

# Effectiveness of Clinical Scoring Systems in Duration of Hospital Stay, Transfusion Need and Prediction of Re-Bleeding in Patients Admitted to the Emergency Department for Upper Gastrointestinal System Bleeding

Acil Servise Üst Gastrointestinal Sistem Kanaması Nedeniyle Başvuran Hastalarda Klinik Skorlama Sistemlerinin Hastanede Kalış Süresi, Transfüzyon İhtiyacı ve Yeniden Kanama Öngörüsünde Etkinliğinin Araştırılması, Retrospektif Gözlemsel Çalışma

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## Abstract

Objective	Upper gastrointestinal system (UGIS) bleeding is a life-threatening abdominal emergency. Numerous scoring systems have been developed to identify patients who may develop mortality due to UGIS bleeding. We aimed to determine the effectiveness of the Glasgow Blatchford Score (GBS), Rockall score (RS), and AIMS 65 score in predicting the length of hospital stay, re-bleeding, and transfusion need.
Materials and Methods	It was carried out retrospectively by recording the parameters and clinical scoring systems collected from the archive files and epicrisis information of the patients with the pre-diagnosis of UGIS hemorrhage.
Results	Sixty-three (67.7%) of 93 patients were male. Four patients (4.3%) needed intensive care, and in-hospital mortality occurred in 4 (4.3%) patients. Mortality was observed in 7 patients (7.5%), and recurrent UGIS bleeding was observed in six patients (6.5%). A statistically significant difference was found in AIMS 65 and Rockall scores in predicting -intensive care needs ( $p<0.05$ ). There was no statistically significant difference between clinical scoring systems in predicting in-hospital mortality and re-bleeding the UGIS at 3-month follow-up. A statistically significant difference was observed with the AIMS 65 score in predicting mortality at a 3-month follow-up ( $p<0.05$ ).
Conclusion	While there was no statistically significant difference between GBS, RS, and AIMS 65 scores in predicting in-hospital mortality and 3-month re-bleeding, RS and AIMS 65 scores can be used to predict ICU need in the emergency department due to UGIS bleeding. The AIMS 65 score can also be used to predict 3-month mortality.
Keywords	Upper gastrointestinal hemorrhage; Rockall score; AIMS 65, Mortality

## Öz

Amaç	Üst gastrointestinal sistem (ÜGIS) kanamaları hayatı tehlikeye oluşturabilen abdominal acildir. ÜGIS kanamalarına bağlı mortalite gelişebilecek hastaları belirlemek amaçlı çok sayıda skorlama sistemi üretilmiştir. Skorlama sistemlerinden Glasgow Blatchford skoru (GBS), Rockall skoru (RS) ve AIMS 65 skorunun hastanede kalış süresi, yeniden kanama görülmesi ve transfüzyon ihtiyacı öngörülerinde etkinliğinin belirlenmesi amaçlanmıştır.
Gereç ve Yöntem	Retrospektif olarak ÜGIS hemoraji ön tanısı ile acil servise başvuran ve hastaların arşiv dosyalarından ve epikriz bilgilerinden toplanan parametreler ve klinik skorlama sistemlerinin kayıt edilmesi ile yürütüldü.
Bulgular	Doksan üç hastanın 63'ü (%67,7) erkekti. Dört hastanın (%4,3) yoğun bakım ihtiyacı mevcut olup, 4 hastada (%4,3) hastane içi mortalite gelişti. Üç aylık mortalite takibinde toplam 7 hastada (%7,5) mortalite gözlemlendi. Altı hastanın da (%6,5) 3 aylık takiplerinde tekrarlayan ÜGIS kanaması görüldü. Yoğun bakım ihtiyacını öngörmeye AIMS 65 ve Rockall skorlarında istatistiksel anlamlı fark tespit edildi ( $p<0.05$ ). Hastane içi mortalite ve 3 aylık takipte yeniden ÜGIS kanamasını öngörmeye klinik skorlama sistemleri arasında istatistiksel anlamlı fark yoktu. 3 aylık takipte mortalite öngörmeye AIMS 65 skoru ile istatistiksel anlamlı fark görüldü ( $p<0,05$ ).
Sonuç	GBS, RS ve AIMS 65 skoru arasında hastane içi mortalite, 3 aylık yeniden kanamayı öngörmeye istatistiksel olarak anlamlı bir fark yok iken, RS ve AIMS 65 skoru acil serviste ÜGIS kanamalarına bağlı YBU ihtiyacı öngörmeye kullanılabilir. AIMS 65 skoru 3 aylık mortaliteyi öngörmeye de kullanılabilir.

