

Analysis of Etiological and Gastroscopic Data of Patients with Upper Gastrointestinal Bleeding

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Abstract

Objective: Acute upper gastrointestinal bleeding is a life-threatening emergency situation. Gastroscopy has an important place in the diagnosis and treatment. This study aimed to examine the etiological, clinical, and gastroscopic data of patients with upper gastrointestinal bleeding.

Materials and Methods: The outcomes of patients who underwent gastroscopy for upper gastrointestinal bleeding in the endoscopy unit between January 2016 and December 2021 were retrospectively reviewed.

Results: Of the 511 patients evaluated, 341 (66.7%) were male, 170 (33.3%) were female, and the mean age of the patients was 60.2 ± 19.05 years (range 16-88) years. The most common cause of the bleeding was peptic ulcer (51.2%), and its location was the duodenum (70.7%). The second most common cause was esophageal variceal bleeding (23%). Band ligation was applied to 99 (82%) of 122 patients with bleeding esophageal varices at the same session or at a later session, and sclerotherapy was applied to 120 (46%) of 262 patients with bleeding peptic ulcers at the same session. Fifteen patients (2.9%) underwent surgery due to severe bleeding and hemodynamic instability. Intravenous iron therapy was administered to 101 patients (20%). Mortality occurred in 67 of 511 patients (13.1%), including 29 of 122 patients (24%) with varicose veins and 38 of 391 patients (10%) with non-variceal bleeding during hospitalization.

Conclusion: It was found that the mortality rate during hospitalization in the gastroenterology unit was 13% overall for patients hospitalized for upper gastrointestinal bleeding, one-fourth for patients hospitalized for variceal bleeding, and one-tenth for patients hospitalized for non-variceal bleeding. These data reveal that upper gastrointestinal bleeding, especially variceal bleeding, is a clinical condition with high mortality that requires urgent intensive care admission and rapid intervention.

Keywords: Upper gastrointestinal tract, bleeding, varices, peptic ulcer, gastroscopy, mortality

INTRODUCTION

Upper gastrointestinal bleeding (UGIB) is characterized by bleeding from lesions located between the esophagus and the proximal ligament of Treitz.¹ Upper gastrointestinal bleeding is divided into variceal or non-variceal bleedings. Variceal bleeding may occur in association with portal hypertension and chronic vascular diseases. It has been found that the most common cause of non-variceal UGIB is peptic ulcer bleeding.² Peptic ulcer is usually manifested by the presence of the bacterium *Helicobacter pylori* (*H. pylori*). In addition, the use of nonsteroidal anti-inflammatory drugs may also cause ulceration.³ While 80% of UGIB stops spontaneously with follow-up alone, 20% may be severe to require medical and surgical treatment. According to current statistics, there is a mortality rate of approximately 14% from various underlying causes.⁴ The incidence of the disease varies between 48-160/100.000. The incidence is much higher in elderly and male individuals compared to women and young people. According to observational studies, the mortality rate of patients hospitalized for UGIB is approximately 10%. Many factors such as poor condition, age, and comorbidities are effective in this rate.⁵ The aim of this study was to retrospectively evaluate the demographic, clinical, laboratory, and gastroscopy results, as well as the treatment results and mortality rates of patients followed up with the diagnosis of UGIB in Harran University Hospital Gastroenterology Clinic, and compare them with the findings in the literature.

METHODS

The study was planned retrospectively. This study included 511 patients who underwent gastroscopy for UGIB in the endoscopy unit of the Gastroenterology Clinic of Harran University Hospital between January 2016 and December 2021. Demographic data, clinical characteristics,

laboratory and gastroscopy results, treatments administered, and mortality during hospitalization were obtained from hospital records. Patients under the age of 16, those with malignancy, lower gastrointestinal bleeding, and pregnant women were excluded from the study. Ethics committee approval was obtained from Harran University Faculty of Medicine (Approval no: HRÜ/22.02.01; Date: Januray 24, 2022) in accordance with the Helsinki Declaration. Since the study was planned as a retrospective study, written consent for participation in the study was not obtained from the patients. Data were analyzed using IBM SPSS 26.0 (IBM SPSS Corp.; Armonk, NY, USA) software. Descriptive statistics such as frequency, percentage, arithmetic mean, and standard deviation were used for analysis. The Chi-Square Test was used to compare 2 sets of categorical data. In all calculations and interpretations presented in this study, the statistical significance level was accepted as “ $P < .05$, $P < .01$, $P < .001$ ” and hypotheses were established in 2 ways.

