

Evaluation of Emergency Endoscopic Interventions in Patients Presenting to the Emergency Department with Upper Gastrointestinal Bleeding: An Observational Study

Acil Servise Üst Gastrointestinal Kanama İle Başvuran Hastalarda Acil Endoskopik Müdahalelerin Değerlendirilmesi: Gözlemsel Bir Çalışma

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Abstract

Introduction Gastrointestinal system bleeding is usually an emergency clinical situation. Mortality in upper gastrointestinal system bleeding is between 5-12%. In this study, we aimed to examine systematically the endoscopic findings of patients followed up in the internal medicine service with upper gastrointestinal bleeding.

Materials and Methods Patients who applied to the Bandırma Training and Research Hospital internal medicine service between January 2020 and November 2021 and were hospitalized due to upper gastrointestinal bleeding were included in the study. Age, gender, length of stay and endoscopy findings were evaluated.

Results A total of 154 patients were included in the study. Patients with lower gastrointestinal tract and esophageal variceal bleeding were excluded from the study. Of the patients presenting with upper gastrointestinal bleeding, 28% were female and 72% were male. The mean age of the patients was 61.23±15.37 years. According to the Forrest endoscopic classification, in males, 5 patients (4.50%) were grade Ia, 15 patients (13.51%) were grade Ib, 13 patients (11.71%) were grade IIa, 9 patients (8.11%) were grade IIb, and 69 patients (62.16%) were stage III. In women, 3 patients (6.98%) stage Ia, 8 patients (18.60%) stage Ib, 4 patients (9.30%) stage IIb and 28 patients (65.12%) stage III. The mean hospital stay of these patients was 8.20±4.42 days. 30-day mortality was detected in 7 patients (4.54%).

Conclusion Gastrointestinal bleeding still remains an important cause of mortality. Male gender and advanced age are important risk factors for gastrointestinal bleeding. In addition to these, the presence of comorbid disease; increases the length of treatment and hospitalization needs of patients.

Keywords Gastrointestinal system, Bleeding, Endoscopy, Forrest classification

Özet

Amaç Gastrointestinal sistem kanaması genellikle acil bir klinik durumdur. Üst gastrointestinal sistem kanamalarında mortalite 5-12% arasındadır. Bu çalışmada iç hastalıkları servisinde üst gastrointestinal kanaması ile takip edilen hastaların endoskopik bulgularının sistematik olarak incelenmesini amaçladık.

Gereç ve Yöntem Ocak 2020-Kasım 2021 tarihleri arasında Bandırma Eğitim ve Araştırma Hastanesi dahiliye servisine başvuran ve üst gastrointestinal sistem kanaması nedeniyle yatırılan hastalar çalışmaya dahil edildi. Yaş, cinsiyet, yatış süresi ve endoskopi bulguları değerlendirildi.

Bulgular Çalışmaya toplam 154 hasta dahil edildi. Alt gastrointestinal sistem ve özofagus varis kanaması olan hastalar çalışma dışı bırakıldı. Üst gastrointestinal sistem kanaması ile başvuran hastaların 28%'i kadın, 72%'si erkekti. Hastaların yaş ortalaması 61.23±15.37 yıl saptandı. Forrest endoskopik sınıflamasına göre erkeklerde 5 hasta (4.50%) derece Ia, 15 hasta (13.51%) derece Ib, 13 hasta (11.71%) derece IIa, 9 hasta (8.11%) derece IIb, 69 hasta (62.16%) kadınlarda evre III, 3 hastada (6.98%) evre Ia, 8 hastada (18.60%) evre Ib, 4 hastada (9.30%) evre IIb ve 28 hastada (65.12%) evre III saptandı. Bu hastaların ortalama hastanede kalış süreleri 8.20±4.42 gündü. 7 hastada (4.54%) 30 günlük mortalite saptandı.

Sonuç Gastrointestinal sistem kanaması hala önemli bir mortalite nedeni olmaya devam etmektedir. Erkek cinsiyet ve ileri yaş, gastrointestinal sistem kanaması için önemli risk faktörleridir. Bunlara ek olarak komorbid hastalık varlığı; hastaların tedavi süresini ve yatış ihtiyaçlarını artırır.

Anahtar Kelimeler Gastrointestinal sistem, Kanama, Endoskopi, Forrest sınıflaması

INTRODUCTION

Acute upper gastrointestinal tract (GIS) bleeding is defined as bleeding in the upper gastrointestinal tract from the esophagus to the ligament of Treitz (1). In studies, the incidence of upper GI bleeding in the community was determined to be 40-150 per 100,000 per year (2). It may present with clinical situations changing from massive bleeding that can lead to shock and death, to occult bleeding that leads to iron deficiency anemia through chronic blood loss (3).