Anahtar Kelimeler

Üst Gastrointestinal Kanama; Rockall Skoru; AIMS 65; Mortalite.

## INTRODUCTION

Acute upper gastrointestinal (UGIS) bleeding is a common condition worldwide and has an estimated annual incidence of 40-150 cases per 100,000 population.<sup>1</sup> Because UGIS bleedings can be life-threatening, requires careful evaluation at the initial examination to predict and reduce re-bleeding or mortality.<sup>2</sup> Correct determination of high-risk patients helps make decisions about hospitalization or discharge, further investigation (early endoscopy or not), and treatment (medical, endoscopic, or surgical intervention). Early identification of high-risk patients and appropriate intervention can reduce morbidity and mortality in patients with UGIS bleeding.<sup>3</sup>

International and American gastroenterology guidelines recommend early risk stratification to determine the appropriate care for patients who come to the emergency department with UGIS bleeding.<sup>3</sup> In-hospital mortality and morbidity and re-bleeding probability of patients in UGIS bleeding are defined by clinical scoring systems.<sup>4</sup> Although these clinical scoring systems are frequently used in the follow-up of patients after hospitalization; these scoring systems have not yet entered into routine use at the first admission of the patient in emergency care. In addition to the fact that its routine use does not enter daily practice, studies are predominantly on mortality and morbidity. However, the clinical scoring systems predict the costs of re-admission with treatment, the factors affecting the length of stay of the patients in the emergency department at the time of admission and the need for transfusion have not been clearly defined. Evaluation of the effectiveness of scoring systems in predicting the treatment and follow-up of the patient at the time of clinical application, transfusion need and evaluation of the effectiveness of the patient on clinical management such as length of hospital stay is needed.<sup>5</sup>

a. Our study aimed to look at the effectiveness of Glasgow Glasgow Blatchford Score (GBS), AIMS65 and Rockall, Forrest scoring in predicting bleeding during follow-up,

need for endoscopic treatment need for transfusion and death in patients admitted to the emergency department with UGIS bleeding.

## MATERIALS and METHODS

This cross-sectional descriptive study was carried out retrospectively by recording the parameters (demographic data, physical examination findings, vital signs, amount of fluid therapy given in the emergency room, hospitalization periods, and blood transfusion amounts during hospitalization) collected from archive files and epicrisis information of patients who were admitted to the emergency room with a pre-diagnosis of gastrointestinal hemorrhage and hospitalized to the gastroenterology / internal medicine service with the diagnosis of UGIS bleeding between the periods (01.01.2018-31.05.2019), with using clinical scoring systems (Glasgow Blatchford, aims 65, Forrest and Rockall). Ethics committee approval of the study was obtained from Health Sciences University Kocaeli Derince Training And Research Hospital ethics committee on 07/05/2020 with the approval number 2019-141.

The parameters and endoscopy findings of Glasgow Blatchford (Blood urea, hemoglobin, women, systolic blood pressure, pulse, history of comorbidities), Rockfall score (Age, Shock index, comorbidity, endoscopic diagnosis, evidence of bleeding), AIMS 65 (Albumin less than 3.0 gr/dl, INR greater than 1.5, altered mental status, systolic blood pressure less than 90 mmHg, age older than 65 years), Forrest endoscopic classification scoring systems were recorded. The low and high-risk classification criteria of scoring systems are as follows: patients with a Glasgow Blatchford score of  $\leq 1$  are low-risk and with  $>1$  are high-risk, patients with a Rockall score of  $\leq 7$  are low-risk and with  $\geq 8$  are high-risk, patients with an AIMS 65 score of 0 are low risk and with  $\geq 1$  are high risk, patients with a Forrest risk score classes 2B, 2C and three are low risk and with classes 1A, 1B and 2A are high risk. The three-month mortality and re-bleeding status were questioned with the contact numbers obtained from the hospital information

system, and the patients were not called for control again. The hospitalization files of the patients who applied to the emergency department with gastrointestinal hemorrhage and hospitalized the gastroenterology service with the diagnosis of UGIS bleeding were accessed from the hospital archive. From hospitalization files and system epicrisis, the patient's age, gender, admission complaint, history, medications, comorbid diseases, previous bleeding history, amount of fluid given in the emergency room, blood transfusion status in the emergency room and service, length of stay in the emergency room and hospital, laboratory parameters (hemoglobin, BUN, creatinine, INR, albumin) which used in clinical scoring systems and bleeding conditions in endoscopy were recorded. The missing data of the patients in the epicrisis, 3-month mortality, and re-bleeding status were recorded by calling the contact numbers.

