

Frequency of mortality in patients with high AIMS65 score presenting with upper Gastrointestinal Bleeding

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Abstract

Introduction: Upper gastrointestinal bleeding is a common reason for hospitalization across the world, with a Pakistan frequency of 17.5% and a death rate of 19%. Several risk assessment scores have been created to predict clinically relevant outcomes like survival the requirement for hospital-based care, re-bleeding and hospital stay length.

Objective: To determine frequency of mortality in patients with high AIMS65 score presenting with upper gastrointestinal bleeding.

Setting: Gastroenterology Department (Center of liver and digestive diseases), Holy Family Hospital Rawalpindi.

Materials & Methods: It was a cross-sectional, prospective, observational research study. Patients having a high AIMS score were recruited in the study. The patient's medical history, physical examination, and biochemical data were all properly recorded. Patients were observed for the outcome variable, which was hospital mortality.

Results: 119 patients fulfilling the inclusion criteria were included. There were 77 (64.7%) males and 42 (35.3%) females. The mean age was 43.10 ± 14.213 years. Mortality was observed in 15 (12.60%) patients. Table: 2 Mean serum albumin level was 3.42 ± 0.39 g/dl with majority of the patients 95 (79.83%) with ≤ 1.3 g/dl of serum albumin level. Majority of the patients 100 (84.03%) were presented with >1.5 INR. Mean systolic blood pressure was 90.23 ± 2.99 mm/Hg with majority of the patients 102 (85.7%) with ≤ 90 mm/Hg of systolic blood pressure.

Conclusion: The conclusion of the study that mortality from UGIB is well predicted by the AIMS65 score. Mortality increases with increase of AIMS65 scores.

Keywords: Upper gastrointestinal bleeding, AIMS65, GERD, endoscopy, Gastritis.

Introduction

Upper gastrointestinal bleeding is a common reason for hospitalization across the world, with a Pakistan frequency of 17.5% and a death rate of 19%. (1) Several risk assessment scores have been created to predict clinically relevant outcomes like survival the requirement for hospital-based care, rebleeding, and hospital stay length. (2) (3)

The Rockall score and recently reported PROGETTO NAZIONALE EMORRAGIA DIGESTIVE score, for example, both need endoscopy findings before being calculated. There have been other endoscopy-based scores established, however they are not applicable for all individuals with upper gastrointestinal bleeding, they have not been independently validated, and have been demonstrated inferior to the Rockall or PNED scores. (4) However, needing endoscopy to generate a score may cause delays in risk assessment in certain healthcare settings, as endoscopy might take a long time to execute after hours or on weekends.

The frequency of upper GI bleed increases with age and male to female ratio is 1:2. Although there have been significant improvements in UGIB treatment, complications still do arise: Re-bleeding occurs in 15% of patients, and death occurs in 13% of patients. Gastric ulcers (20%) and bleeding duodenal ulcers (35%) are the most frequent causes of UGIB. Only 5-11% of UGIB is caused by bleeding from esophageal varices. (5) Esophageal varices are dilated submucosal veins that appear in people with portal hypertension.

AIMS 65 score uses clinical hemodynamic, as well as easily accessible laboratory parameters. According to some studies, this score might be used to identify patients who are at high risk. A recent study has shown that 50% mortality in patients with AIMS65 > 5. (6) This aids in the identification of high-risk individuals who may require an urgent endoscopy or treatment in a high-dependency or intensive-care facility.

In 25 to 35% of individuals with cirrhosis, variceal bleeding occurs in the gastroesophageal junction. (7) The most important treatments for controlling peptic ulcer bleeding are endoscopic therapy and acid suppression with proton-pump inhibitors, both of which have decreased mortality. Non-variceal upper gastrointestinal bleeding (NVUGIB), although recent advancements in endoscopic and pharmaceutical therapy, is still related to mortality and morbidity.

The rationale of this study was to find the mortality in UGIB patients by using simple clinical and non-invasive laboratory parameters and minimizing the

unnecessary admissions in ICU in resource limited country and this may also help in reducing the mortality by early management and referral.

Materials and Methods

This cross sectional study was conducted at Gastroenterology Department, Center of liver and digestive disease, Holy Family hospital, Rawalpindi. Taking the prevalence of mortality in patients with GI bleeding presenting with high AIMS65 score acute as 50%, confidence interval at 95% & margin of error at 9% and putting this information in Epi Info 7, the sample size was 119.

Patients present with age 18-60 years, having upper GI bleeding due to gastrointestinal tract that having AIMS65 score >3 with UGIB, defined by the presence of hematemesis, melena or hematochezia, and/or a positive N/G tube aspiration for coffee ground, black or bloody contents were included in the study.

Blood pressure was recorded manually by mercury sphygmomanometer. Blood samples of patients were collected for serum Albumin and international normalized ratio (INR). Laboratory investigations were sent to hospital laboratory which was headed by classified pathologist. AIMS65 mortality score of UGIB was calculated. Each risk factor (variable) carries one point. Thirty days mortality was calculated in patients with AIMS65 score >3. If the patients had been discharged before the time then outcome was determined through telephone communication.

