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Correlation Of Aims-65 Score With Mortality In Acute Upper Gastrointestinal Hemorrhage

Jouhara Mundackal Azeez[1], Radha T R[2], Sue Ann Zachariah[3]

Abstract:
INTRODUCTION: *The AIMS65 score is composed of five elements: albumin, international normalised ratio (INR), mental status, systolic BP, and age. It is a pre-endoscopic score, easy to remember, calculated at bedside, and predicts in-hospital mortality among inpatients with upper gastrointestinal (UGI) bleed.*
OBJECTIVE: *To determine the correlation between AIMS-65 score and in-hospital mortality in the study population.*
METHODS: *AIMS65 scores were calculated in 84 patients presenting with acute UGI hemorrhage within 12 hours of hospital admission by allotting 1 point each for albumin (A) < 3 g/dl, INR (I) >1.5, alteration in mental status (M), systolic blood pressure (S) ≤ 90 mmHg, and age ≥ 65 years. Observed mortality was calculated based on deaths during the admission period of each patient.*
RESULTS: *Patients with AIMS65 score ≥2 and above had higher mortality (41%) than with a score less than 2 (4.7%). There was a statistically significant association between the AIMS65 score and the mortality status (χ^2 16.25, $p < 0.001$). Out of the 84 patients, 67 were males (79.8%), and 17 were females (20.2%).65 patients had GCS 15 (77.4%), 19 had GCS ≤ 14 (22.6%), 37 patients had hypotension (44.6%), 46 were normotensive (55.4%), 23 required ICU admission (27.7%), and 69 patients required blood transfusion (82.1%). All patients underwent UGI-scopy. Endoscopic treatment was done for 32 patients (38.1%). Endoscopic findings were esophageal varices (20.2%), duodenal ulcer (21.4%), gastric ulcer (20.2%), Mallory-Weiss tear (10%), and erosive gastritis (6%), Overall mortality was 22.6% (n=19).*
CONCLUSION: *The AIMS65 score is a simple, accurate, non-endoscopic risk-score that can be applied early (within 12 hours of admission) in patients with acute UGI bleed. AIMS65 scores ≥ 2 predict high in-hospital mortality.*
KEYWORDS*: AIMS65 score, Endoscopy, mortality, upper gastrointestinal bleed.*

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I. INTRODUCTION

Upper Gastrointestinal Bleeding (UGIB) is defined as hemorrhage originating from anywhere between the esophagus and the ligament of Treitz. It is one of the most common gastrointestinal emergencies[1]. The yearly incidence of UGIB ranges from 50 to 150/100,000 population, with an overall mortality rate of 3-15% and a higher risk of death for those in an unstable hemodynamic state[2–4].

Over the past three decades, several scoring systems have been developed for use in the management of UGIBs, with differing goals such as assessing the risk of mortality, or need for interventions and blood transfusions[10]. Some of these require only clinical data, while others need additional endoscopic findings[10,11]. The AIMS65 score has five elements: albumin, international normalized ratio [INR], mental status, systolic blood pressure, and age over 65 years[12]. Originally published in 2011, it is a pre-endoscopy score, easy to remember, calculated at the bedside, and predicts the length of hospital stay and in-hospital mortality for patients with UGIB[12]. The Rockall score has both clinical and endoscopic components, and can also be used solely as a clinical score before endoscopy[13]. However, it remains the most widely used post-endoscopic risk assessment score[11]. Each of the five components of the Rockall score (age, shock, co-morbidity, endoscopic diagnosis, and evidence of bleeding) is an independent prognostic factor[13]. The Glasgow Blatchford score (GBS) was developed with the aim of predicting the risk of re-interventions such as endoscopy or surgery[14]. It is a pre-endoscopy clinical score with values ranging from 0 to 23. Patients with a score of 0–1 do not require early endoscopy or hospital admission.

In this observational study, we aim to study the clinical and demographic features of patients admitted to our hospital with UGIB, the observed mortality in this study population, and its correlation with the risk of mortality as assessed by the AIIMS65 score.

II. Material And Methods

STUDY DESIGN

- Cross-sectional observational study which was approved by institutional review board and received ethics committee approval from institutional ethics committee.

STUDY POPULATION

- Patients admitted in the inpatient wards of the Departments of General Medicine and Medical Gastro-enterology at Government Medical College, Kottayam, and satisfying the inclusion and exclusion criteria, were enrolled in the study.

