anahtar faktörleri belirleyerek hasta yönetimini optimize etmek ve sonuçları iyileştirmek için içgörüler sağlamaktır.

Gereç ve Yöntemler: Bu tek merkezli retrospektif kohort çalışması, 1 Ocak 2018 ile 31 Aralık 2022 tarihleri arasında bir üniversite hastanesinde gerçekleştirilmiştir. Çalışmaya, ÜGİK tanısı almış 18 yaş üstü erişkin hastalar dahil edilmiş, eksik verileri olan veya başka bir merkeze sevk edilen hastalar çalışmadan çıkarılmıştır. Demografik veriler, klinik özellikler, laboratuvar parametreleri, endoskopik bulgular ve başvurulara ilişkin veriler analiz edilmiştir. ÜGİK ile ilişkili AS başvurularını öngören faktörleri belirlemek için tek değişkenli ve çok değişkenli lojistik regresyon modelleri kullanılmıştır.

Bulgular: Toplam 862 hastanın %19,9'u (n=172) 30 gün içinde tekrar AS başvurusu yapmış olup, bunların 84'ü ÜGİK ile ilişkilidir. Kadın cinsiyet, malignite, antikoagülan kullanımı, önceki ÜGİK öyküsü ve taburculuk sırasındaki düşük hemoglobin seviyeleri, ÜGİK ile ilişkili tekrar başvuruların anlamlı öngörücüleri olarak belirlenmiştir. Forrest IA ülseri olan hastalarda tekrar başvuru oranı %42,9 iken, Forrest III ülseri olan hastalarda bu oran anlamlı derecede düşük olup %5,5'tir. Eritrosit süspansiyonu, tekrar başvuru grubunda daha sık kullanılmıştır (%83,3 - %61,2, p<0,001) ve bu, bu hastaların klinik durumlarının ciddiyetini yansıtmaktadır.

Sonuç: ÜGİK ile ilişkili tekrar başvurular, antikoagülan kullanımı, malignite, önceki ÜGİK öyküsü ve endoskopik bulgular dahil olmak üzere çeşitli faktörlerden etkilenmektedir. Taburculuk planlamasının kişiselleştirilmesi, hasta eğitimi ve risk sınıflandırması, tekrar başvuruların azaltılmasında kritik öneme sahiptir. Gelecekteki çalışmalar, bu bulguların prospektif doğrulamasına ve hedefe yönelik müdahaleler için öngörücü modellerin geliştirilmesine odaklanmalıdır.

Anahtar Kelimeler: Üst gastrointestinal kanama, Forrest sınıflaması, taburculuk planı, tekrar başvuru

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Introduction

Upper gastrointestinal bleeding (UGIB) constitutes a significant proportion of emergency department (ED) visits and plays a critical role in emergency medicine due to its high morbidity and mortality rates (1,2). It is characterized by bleeding originating above the ligament of Treitz, commonly presenting with symptoms such as hematemesis or melena (1). Effective management begins with stabilization, including securing intravenous access, fluid resuscitation, and oxygen support, followed by disease-specific treatments such as proton pump inhibitors, somatostatin analogs, endoscopy, and, when necessary, surgical intervention (3-5). In the United States, UGIB accounts for nearly 200,000 hospitalizations annually, with 67-81% of ED presentations resulting in admission for further evaluation and management (6). During hospitalization, efforts focus on stabilizing the patient, controlling the bleeding through medical or interventional therapies, and addressing the underlying etiology. Once stabilized and adequately managed, patients are discharged with follow-up plans that may include pharmacological therapy, such as proton pump inhibitors, and regulations to antiplatelet or anticoagulant regimens. However, despite these measures, many patients experience an elevated risk of re-bleeding or other complications after discharge, frequently leading to hospital revisits within 30 days (7). These revisits serve as critical indicators of patient safety and the quality of care provided, while also posing a substantial burden on healthcare systems (8).