Peptic ulcer bleeding is one of the most common reason of upper GI bleeding. Approximately half of patients with peptic ulcer experience gastrointestinal bleeding at some point in their lives (4). Endoscopic approaches have an important place in bleeding control (5,6).

Emergency endoscopy is required as soon as possible after hemodynamic stability is achieved or in patients presenting with stable vital signs. After hemodynamic stabilization, upper endoscopy is the most appropriate evaluation method in patients with upper GI bleeding, and it provides hemostasis as well as detecting the focus of bleeding in more than 90% of the cases (6).

Endoscopy not only gives information about which lesion bleeds when two lesions are detected, for example, in the presence of gastric and duodenal ulcers or in the presence of esophageal varices and duodenal ulcers (1/3 of varicose cases may bleed from non-variceal causes), it also provides information about the presence of active bleeding and the risk of rebleeding. Forrest classification is used to determine the risk of recurrence of bleeding in endoscopic imaging (7) (Table 1).

Table 1. Forrest classification.

Acute haemorrhage	
Forrest Ia	Active spurter
Forrest Ib	Active oozing
Signs of recent haemorrhage	
Forrest IIa	Non-bleeding visible vessel
Forrest IIb	Adherent clot
Forrest IIc	Flat pigmented haematin on ulcer base
Lesions without active bleeding	
Forrest III	
Clean-based ulcer	

In this study, we aimed to systematically examine the endoscopic findings of patients who were followed up in the internal medicine service with upper GI bleeding and underwent emergency upper GI endoscopy.

MATERIAL and METHODS

Our study included 154 patients who admitted to the emergency department of a tertiary education and research hospital between January 2020 and November 2021 due to upper GI bleeding and were hospitalized and followed up by the internal medicine clinic and underwent emergency endoscopic intervention. The files of these patients were reviewed retrospectively. Those with insufficient data were not included in the study. Age, gender, length of stay and prognosis of the patients were considered in the evaluation. Frequency of use of aspirin, warfarin, steroid and nonsteroidal anti-inflammatory drugs were determined.

Informed Consent and Ethics Committee Decision

All patients included in the study were informed about the possible complications of the pre-procedure procedure and a written consent form was obtained. Institutional approval was obtained from Bandırma Training and Research Hospital. The study was conducted in accordance with the Declaration of Helsinki.

Statistical analysis

Statistical Package for the Social Sciences (SPSS 21 Inc., Chicago, IL, USA) computer program was used for biostatistical analyses. Mean values were presented with standard deviation, and median values, with minimum-maximum and mean rank. Values below $p < .05$ were considered statistically significant.

RESULTS

A total of 154 patients were included in the study. Patients with lower gastrointestinal bleeding and esophageal variceal bleeding were excluded from the study. Of the patients presenting with upper GI bleeding, 43 (28%) were female and 111 (72%) were male (Figure 1). The mean age of the patients was 61.23 ± 15.37 .

Of the patients, 34 (22.07%) had cardiovascular diseases, 12 (7.79%) kidney diseases, 7 (4.54%) central nervous system diseases, 4 (2.59%) liver diseases, 6 (3.89%) patients lung diseases, 2 (1.29%) liver diseases and 1 patient (0.64%) other cancers (Table 2).

Table 2. Table of distribution of co-morbidities of patients included in the study.

Co-Morbidite	Number (n)	Percentil (%)
Cardiovascular diseases	34	22.07
Kidney diseases	12	7.79
Central nervous system diseases	7	4.54
Liver diseases	4	2.59
Lung diseases	6	3.89
Liver diseases	2	1.29
Other cancers	1	0.64

Drug induced bleeding determined. Such drugs were used by 57 (37.03%) of the patients. 18 (11.69%) of the patients used nonsteroidal anti-inflammatory drugs (NSAID), 21 (13.63%) aspirin, 7 (4.55%) aspirin+NSAIDs. Bleeding was attributed to warfarin use in 5 patients (3.25%) and steroid use in 6 patients (3.89%). (Table 3).

Table 3. Distribution of anti-coagulant drugs used by the patients included in the study.

Drug Used	Number (n)	Percentil (%)
Anti-Coagulant Drugs Not Used	97	62,97
NSAID	18	11,69
Aspirin	21	13,63
NSAID+Aspirin	7	4,55
Warfarin	5	3,25
Steroid	6	3,89

In the examination of endoscopic findings according to the Forrest endoscopic classification; In males, 5 patients (4.50%) Forrest Ia, 15 patients (13.51%) Forrest Ib, 13 patients (11.71%) Forrest IIa, 9 patients (8.11%) Forrest IIb and 69 patients (62.16%) Forrest III were detected, while in women 3 patients (6.98%) Forrest Ia, 8 patients (18.60%) Forrest Ib, 4 patients (9.30%) Forrest IIb, and 28 patients (65.12%) Forrest III (Figure 2).