INCLUSION CRITERIA

- Age >18 years
- Admitted with UGI bleed.

EXCLUSION CRITERIA

- Patients suffering from obscure GI bleeds

STUDY PROCEDURE

After taking written informed consent, patients with UGIB admitted in the General Medicine and Medical Gastroenterology wards, fulfilling the inclusion and exclusion criteria, were enrolled in the study. Patients were subjected to detailed history taking and clinical examination. UGIB was diagnosed based on clinical presentation with coffee-ground vomiting, hematemesis, melaena, and presence of blood on nasogastric aspirate. All patients with UGIB underwent routine laboratory evaluation with complete blood count, coagulation profile, and basic biochemistry. The AIMS65 scores were calculated within 12 hours of hospital admission by allotting 1 point each for albumin (A) <3g/dl, INR (I) >1.5, alteration in mental status (M), systolic blood pressure (S) ≤90mmHg and age ≥ 65 years.

Observed mortality rate was calculated based on deaths during the admission period of each patient. AIMS65 scores ≥2 predicts high in-hospital mortality.

SAMPLE SIZE

The sample size was calculated using the following formula

$N = z^2p(1-p)/d^2$

Where, n = required sample size, z = statistical value for a level of confidence (for 95% level of confidence, z = 1.96), p = area under the receiver operating characteristic curve, d = precision or maximum tolerable error. Area under the receiver operating characteristic (ROC) curve for AIMS65 score to predict intervention or death in UGI bleeding in a study by Stanley et al. was 0.68[15]. Hence considering z = 1.96, p = 0.68 and d = 0.1 (precision of 10%), the estimated sample size required for comparison of observed vs. expected mortality rate was 84.

DATA MANAGEMENT AND STATISTICAL ANALYSIS

1. Descriptive statistics were used to analyze the demographic and clinical characteristics of the subjects.
2. Continuous variables in patient background data has been expressed as mean ± SD
3. Patient background data composed of a nominal scale has been expressed in %
4. Chi-square test was used to assess correlation between AIMS65 score and observed in-hospital mortality
5. Level of significance was fixed at <0.05
6. Data was coded and entered into an MS Access spreadsheet
7. Analysis of data was done using IBM SPSS software, version 26

III. Result

A total of 84 patients were enrolled in the study, and their baseline characteristics are mentioned in Table 1.

Table 1: Patient characteristics of the Study Population

Variable	Characteristic	N	Percent
Gender	Male	67	79.8
	Female	17	20.2
Age (in years)	20 – 78 (Mean: 56.4 ± 24.4)	84	100.0
Substance use	Nil	21	25.0
	Smoking	42	50.0
	Alcoholism	45	53.6
	Smoking and Alcoholism	24	28.6

GCS	15	65	77.4
	14 or below	19	22.6
Systolic BP (mm Hg)	< 90	38	45.2
	≥ 90	46	55.4
ICU Admission	Yes	24	28.6
	No	60	72.3
Received blood transfusion?	Yes	69	82.1
	No	15	17.9
Endoscopy Requirement	Yes	84	100.0
	No	0	0.0
Endoscopic Procedure done?	Yes	32	38.1
	No	52	61.9
Endoscopic findings	Duodenal ulcer	18	21.4
	Erosive gastritis	5	6.0
	Esophageal varices	29	34.5
	Gastric ulcer	17	20.2
	Gastro-duodenal erosions	1	1.2
	Mallory-Weiss tear	10	11.9
	Ulceroproliferative erosion of stomach	4	4.8
AIMS-65 score status	AIMS score < 2	43	51.2
	AIMS score 2 and above	41	48.8
Death	Yes	19	22.6
	No	65	77.4