Given the impact of recurrent ED visits on both patient outcomes and healthcare utilization, understanding the factors contributing to these revisits is crucial (9). This study aims to contribute to this understanding by categorizing patients with UGIB into two groups—those who experienced UGIB-related revisits to the ED and those who did not (including patients who may have revisited the ED for reasons unrelated to UGIB or did not revisit at all). By comparing these groups, the study seeks to identify the key risk factors associated with recurrent ED visits. The findings are anticipated to inform clinical decision-making, enhance discharge planning, and ultimately reduce the burden of repeat visits in this vulnerable patient population.

Material and Methods

Study design and settings

A single-center retrospective cohort study was conducted out at a tertiary university hospital emergency medicine department serving approximately 200,000 adult patients annually. Marmara University Clinical Research Ethics Committee Clinical Research Ethics Committee approved the study protocol (protocol number: 09.2023.1426; November 11, 2023), and the Declaration of Helsinki was complied with throughout the study. The study report was composed following the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines (10).

Study participants

All adult patients (>18 years of age) diagnosed with UGIB between January 1, 2018, and December 31, 2022, were retrospectively included in the study. UGIB was identified based on symptoms (hematemesis, melena) or indirect signs (e.g., syncope, fatigue, dizziness, anemia) evaluated during the ED presentation. For patients with multiple ED visits during the study period, only the initial visit was included in the analysis. Additionally, patients whose initial ED presentation resulted in mortality were excluded. Those with incomplete data or who were discharged against medical advice (DAMA) before completing investigations or treatment were also excluded from the study.

Data sources/measurement and variables

Data were collected from the hospital's electronic information management system, as well as from medical records and patient files. Patients were identified by screening the International Classification of Disease-10 (ICD-10) codes, specifically K92.2 (gastrointestinal bleeding). The recorded variables included demographic information (age, gender), presentation vitals (blood pressure, pulse, oxygen saturation, temperature), presenting symptoms (hematemesis, melena, syncope, hematochezia), comorbidities (hypertension, diabetes mellitus, coronary artery disease, dysrhythmia, chronic renal failure, malignancy etc.), medications (antiplatelet agents, anticoagulants, non-steroidal anti-inflammatory drugs, proton pump inhibitors, etc.), laboratory parameters (hemoglobin, platelet count, creatinine, blood urea nitrogen, international normalized ratio, etc.), whether a blood transfusion was performed, hospital length of stay, discharge status, and outcomes. The most recent hemoglobin levels prior to discharge were also recorded for analysis.

Endoscopy results were also examined. Endoscopic findings were categorized as no abnormality seen, gastritis/esophagitis/erosions, ulcers, varices, malignancy, or other findings (mallory-weiss syndrome, angiodysplasia, diverticulum, and anastomotic leakage). Ulcer findings were further classified using the Forrest classification system: active spurting bleeding (Forrest IA), active oozing bleeding (Forrest IB), non-bleeding visible vessel (Forrest IIA), ulcers with adherent clots (Forrest IIB), ulcers with red spots (Forrest IIC), or ulcers with a clean base (Forrest III) (11,12).

Hospital revisit was defined as any re-presentation to the ED within 30 days of discharge. Revisits were categorized into UGIB-related and unrelated groups. For revisits associated with UGIB, data on endoscopic procedures and patient outcomes were documented.

The primary outcome of the study was defined as an UGIB related ED revisit within 30 days of discharge.

Statistical Analysis

The SPSS (IBM Statistical Package for Social Sciences) for Windows 23.0 was used for statistical analysis. Histograms and Q-Q plot graphs were used to evaluate the distribution of data. Categorical variables are presented as numbers with percentages. Normally distributed variables were presented as mean and standard deviation, while non-normally distributed variables were presented as medians with interquartile ranges. Independent group comparisons were performed with the Student T-test, Mann-Whitney U test and Pearson-Chi Square. Statistical significance was set at $p < 0.05$. Factors influencing UGIB-related revisits were analyzed using logistic regression. Variables identified as potentially significant in the univariate regression analysis were subsequently included as independent variables in the multivariate logistic regression analysis. The results of the

regression analyses were presented as odds ratios (OR) with 95% confidence intervals (CIs).