RESULTS

Of the 511 patients included in the study, 33.3% were female, 66.7% were male, and the mean age of the patients was 60.20 ± 19.05 (range 16-88) years. When the patients were evaluated according to the reasons for their admission, it was found that 41.5% of them had melena, 34.4% had hematemesis, 0.8% had peg placement, and 23.2% had other reasons (epigastric pain, nausea, vomiting, weight loss, etiology of corrosive substance, dysphagia, iron deficiency anemia, etc.). Blood transfusion was applied to 72.8% of the patients. Endoscopic examination revealed that 23.9% had variceal bleeding, 37.5% had bleeding due to peptic ulcer, and 38.2% had bleeding due to other causes (tumor, erosive gastritis, esophagitis, gastrectomy, hiatal hernia, Mallory–Weiss tear, etc.). About 47.9% of the patients who underwent endoscopy did not undergo any procedure; mortality occurred in 2 of 15 patients who underwent surgery. Iron carboxymaltose treatment was applied to 19.8% of the patients. Details and demographic data regarding the procedures performed are given in Table 1.

The mortality rate of patients with nonvariceal bleeding was 10%, 25% with variceal bleeding, and 13.1% in all patients. The female and male rates of patients who developed mortality were similar (13% and 13.2%, respectively). Detailed data regarding the mortality are given in Table 2.

DISCUSSION

It has been reported that 80% of UGIB stops spontaneously with follow-up alone, but 20% may be severe to require medical and surgical treatment and may result in death.⁶ Therefore, all cases of UGIB require careful examination and appropriate follow-up. In this study, it was observed that the male/female ratio was 2/1, which was similar to

Table 1. General Characteristics of Patients

		Number (N)	Ratio (%)
Gender	Male	341	66.7
	Female	170	33.3
Age (year) (mean: 60.20 ± 19.05)	16-40	91	17.8
	41-60	131	25.6
	61-80	222	43.4
	>80	67	13.2
Reason for application	Hematemesis	17	34.4
	Melena	212	41.5
	Peg attachment	4	0.8
	Others (epigastric pain, nausea, vomiting, weight loss, etiology of corrosive substance, dysphagia, iron deficiency anemia, etc.)	119	23.3
Endoscopy findings	Varicose	122	23.9
	Peptic ulcer	192	38.1
	Forrest 1a	9	1.8
	Forrest 1b	35	6.8
	Forrest 2a	59	11.5
	Forrest 2b	14	2.7
	Forrest 2c	4	0.8
	Forrest 3	71	13.9
	Bleeding due to other causes (tumor, erosive gastritis, esophagitis, gastrectomy, hiatal hernia, mallory weiss, etc.)	192	38.1
Treatment method	Band ligation	99	19.4
	Sclerotherapy	150	29.4
	Surgery	1	0.2
	Radiology interventions	6	1.2
	IGV (glubran injection)	2	0.4
	No process taken	245	47.9
Need for blood transfusion	No	139	27.2
	Yes	372	72.8
Transfused blood amount (mean: 2.74 ± 3.44)	0	139	27.2
	1	74	14.5
	2	95	18.6
	3	64	12.5
	4	42	8.2
	5 ve Üzeri	97	19.0

IGV, Isolated gastric varices.

a study by Yalçın et al⁷ It is known that melena and hematemesis are among the first clinical symptoms in peptic ulcer patients.⁸ In the study conducted by Hafizoglu et al,⁹ the number of patients presenting with hematemesis and melena was found to be 81.7%, and in the study conducted by Okutur et al,¹⁰ it was found to be 62.2%. In this study, melena (41.5%) and hematemesis (34.4%) were the most common symptoms and findings.