Figure 1. Distribution of patients included in the study by gender.

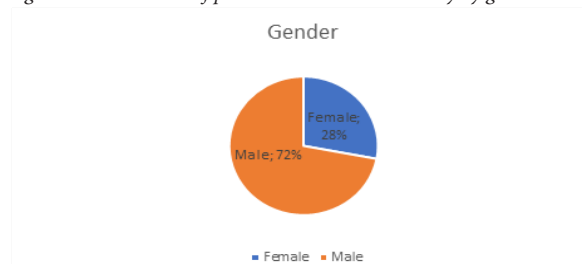
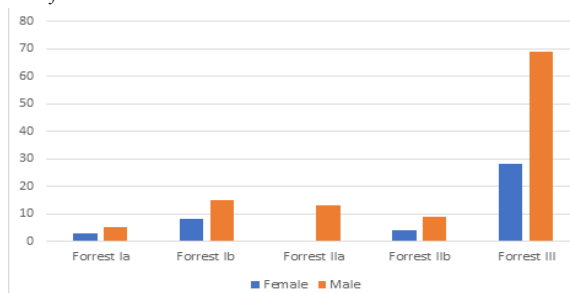


Figure 2. Evaluation of patients according to Forrest endoscopic classification.



The mean hospital stay of these patients was found to be 8.20 ± 4.42 days. 30-day mortality was detected in 7 patients (4.54%).

DISCUSSION

GI bleeding is a life-threatening health problem that is frequently encountered in internal medicine clinics. Upper GI bleeding is defined as bleeding into the lumen between the upper esophageal sphincter and the duodenal segment terminating at the ligament of Treitz. The severity of the bleeding can range from a subclinical occult bleeding to massive bleeding, from chronic anemia to acute hypovolemic shock (8). There are many causes of upper GI bleeding that vary according to age. GI bleeding secondary to peptic ulcer, esophagitis and gastritis is more common in the elderly and constitutes 70-90% of hospitalizations due to upper GI bleeding in this age group (9).

Various studies have been conducted to determine which patients have an increased risk for bleeding before emergency endoscopic intervention in patients admitted to the internal medicine service with the diagnosis of severe upper GI bleeding (10). Risk factors for upper GI bleeding include advanced age, comorbid diseases such as chronic kidney failure and chronic liver disease, nonsteroidal anti-inflammatory drugs, steroid drugs, anticoagulant drugs, smoking and alcoholism (11). Mortality rates increase with age, kidney failure, liver failure, heart diseases, and concomitant conditions such as malignancies (12). Despite endoscopic and angiographic advances in treatment, upper GI bleeding is still an important reason of mortality and morbidity (13).

While NSAIDs increase gastric acid secretion by inhibiting prostaglandin synthesis, they cause an increase in leukotriene concentration, which causes mucosal damage, by inhibiting the cyclooxygenase enzyme that plays a role in arachidonic acid and prostaglandin metabolism (14). In the study of Gisi et al., bleeding was detected in 17.5% of duodenal ulcer patients using NSAIDs (15). It is known that the use of warfarin or the use of new generation oral anticoagulants are predisposing factors for GI bleeding

(16). A.J. Singer et al. evaluated patients using warfarin and new generation oral anticoagulants in terms of GI bleeding. They found that there was no significant difference between these groups in terms of bleeding probability and mortality (17).

Early upper endoscopy (within 24 hours of patient admission) is recommended in most patients with upper gastrointestinal bleeding because it confirms the diagnosis and allows for targeted endoscopic therapy. This results in reduced morbidity, length of hospital stay, risk of recurrent bleeding, and the need for surgery (18). In recent years, almost blind surgical interventions have been left behind, thanks to the development of endoscopic treatment methods (heater-probe, laser photocoagulation, sclerotherapy) applied in gastrointestinal bleeding (19). Among the endoscopic treatments; Epinephrine injection, thermocoagulation, application of clips, and taping are all found to be similarly effective (20).

Negative consequences of gastrointestinal bleeding are rebleeding and death. Most deaths are associated with increased decompensation of concomitant medical conditions with acute bleeding. In approximately 80% of acute upper GI bleedings, bleeding stops spontaneously without recurrence (21). Mortality and morbidity occur in 20% of patients whose bleeding does not stop or recurs (22). It is important to identify these high-risk patients.

CONCLUSION

GI bleeding still remains an important cause of mortality. Male gender and advanced age are important risk factors for GI bleeding. Early upper endoscopy results in reduced morbidity in most patients with upper gastrointestinal bleeding.

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