Results

Over a five-year period, 971 patients were diagnosed with UGIB in the ED of Marmara University Pendik Training and Research Hospital. Of these, 109 patients were excluded from the study for various reasons, including transfer to another facility (n=41), DAMA (n=28), incomplete data (n=24), and duplicate visits (n=16). Consequently, a total of 862 patients were included in the final analysis. Among the study cohort, 172 patients had a revisit within 30 days, 84 of which were related to GIB. (Figure 1).

The mean age of the patients was 63.7 ± 18.2 years, with 36.1% being female. A comparison of the demographic characteristics of patients based on GIB-related revisits is presented in Table 1. Female patients, those with a history of GIB, patients with malignancy, and individuals using anticoagulant agents were found to have a higher incidence of GIB-related revisits (p=0.044, p=0.002, p<0.001, p=0.002, respectively). Conversely, patients using nonsteroidal anti-inflammatory drugs (NSAIDs) exhibited a lower frequency of GIB-related revisits (p=0.018).

The patient's vital signs and laboratory parameters at the time of presentation are detailed in Table 2. Hemoglobin levels at presentation were significantly lower in patients who experienced UGIB-related revisits than those who did not (p < 0.001). Furthermore, the final hemoglobin values obtained prior to discharge were also notably lower in the UGIB-related revisit group (p < 0.001).

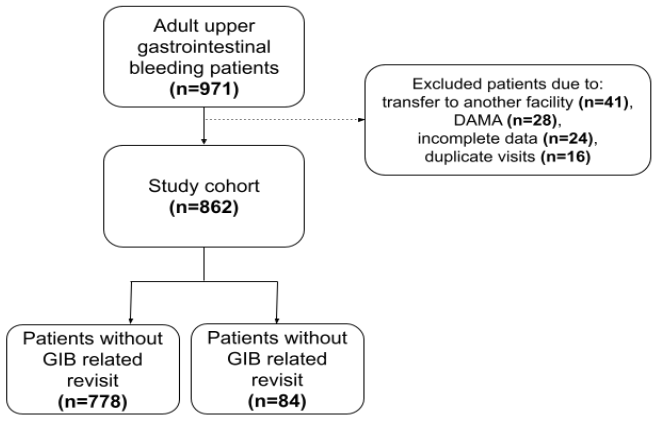

Figure 1: Flow diagram of the study

Endoscopic intervention was performed in 74% of the patients. Among these patients, ulcers (44.0 %) were the most commonly observed endoscopic finding. Table 3 provides detailed endoscopic findings and the Forrest classification of ulcers. Patients with Forrest IA ulcers had a 42.9% rate of UGIB-related revisits, whereas those with Forrest III ulcers experienced UGIB-related revisits at a significantly lower rate of 5.5%.

Erythrocyte suspension was administered to 63.3% of all patients, with higher usage observed among those with UGIB-related revisits (83.3%) compared to those without revisits (61.2%) (p < 0.001). Details on the use of other blood products, length of hospital stay, and hospital outcomes are presented in Table 4.