All patients over the age of 18 who applied to the emergency department with a preliminary diagnosis of gastrointestinal hemorrhage and were hospitalized at the gastroenterology service with the diagnosis of GI bleeding were included in the study. Patients under the age of 18, patients who applied with a preliminary diagnosis of gastrointestinal hemorrhage but gastrointestinal hemorrhage were excluded as the final diagnosis, patients with additional acute pathology with gastrointestinal hemorrhage, patients who could not be reached by contact numbers or did not give consent for participation in the study, patients with missing data in archive records from clinical scoring data and patients discharged without hospitalization were excluded from the study.

### Statistical Analysis

The data obtained from the study were recorded in the SPSS® v25 computer program. The sociodemographic and clinical characteristics of the patients were given as the mean  $\pm$  standard deviation. Anormality analysis was carried out using Kolmogorov-Smirnov test. Student's t-test was used for the comparison of the continuous variables, and the Chi-square test was used for the comparison of the

intermittant variables.  $P < 0.05$  was considered statistically significant.

### RESULTS

Between 01.01.2018 and 31.05.2019, which is the study period, 112 patients diagnosed with UGIS bleeding were included in the study. Some patients were excluded from the study because of 4 patients (3.6) discharged from the emergency department without hospitalization, six patients (5.4) lack of data in data processing and epicrisis records, two patients (1.8) not undergoing UGIS endoscopy and seven patients (6.3) unavailability of contact numbers. A total of 93 patients were included in the study. 63 (67.7%) of them were male, and 30 (32.3%) were female.

The mean age of the patients was  $61.99 \pm 19.7$  years. The youngest of the patients included in the study was 18 years old and the oldest was 96 years old. When the patients were grouped according to age groups, it was observed that the highest number of patients was between the ages of 76-90 with 27 patients (29.0%). Thirteen (13.9%) of the patients had a previous history of UGIS bleeding. According to the concomitant chronic diseases, the most common (41.9%) had a history of hypertension and gastric malignancy was present in only 3 (3.2%) patients.

It was determined that the patients who applied with the preliminary diagnosis of UGIS bleeding during the study period applied to the emergency service most frequently between 08:01 and 16:00 hours (43 patients, 46.2%), with the least number of cases between 00:01 and 08:00 (16 patients, 17.2%). When the patients' vital signs were grouped at the time of admission, the mean systolic arterial pressure was  $108.06 \pm 24.5$  mmHg, the mean pulse rate was  $89.97 \pm 15.3$  per minute, and the shock index mean was  $0.87 \pm 0.25$ . According to the laboratory findings at the time of first admission, abnormally low hemoglobin ( $9,72 \pm 2,6$ ) and hematocrit ( $30,24 \pm 7,5$ ) values of the patients compared to the standard range, and an increase in urea ( $68,86 \pm 42,2$ ) and creatinine ( $1,08 \pm 0,9$ ) levels were

observed.

When the blood transfusion histories of the patients with UGIS bleeding were examined in the emergency department, it was seen that blood transfusion was applied to 12 patients (12.9%). The mean blood transfusion rate of all patients in the emergency department was  $0.18 \pm 0.5$  units. The mean amount of fluid given in the emergency department, excluding blood transfusion, was  $822.58 \pm 471.6$  ml. When the patients were evaluated according to their blood transfusion needs, it was observed that 81 (87.1%) patients did not receive any blood transfusion in the emergency department. The mean of total blood transfusion administered in service admissions was  $2.23 \pm 2.2$  units. It was observed that blood transfusion was not applied to 29 patients (31%) during service admissions, and blood transfusion was performed on 64 patients (69%). The mean total blood transfusion administered to all patients was  $1.91 \pm 1.8$  units. There was no statistical difference between having or not receiving blood transfusion in the emergency department and being high or low according to the Forrest risk classification ( $p=0.673$ ). There was no statistical difference between the total blood transfusion amounts between high or low risk patient groups according to the Forrest classification ( $p=0.929$ ).