In a retrospective study conducted by Polat et al,¹¹ it was reported that the most preferred endoscopic treatment method was sclerotherapy, which was applied to 12.6% of the patients. In this cohort, a higher rate of sclerotherapy was found compared to the literature. Endoscopic treatment was performed in approximately half of the patients included in the present study. Among patients who received treatment, the most common endoscopic method was sclerotherapy (29.4%). Although it is essential to evaluate the source of bleeding and stop ongoing bleeding, blood product transfusion may be required for patients with hemodynamic instability. No specific hemoglobin/hematocrit level is recommended for patients with active hemorrhage.¹² Patients with gastrointestinal (GI) bleeding usually benefit from a threshold of 7 g/dL.¹³

MAIN POINTS

- Upper gastrointestinal bleeding, especially variceal bleeding, is a high-mortality clinical condition requiring urgent intensive care admission and rapid intervention.
- Therefore, all patients with upper gastrointestinal bleeding should be carefully examined and followed up appropriately.
- Hematemesis and melena can often be the first presentation of upper gastrointestinal bleeding.
- Blood product transfusion is a good option for patients with hemodynamic instability. In addition to transfusion, intravenous iron replacement should also be considered for hemodynamically stable patients.

Table 2. Factors Affecting Mortality

	Survived Patients 443 (86.7%)	Dead Patients 67 (13.1%)
Esophageal varices	92 (75.4%)	30 (24.6%)
Non-esophageal varices	346 (90.1%)	38 (9.9%)
Reason for application		
Hematemesis	146 (33.0%)	29 (43.3%)
Melena	191 (43.1%)	21 (31.3%)
Peg attachment	4 (0.9%)	0
Others (epigastric pain, nausea, vomiting, weight loss, etiology of corrosive substance, dysphagia, iron deficiency anemia, etc.)	102 (23.1%)	17 (25.4%)
Gender		
Male	296 (86.8%)	45 (13.2%)
Female	147 (87.0%)	22 (13.0%)
Age (year)		
16-40 (n=91)	87 (95.6%)	4 (4.4%)
41-60 (n=131)	117 (89.3%)	14 (10.7%)
61-80 (n=222)	190 (85.6%)	32 (14.4%)
>80 (n=67)	50 (74.6%)	17 (25.4%)
Drug addict (nonsteroid antiinflatuvar drug (NSAID), oral anticoagulant (OAC), new generation anticoagulant (NGOAC))	218 (82.9%)	45 (17.1%)
Drug free	225 (91.1%)	22 (8.9%)

Ferric carboxymaltose treatment has been reported to decrease the need for blood transfusion after hemorrhage and to support the healing process. Both oral and intravenous treatments have been reported to be similarly effective, but intravenous administration has been reported to increase hemoglobin more rapidly.¹⁴ In a study, it was stated that iron carboxymaltose is a good option and is frequently used in the treatment of anemia occurring after UGIB.¹⁵ No transfusion was performed in 27.2% of the patients, while 72.8% were transfused, and 19% of the patients received transfusions of 5 units or more.

Different mortality rates have been reported in various studies in the literature. In a study by Pinto et al¹⁶ this rate was reported to be 4.4% in non-variceal hemorrhages, 13% in variceal hemorrhages, and 6.8% overall. In another study conducted by Ratiu et al,¹⁷ mortality rates were reported to be 10.7% in non-variceal hemorrhages and 8.5% in variceal hemorrhages, and these rates were associated with high rebleeding rates in non-variceal hemorrhages. Mertens et al¹⁸ found in their study that the in-hospital mortality rate in patients with UGIB was 18.6%. In this study, the overall mortality rate in patients hospitalized due to UGIB was 13.1%, 25% in variceal bleeding, and 10% in non-variceal bleeding. While the mortality rates were similar to some studies, they were higher than in others. These differences were thought to be due to the variations in the cohorts analyzed and the fact that higher-risk patients were concentrated in the hospital because the hospital was a tertiary care center. Because more endoscopic interventions were performed, interventional radiology and surgical interventions were needed compared to the literature. In another study, the endoscopic treatment (band ligation and sclerotherapy) rate was found to be 3.5% in patients, while this rate was 48.8% in the patients.¹⁹

Overall mortality rate in patients hospitalized for UGIB was approximately 13%, with 1 in 4 patients experiencing variceal bleeding and 1 in 10 patients with nonvariceal bleeding. This study suggests that UGIB, especially variceal bleeding, is a clinical entity with high mortality requiring urgent intensive care admission and rapid intervention.

Data Availability Statement: The data that support the findings of this study are available upon request from the corresponding author.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Harran University (Date: 24.01.2022; No.: HRÜ/22.02.01).

Informed Consent: N/A.

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