Characteristics, n (%)	Patients without UGIB-related revisit (n=778)	Patients with UGIB-related revisit (n=84)	All patients (n=862)	p^
Age, mean ± SD	63.6 ± 18.5	64.6 ± 16.7	63.7 ± 18.2	0.630*
Gender, female	273 (35.1)	38 (45.2)	311 (36.1)	**0.044**
Blood type				0.365
0	303 (38.9)	26 (31.0)	329 (38.2)	
A	326 (41.9)	36 (42.9)	362 (42.0)	
B	102 (13.1)	15 (12.8)	117 (13.6)	
AB	47 (6.0)	7 (13.0)	54 (6.3)	
Rh, positive	683 (87.8)	70 (83.3)	753 (87.4)	0.243
Symptoms				
Melena	506 (65.0)	57 (67.9)	563 (65.3)	0.350
Hematemesis	341 (43.8)	40 (47.6)	381 (44.2)	0.507
Hematochezia	55 (7.1)	6 (7.1)	61 (7.1)	0.980
Syncope	44 (5.7)	4 (4.8)	48 (5.6)	0.734
Comorbidities				
Hypertension	277 (35.6)	35 (41.7)	312 (63.8)	0.272
Diabetes mellitus	178 (22.9)	25 (29.8)	203 (23.5)	0.158
Dysrhythmia	76 (9.8)	7 (8.3)	83 (9.6)	0.672
Coronary artery disease	172 (22.1)	22 (26.2)	194 (22.5)	0.395
Chronic kidney disease	58 (7.5)	9 (10.7)	67 (7.8)	0.289
Liver disease	128 (16.5)	19 (22.6)	147 (17.1)	0.153
Malignancy	119 (15.3)	30 (35.7)	149 (17.3)	**<0.001**
UGIB history	248 (31.9)	41 (48.8)	289 (33.5)	**0.002**
Medication use				
Antiplatelet agent	188 (24.2)	17 (20.2)	205 (23.8)	0.422
Anticoagulant agent	156 (20.1)	29 (34.5)	185 (21.5)	**0.002**
Non-steroidal anti-inflammatory drugs	157 (20.2)	8 (9.5)	165 (19.1)	**0.018**
Proton pump inhibitors	119 (15.3)	15 (17.9)	134 (15.5)	0.538

Table 1: Comparison of the demographic data of patients based on UGIB-related revisits (n=862)
SD: Standart deviation; UGIB: Upper gastrointestinal bleeding.
^: Pearson Chi-Square Tests, *: Student-t Test,

Characteristics, n (%)	Patients without UGIB-related revisit (n=778)	Patients with UGIB-related revisit (n=84)	All patients (n=862)	p*
Systolic BP, mmHg, mean ± SD	116.8 ± 23.0	113.5 ± 23.6	116.4 ± 23.1	0.208
Diastolic BP, mmHg, mean ± SD	71.2 ± 15.3	70.2 ± 15.7	71.1 ± 15.3	0.553
Pulse, /min, mean ± SD	92.5 ± 19.1	93.3 ± 182.3	92.6 ± 19.0	0.727
Saturation, %, median (IQR)	98 (96-99)	98 (96-99)	98 (96-99)	0.244**
Hemoglobin, g/dL, mean ± SD	9.4 ± 3.0	7.8 ± 2.7	9.2 ± 3.0	**<0.001**
Hemoglobin at discharge, g/dL, mean ± SD	9.6 ± 1.9	8.8 ± 1.6	9.4 ± 1.9	**<0.001**
Platelet,10^3/mcL median (IQR)	231 (165-296)	243 (143-312)	231 (164-299)	0.729**
INR, median (IQR)	1.2 (1.1-1.4)	1.2 (1.1-1.4)	1.2 (1.1-1.4)	0.526**
Creatinine, mg/dL, median (IQR)	0.9 (0.7-1.2)	0.8 (0.7-1.3)	0.9 (0.7-1.2)	0.654**
Blood urea nitrogen, mg/dL, median (IQR)	29 (20-44)	30 (19-45)	29 (20-44)	0.838**

Table 2: Vitals and laboratory characteristics of patients with and without UGIB-related revisits
BP: blood pressure; IQR: interquartile range; UGIB: upper gastrointestinal bleeding; SD: Standard deviation. *: Student-t Test, **: Mann-Whitney U