The mean length of stay of the patients in the emergency department was  $244.51 \pm 153.3$  minutes, and the total hospital stay was  $2.71 \pm 1.8$  days. When evaluating of high or low risk groups according to Forrest classification with hospital stay; it was determined that the hospital stay period of high-risk patients was  $2.67 \pm 1.5$  days, and that of low-risk patients was  $2.71 \pm 1.88$  days. There was no statistical difference between high or low risk patient groups according to Forrest classification with hospital stay ( $p=0.973$ ).

When the scoring systems used in UGIS bleedings were examined, the mean Glasgow Blatchford score was  $9.37 \pm 3.6$ , the mean Rockall score was  $5.1 \pm 2.1$ , the mean AIMS 65 score was  $1.02 \pm 1$ , the mean Forrest score was

$4.94 \pm 1.3$ . The mean, median, minimum and maximum values of the scoring systems are given in Table 1.

Scoring Systems	Mean $\pm$ SD	Median (Min-Max.)
Glasgow Blatchford	$9,37 \pm 3,6$	9 (1-17)
Rockall	$5,12 \pm 2,1$	5 (1-10)
AIMS 65	$1,02 \pm 1,1$	1 (0-4)
Forrest	$4,94 \pm 1,3$	5 (2-6)

Four patients (%4.3) with UGIS bleeding needed intensive care, and in hospital mortality occurred in 4 (%4.3) patients. In the 3 months mortality follow up of the patients, mortality was observed in 7 patients (7.5%). Recurrent UGIS bleeding was observed in 6 patients (6.5%) during their 3 months follow up. The relationships between scoring systems and need for intensive care, in hospital mortality, 3 months mortality and 3 months re-bleeding are given in tables 2, 3, 4, 5. Glasgow Blatchford score average of 4 patients in need of intensive care unit is  $10.75 \pm 2.6$  ( $p=0.428$ ), Rockall score average is  $7.25 \pm 1.5$  ( $p=0.037$ ), AIMS 65 mean score is  $2.25 \pm 1.3$  ( $p=0.009$ ), mean Forrest score was  $4.5 \pm 0.6$  ( $p=0.507$ ). While in predicting intensive care there was no statistically significant difference between Glasgow Blatchford and Forrest scores ( $p=0.438$ ,  $p=0,507$ ), there was a statistically significant difference in AIMS 65 and Rockall scores ( $p=0,037, p=0,009$ ) (Table 2).

Glasgow Blatchford score average of 4 patients with in hospital mortality is  $10.25 \pm 3.9$  ( $p=0.613$ ), Rockall score average is  $6.75 \pm 2.1$  ( $p=0.112$ ), AIMS 65 mean score is  $1.75 \pm 1$  ( $p=0.124$ ), mean Forrest score was  $4.5 \pm 1.3$  ( $p=0.507$ ). There was no statistically significant difference between Glasgow Blatchford, Forrest, AIMS 65 and Rockall score in predicting in-hospital mortality (respectively  $p=0,613$ ,  $p=0,112$ ,  $p=0,124$ ,  $p=0,507$ ).

**Table 2:** Comparison of the clinical scoring system of patients in need of intensive care

	Need of ICU	Number of patients (n,%)	Mean±SD	P
Glasgow Blatchford	+	4 (4,3%)	10,75 ± 2,6	0,428
	-	89 (95,7%)	9,30 ± 3,6	
Rockall	+	4 (4,3%)	7,25 ± 1,5	0,037
	-	89 (95,7%)	5 ± 2,1	
AIMS 65	+	4 (4,3%)	2,25 ± 1,3	0,009
	-	89 (95,7%)	0,96 ± 0,9	
Forrest	+	4 (4,3%)	4,5 ± 0,6	0,507
	-	89 (95,7%)	4,96 ± 1,4	

The mean Glasgow Blatchford score of 6 patients with upper GI bleeding at 3 month follow up was 10.25±3.9 (p=0.613), the mean Rockall score was 5.83±1.3 (p=0.331), the mean AIMS 65 score was 1±0.9 (p=0.997), mean Forrest score was 5.5±0.5 (p=0.331). There was no statistically significant difference between Glasgow Blatchford, Forrest, AIMS 65 and Rockall score in predicting upper GIS re-bleeding at 3 months follow-up (respectively p=0,613, p=0,331, p=0,997, p=0,331).