Data was analyzed in SPSS 20. Mean and SD were calculated for age. Frequency & percentages were calculated for outcome, Systolic blood pressure Gender..... Effect modifier were controlled through stratification of age with Serum albumin level, INR, systolic blood pressure to see the effect of these on outcome variable by applying chi square test. P value < 0.05 was taken as significant.

Results

Total 119 patients included. There were 77 (64.7%) males and 42 (35.3%) females. The mean age was 43.10 ± 14.21 years. On demographic data, It was observed that 61 (51.3%) of the patients were under the age of 40. (Table 1)

Mortality was observed in 15 (12.60%) patients. Table 2: Mean serum albumin level was 3.42 ± 0.39 g/dl with majority of the patients 95 (79.83%) with ≤1.3 g/dl of serum albumin level. Majority of the patients 100

(84.03%) were presented with >1.5 INR. Mean systolic blood pressure was 90.23 ± 2.99 mm/Hg with majority of the patients 102 (85.7%) with ≤ 90 mm/Hg of systolic blood pressure. Alteration in mental status was observed in 101 (84.87%) patients. Stratification was done to see the effect of Age and baseline AIM on the outcome was shown in Table 3: Significant relationship with mortality and Age, Serum Albumin level, Systolic blood pressure, INR and outcome. $P < 0.005$)

Table 1: Descriptive of Age and Gender

		Frequency (%)
Age	Mean+ SD	43.10 \pm 14.213
	Less than 40 Years	61(51.26%)
	40 and above	58(48.74%)
Gender	Male	77 (64.7%)
	Female	42 (35.3%)

Table 2: Distribution of Mortality

Outcome	Frequency (%)
Yes	15(12.60%)
No	104(87.39%)

Table 3: Comparison of Mortality with Age, Serum Albumin level, INR, SBP & Mental Status

		Mortality		P-value
		Yes	No	
Age	<40	13	57	0.004
	>40	2	47	
Serum Albumin Level	<3	4	91	0.001
	>3	11	13	
INR	<1.5	10	9	0.004
	>1.5	5	95	
Systolic Blood Pressure	<90	4	98	0.000
	>90	11	6	
Alteration in mental Status	Yes	2	99	0.000
	No	13	5	

Discussion

One of the most frequent gastroenterological problems requiring admission to a medical facility is acute gastrointestinal (GI) bleeding. If treatment is carried off, the condition has a significant probability of being serious and ultimately fatal.(8, 9) Upper GI bleeding is defined as gastrointestinal bleeding that manifests clinically as hematemesis or melena and occurs above the level of the Treitz ligament.(10) UGIB is more common and has a worse prognosis than bleeding from the lower gastrointestinal tract (below the level of the ligament of Treitz), with overall death rates

between 6% and 10%. The incidence of UGIB is roughly 100 cases per 100,000 people per year.(11)

Many risk scores for patients with nonvariceal UGIB have been developed to help determine the need for treatment, rebleeding, death, and hospital-based intervention.(12, 13) Furthermore, no prediction scores for death have been developed for both inpatient and outpatient status while developing nonvariceal UGIB without endoscopic abnormalities, despite the fact that bleeding episodes occur frequently in both inpatient & outpatient settings.(14, 15) As a result, we developed new prediction scores for patients with nonvariceal UGIB that may be utilised regardless of hospitalization status and compared their performance to that of current measures.

To predict mortality and morbidity of patients suffering upper gastrointestinal bleeding, various scoring systems have been used. Full Rockall scores, the Glasgow-Blatchford score (GBS), the pre-endoscopy Rockall, and the AIMS65 score are some of the several scoring methods. AIMS65 has been found to be better to other score systems in terms of inpatient mortality.

In this study, mortality was observed in 15(12.60%) patients with GI bleeding having AIMS65 score >3 . As compare to other study done in 2019, mortality was observed in 19(12.2%) with GI bleeding. (1)The use of AIMS65 in patients with acute upper GI bleeding, including variceal & non-variceal bleeding, has been supported by two recent studies.

Moreover, it is unclear if the AIMS65 score is appropriate for predicting outcomes in patients with non-variceal GI bleeding, because two of the five risk factors in the AIMS65 score – serum albumin 3.0g/dL and INR >1.5 – are typically regarded as poor prognostic indicators of liver cirrhosis.(16)

Interestingly, however this difference was not significant, the mean serum albumin level in the group with poor outcomes was somewhat lower than that in the group with favorable outcomes. ($p < 0.005$). This might be the result of patients with co-morbidities other than liver cirrhosis being included in the group with poor outcomes. But in the other side, patients with peptic ulcer bleeding may have a single predictive factor for outcomes that is low serum albumin levels. Similar results were found in 2019 study.(1)

In terms of INR, previous study has revealed that NVUGIB patients' INRs do not indicate rebleeding.(17) However, in the UK study, it has been demonstrated that INR 1.5 is independently related to in-hospital mortality in patients with upper GI bleeding.(18)

Conclusion

This study concludes that mortality from UGIB is well predicted by the AIMS65 score. Mortality increases with increase of AIMS65 scores.

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