Characteristics, n (%)	Patients without UGIB-related revisit (n=778)	Patients with UGIB-related revisit (n=84)	All patients (n=862)	p^
Endoscopy performed	582 (74.8)	57 (67.9)	639 (74.0)	0.167
Endoscopy results (n=639)				**0.004**
No abnormality seen	40 (6.9)	2 (3.5)	42 (6.6)	
Gastritis, Esophagitis, Erosions	122 (21.0)	3 (5.3)	125 (19.6)	
Ulcer	256 (44.0)	23 (40.4)	279 (43.7)	
Varices	110 (18.9)	18 (31.6)	128 (20.0)	
Malignancy	40 (6.9)	9 (15.8)	49 (7.7)	
Others[&]	14 (2.4)	2 (3.5)	16 (2.5)	
Forrest Classification (n=279)[#]				**0.004**
Forrest IA	4 (57.1)	3 (42.9)	7 (100.0)	
Forrest IB	14 (77.8)	4 (22.2)	18 (100.0)	
Forrest IIA	24 (92.3)	2 (7.7)	26 (100.0)	
Forrest IIB	23 (92.0)	2 (8.0)	25 (100.0)	
Forrest IIC	37 (92.5)	3 (7.5)	40 (100.0)	
Forrest III	154 (94.5)	9 (5.5)	163 (100.0)	

Table 3: Comparison of endoscopic findings and timing between patients with and without UGIB-related revisits
[#] Percentages in the Forrest classification row represent row percentages.
[&:] The others include Mallory-Weiss syndrome, angiodysplasia, diverticulum, and anastomotic leakage.
UGIB: Upper gastrointestinal bleeding.
^: Pearson Chi-Square Tests.

Characteristics, n (%)	Patient without UGIB-related revisit (n=778)	Patient with UGIB-related revisit (n=84)	All patients (n=862)	p^
Blood product use				
Erythrocyte suspension	476 (61.2)	70 (83.3)	546 (63.3)	**<0.001**
Platelet suspension	60 (7.7)	10 (11.9)	70 (8.1)	0.181
Fresh frozen plasma	159 (20.4)	22 (26.2)	181 (21.0)	0.219
Outcome				0.499
ED-Discharge	276 (35.5)	32 (38.1)	308 (35.7)	
Ward-Discharge	473 (60.8)	47 (56.0)	520 (60.3)	
ICU-Discharge	29 (3.7)	5 (6.0)	34 (3.9)	
Hospital length of stay, hours, median (IQR)	42 (19-96)	35 (18-100)	42 (19-97)	0.899**

Table 4: Comparison of blood product utilization and patient outcomes between patients with and without UGIB-related revisits
ED: Emergency department; ICU: Intensive care unit; IQR: interquartile range; UGIB: upper gastrointestinal bleeding.
^: Pearson Chi-Square Tests, **: Mann-Whitney U

Univariate and multivariate analyses were conducted to identify factors associated with UGIB-related revisits. The key predictors identified in the multivariate analysis included malignancy (OR: 2.531, 95% CI: 1.510–4.242, p<0.001), a history of gastrointestinal bleeding (OR: 1.711, 95% CI: 1.048–2.792, p=0.032), and the use of anticoagulant agents (OR: 1.689, 95% CI: 1.009–2.828, p=0.046). Conversely, higher hemoglobin levels at discharge were associated with a reduced likelihood of revisits (OR: 0.798, 95% CI: 0.666–0.957, p=0.015). The complete analysis and odds ratios are detailed in Table 5.

Upon detailed analysis of the 84 UGIB-related revisits, 46 patients (54.7%) underwent endoscopy. Among these, no pathology was detected in four patients, while 10 had ulcers (1 Forrest IB, 1 Forrest IIA, 8 Forrest III), 17 had varices, 12 had malignancies, and three presented with findings consistent with gastritis, esophagitis, or erosions. In terms of patient outcomes, 43 were discharged directly from the ED, 30 were admitted to the ward, 7 required ICU admission, and four died in the ED.