**Table 3:** Comparison of clinical scoring systems in patients with in hospital mortality

	In hospital mortality	Number of patients (n,%)	Mean±SD	P
Glasgow Blatchford	+	4 (4,3%)	10,25 ± 3,9	0,613
	-	89 (95,7%)	9,32 ± 3,6	
Rockall	+	4 (4,3%)	6,75 ± 2,1	0,112
	-	89 (95,7%)	5,02 ± 2,1	
AIMS 65	+	4 (4,3%)	1,75 ± 1	0,124
	-	89 (95,7%)	0,98 ± 0,9	
Forrest	+	4 (4,3%)	4,5 ± 1,3	0,507
	-	89 (95,7%)	4,95 ± 1,3	

Glasgow Blatchford score average of 7 patients with mortality at 3-month follow up was 11.71±4.1 (p=0.064), Rockall score average was 6.29±2.5 (p=0.098), AIMS 65 mean score was 2.29±1,1 (p<0.001), mean Forrest score

was 4.86±1.3 (p=0.842). While in predicting mortality there was no statistically significant difference between Glasgow Blatchford, Forrest and Rockall score at 3 months follow-up, a statistically significant difference was observed with AIMS 65 score (respectively p=0,064, p=0,842, p=0,098, p<0,005).

**Table 4:** Comparison of clinical scoring systems with recurrent upper gastrointestinal bleeding at 3 month follow up

	Rebleeding in 3 months	Number of patients (n,%)	Mean±SD	P
Glasgow Blatchford	+	6 (6,7%)	10,25 ± 3,9	0,613
	-	83 (93,3%)	9,32 ± 3,6	
Rockall	+	6 (6,7%)	5,83 ± 1,3	0,331
	-	83 (93,3%)	4,96 ± 2,4	
AIMS 65	+	6 (6,7%)	1 ± 0,9	0,997
	-	83 (93,3%)	0,98 ± 0,9	
Forrest	+	6 (6,7%)	5,5 ± 0,5	0,331
	-	83 (93,3%)	4,91 ± 1,3	

When the patients were classified according to the Forrest risk score which was classified endoscopically, it was determined that the most patient group was class 3 and the least patient group was class 2B. According to the Forrest risk score, it was observed that 84 patients (%90.3) were low risk and 9 patients (%9.7) high risk. No statistically significant correlation was found with in hospital mortality and patients whose were with high risk according to the Forrest risk score (p=0.506).

**Table 5:** Comparison of 3 month mortality and clinical scoring systems

	3 month mortality	Number of patients (n,%)	Mean±SD	P
Glasgow Blatchford	+	7 (7,9%)	11,71 ± 4,1	0,064
	-	82 (92,1%)	9,12 ± 3,5	
Rockall	+	7 (7,9%)	6,29 ± 2,5	0,098
	-	82 (92,1%)	4,91 ± 2,1	
AIMS 65	+	7 (7,9%)	2,29 ± 1,1	<0,001
	-	82 (92,1%)	0,87 ± 0,8	
Forrest	+	7 (7,9%)	4,86 ± 1,3	0,842
	-	82 (92,1%)	4,96 ± 1,3	

Similarly, there was no statistically significant difference between the need for intensive care ( $p=0,361$ ), 3 month mortality ( $p=0,539$ ) and 3 month re-bleeding ( $p=0,517$ ) in patients with high risk according to the Forrest risk score .

## DISCUSSION

Acute upper GIS bleeding is one of the most common causes of mortality and morbidity.<sup>6</sup> Risk assessment of patients presenting with upper GI bleeding has been the subject of many studies in recent years.<sup>7</sup> Choosing the right risk classification (low, medium, high risk) and early diagnosis of patients with high risk of mortality and re-bleeding are guides the emergency physician in terms of both increasing the care efficiency of the patients and the possible termination decision (staying in the service, staying in the intensive care unit or being discharged from the emergency room).<sup>8</sup> Different risk scoring systems have been developed to distinguish between low-risk patients with upper GI bleeding that can be treated as an outpatient and those with high-risk severe bleeding that require aggressive treatment.<sup>2</sup> Emergency physicians need these scores to decide between the need for outpatient follow-up, safe discharge, endoscopy and observation in the emergency department. Many international guidelines and guidelines of the American Gastroenterology Society have recommended early risk stratification to determine the appropriate care of patients who come to the emergency department with UGIS bleeding.<sup>3-9</sup>

In the study of Robertson et al., the average hospital stay was determined as 5 days.<sup>10</sup> In our study, the duration of hospitalization was found to be  $2.71\pm 1.8$  days. In the study of Özkan et al. with 128 patients, the average length of stay in the emergency room was found to be 18 hours.<sup>11</sup> In our study, we found the average stay in the emergency room to be  $244.51\pm 153.3$  minutes. We thought that this difference in the literature may be related to hospital capacity.