Variable	Univariate analysis		Multivariate analysis	
	OR (95%CI)	p*	OR (95%CI)	p*
Female gender	1.528 (0.970-2.407)	0.067	1.237 (0.768-1.992)	0.382
Age	1.003 (0.991-1.016)	0.630		
Hypertension	1.292 (0.817-2.042)	0.273		
Diabetes mellitus	1.428 (0.869-2.347)	0.160	1.234 (0.732-2.081)	0.430
Liver disease	1.484 (0.861-2.560)	0.156	1.224 (0.667-2.245)	0.514
Malignancy	3.077 (1.890-5.008)	**<0.001**	2.531 (1.510-4.242)	**0.000**
UGIB history	2.038 (1.295-3.207)	**0.002**	1.711 (1.048-2.792)	**0.032**
Anticoagulant agent use	2.102 (1.297-3.407)	**0.003**	1.689 (1.009-2.828)	**0.046**
NSAID use	0.416 (0.197-0.881)	**0.022**	0.468 (0.214-1.024)	0.057
Initial hemoglobin level[#]	0.827 (0.760-0.899)	**<0.001**		
Discharge hemoglobin level[#]	0.723 (0.616-0.848)	**<0.001**	0.798 (0.666-0.957)	**0.015**
Erythrocyte suspension use	3.172 (1.756-5.732)	**<0.001**	1.817 (0.930-3.551)	0.081
Endoscopy procedure performed	0.711 (0.437-1.155)	0.169	0.668 (0.392-1.140)	0.139
Endoscopy results (n=639)				
No abnormality seen	1.000 (Reference)	0.492		
Gastritis/esophagitis/erosions	0.492 (0.079-3.049)	0.446		
Ulcer	1.797 (0.408-7.916)	0.439		
Varices	3.273 (0.727-14.741)	0.123		
Others	2.857 (0.367-22.245)	0.316		
Malignancy	4.500 (0.914-22.147)	0.064		

Table 5: Univariate and multivariate analyses of parameters predicting UGIB-related revisits (n=862)

CI: confidence interval; UGIB: Upper gastrointestinal bleeding; NSAID: Non-steroid anti-inflammatory drugs; OR: odds ratio. Statistically significant p values are written in bold.

* A logistic regression model was used for univariate and multivariate analysis to assess the predictive factors that affect UGIB-related revisits.

[#] In the correlation analysis, a high Pearson correlation coefficient (r=0.81) was observed between the initial hemoglobin level and the hemoglobin level at discharge. Therefore, only one of these parameters was included in the multivariate analysis.

Discussion

This study comprehensively analyzes the factors associated with 30-day ED revisits among patients with UGIB. The revisit rate of 19.9% observed in our cohort aligns with prior studies, which report rates ranging from 14% to 25% depending on patient populations and healthcare settings (5,13). This underscores the importance of targeted interventions to minimize recurrent presentations, thereby improving patient outcomes and reducing healthcare burdens.

A notable observation in our study was the higher frequency of UGIB-related revisits among female patients. Although the reason for this gender disparity remains unclear, it is consistent with some reports in the literature suggesting potential differences in healthcare-seeking behaviors, comorbidities, or biological factors between men and women (7). However, other studies have reported conflicting results, indicating either no significant gender differences or higher revisit rates among male patients (13). This variability highlights the need for further research to explore the interplay of gender-specific factors in UGIB-related outcomes.

Our findings also revealed a significant association between anticoagulant use and increased likelihood of UGIB-related revisits. Patients on anticoagulant therapy had a significantly higher odds ratio for revisits, consistent with previous research identifying anticoagulation as a major risk factor for recurrent bleeding (5,7). This result emphasizes the need for careful management of anticoagulant regimens in patients recovering from UGIB, particularly regarding resumption timing and dose adjustments. The American College of Gastroenterology (ACG) Clinical Guidelines recommend individualized approaches for anticoagulant therapy resumption, balancing thrombotic and re-bleeding risks (5).

Interestingly, patients using NSAIDs were found to have a lower likelihood of revisits. This observation may be related to the pathophysiology of NSAID-induced damage, which primarily affects the mucosal layer and is often effectively managed by discontinuing NSAID use and initiating protective therapies for the damaged mucosa (14). In contrast, bleeding associated with underlying chronic conditions such as malignancy or varices is often not easily or rapidly treatable, thereby contributing to recurrent bleeding episodes and higher revisit rates (9,15).

A history of gastrointestinal bleeding was another independent predictor of revisits. This finding aligns with studies suggesting that prior bleeding episodes reflect underlying vulnerabilities, such as chronic mucosal injuries or comorbidities, that predispose patients to recurrent events (7). Clinicians should closely monitor patients with such histories, employing proactive follow-up strategies and patient education to mitigate risks (5).

One of the key findings was that higher hemoglobin levels at presentation and discharge were associated with a reduced likelihood of revisits. This finding supports the notion that optimal hemodynamic stabilization before discharge plays a critical role in reducing post-discharge complications. Conversely, patients who required blood transfusion during hospitalization exhibited a higher risk of revisits. This association likely reflects the underlying severity of illness and worse clinical conditions in these patients, necessitating transfusion. The poor baseline clinical status, rather than the transfusion itself, indirectly contributes to the increased revisit risk. In clinically stable patients with good general conditions, restrictive blood transfusion strategies remain the preferred approach to minimize potential adverse effects while addressing patient needs (7,16,17).

Endoscopic findings emerged as critical factors in understanding revisit risks. Among the patients, bleeding associated with malignancy and varices was particularly notable. Subgroup analysis comparing ulcer classifications revealed that patients with Forrest I ulcers, indicative of active bleeding, had a significantly higher likelihood of UGIB-related revisits (42.9%) compared to patients with Forrest III ulcers, representing ulcers with a clean base and lower bleeding risk, which showed a significantly lower revisit rate of 5.5%. These findings emphasize the importance of tailoring follow-up plans based on endoscopic findings and warrant closer monitoring of patients with high-risk stigma and more intensive interventions to reduce the risk of recurrent bleeding. These results are consistent with previous literature emphasizing the importance of endoscopic results in predicting patient outcomes (5,12).

Finally, the observed revisit rate and its associated factors underscore broader implications for healthcare systems. Effective discharge planning, including comprehensive patient education, medication reconciliation, and follow-up arrangements, remains paramount in mitigating revisits. Studies have shown that structured post-discharge interventions significantly reduce 30-day readmissions, emphasizing the value of multidisciplinary approaches (13,18).

Limitations

This study has several limitations. First, its retrospective design may introduce inherent biases, although including five-year data strengthens its reliability and provides a broad perspective on patient outcomes. Second, the study was conducted at a single tertiary care center, which may limit generalizability. Furthermore, as a tertiary center, the patient population likely included a higher proportion of complex cases, such as malignancies, potentially skewing results. Additionally, malignancies were not subcategorized into gastrointestinal and non-gastrointestinal cancers. This limits our ability to determine whether all observed revisit risks associated with malignancies are related to gastrointestinal cancers or are also influenced by other cancer types. Future studies should explore these distinctions through subgroup analyses to clarify these associations. Another limitation was the exclusion of patients transferred to other facilities due to limited access to their complete data. Many of these patients likely required intensive care, introducing a potential selection bias that could inadvertently underrepresent the most severe cases. Lastly, while most patients returned to the same hospital for follow-up due to structured discharge plans, some may have sought care elsewhere, resulting in incomplete data on revisits (19).

Conclusion

This study identifies critical predictors of UGIB-related ED revisits, including anticoagulant use, prior bleeding history, lower hemoglobin levels at discharge, and specific endoscopic findings. These findings reinforce the need for personalized risk stratification and tailored post-discharge strategies to improve outcomes. Future research should focus on prospectively validating these findings and developing predictive models to guide clinical decision-making.

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