The rate of patients who received blood transfusion due to UGIS bleeding has been reported at different rates in other

studies. In the study of Chandra et al. the rate of patients who applied blood transfusion was %35.7, and in the study of Wang et al. %55.8 needed blood transfusion during the emergency room or hospitalization.<sup>12-13</sup> In our study, we found this rate to be %12.9 for patients in the emergency room and %69 for patients during hospitalization. We thought that the reason for this difference was the shorter duration of stay in the emergency room before hospitalization and the differences in the severity of bleeding of the patients.

Despite the progress in medical and endoscopic treatments, UGIS bleeding continues to be a health problem with a high mortality rate. Mortality is higher especially in the elderly and those with comorbidities. Therefore, hemodynamic stabilization of patients with UGIS bleeding should be provided first, and the cause of bleeding should be determined rapidly after treatment is arranged. Patients with UGIS bleeding should be continuously followed up by the physician monitoring the disease , as well as by a gastroenterologist and surgeon. Due to high mortality rates, elderly patients and patients with comorbidities should be followed under intensive care conditions.<sup>14</sup> In the study of Dicu et al. the mortality rate was %18.7, and in the study of Stanley et al. the mortality rate was %4.8.2 In the study of Miilunpohja et al. the mortality rate during hospitalization was reported as 3.3%, and they showed that the mortality associated with bleeding from the UGIS in the following 3 months was higher (7.7%).<sup>15</sup> In the study of Robertson et al. In hospital mortality was determined as 4.2%.<sup>10</sup> In the study of Wang et al., 13.2% of the patients had re-bleeding and 7.3% died within 30 days.<sup>13</sup> In our study, the rate of patients with re-bleeding was %6.5, the in hospital mortality rate was %4.3, and the 3 month mortality rate was %7.5, and we found that it was similar to the literature.

In the study by Robertson et al. the AIMS 65 score was found to be more effective than other preendoscopy risk scores in predicting in hospital mortality. In the same study, the AIMS 65 score was found to be significant in



predicting the need for ICU.<sup>10</sup> In our study, we did not find a statistically significant difference between scoring systems in predicting in hospital mortality and in this respect it is not similar to the literature, but in our study, a statistically significant difference was found in AIMS 65 ( $p=0.009$ ) and Rockall ( $p=0.037$ ) scoring in predicting the need for intensive care.

Our study did not find a statistically significant difference between high or low risk patients according to the Forrest classification and blood transfusion in the service ( $p=0.929$ ) or emergency department ( $p=0.673$ ). However, since the number of patients we grouped as high risk was 8 in our study, it was thought that the lack of this statistical difference might be related to the insufficient number of patients.

In the study of Laursen et al. It has been argued that GBS and Rockall risk score cannot evaluate well enough recurrence and 30-day mortality.<sup>16</sup> In our study, 3 month mortality was evaluated and AIMS 65 score was found to be significant in predicting 3-month mortality. There was no statistically significant difference between the scores in re-bleeding in the 3 month follow up.

#### LIMITATIONS

Our first limitation is that our study was conducted retrospectively. Our study was carried out in a single hospital and state, so the generalizability of the study decreases significantly. Another limitation is the small number of patients. It was planned to compare the scoring with the duration of transfusion and hospital stay, but since it is a cross-sectional study, the desired statistics could not be made due to the limited number of high-risk patients in the data analyzed in this period. Multicenter studies with larger patient populations are needed to confirm the data in our study.

#### CONCLUSIONS

While in predicting in-hospital mortality and 3-month

re-bleeding, there is no statistically significant difference between GBS, RS, and AIMS 65 score, RS and AIMS 65 score can be used to predict ICU need due to UGIS bleeding in the emergency department. The AIMS 65 score can also be used to predict three3-month mortality. Multicenter studies with larger patient populations are needed to confirm the data in our study.

#### Ethics Approval

Ethics committee approval of the study was obtained from the ethics committee of Health Sciences University Kocaeli Derince Training And Research Hospital on 07/05/2020 with the approval number 2019-141

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