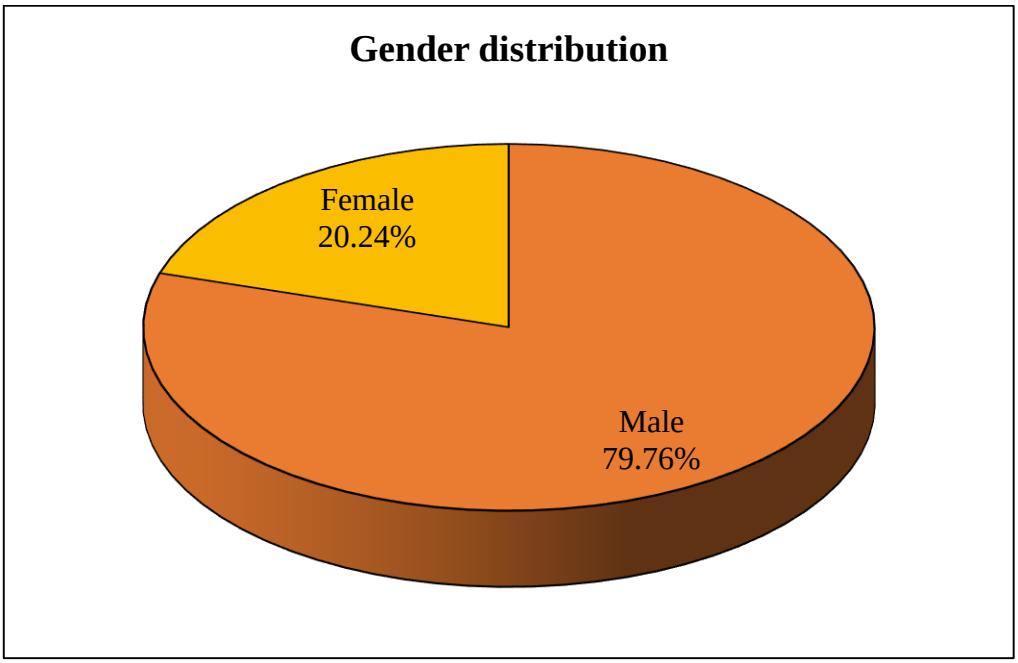


Figure 1: Gender Distribution of the study population

The majority of the patients were males (n = 67, 79.8%)(Figure 3.), and the mean age of the study population was 56.4 years (Range: 20-78).

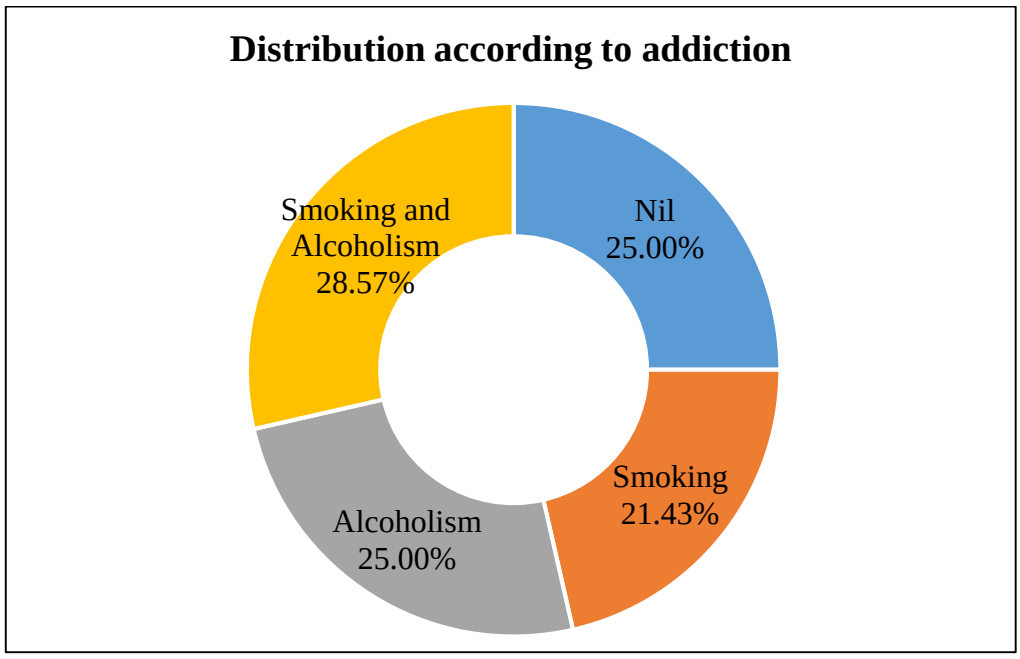


Figure 2: Distribution according to addiction

Among the study population 42(50.0%) were smokers, 45 (53.6%) alcohol users, and 24 patients (28.6%) both smokers and alcholol users (Figure 2.).

19 patients (22.6%) had a GCS below 15 at the time of enrolment in the study, and 38 patients (45.2%) had a systolic BP below 90 mmHg at the time of enrolment in the study.

24 patients (28.6%) required ICU admission during their hospital stay, and 69 patients (82.1%) required PRBC transfusions during their admision.

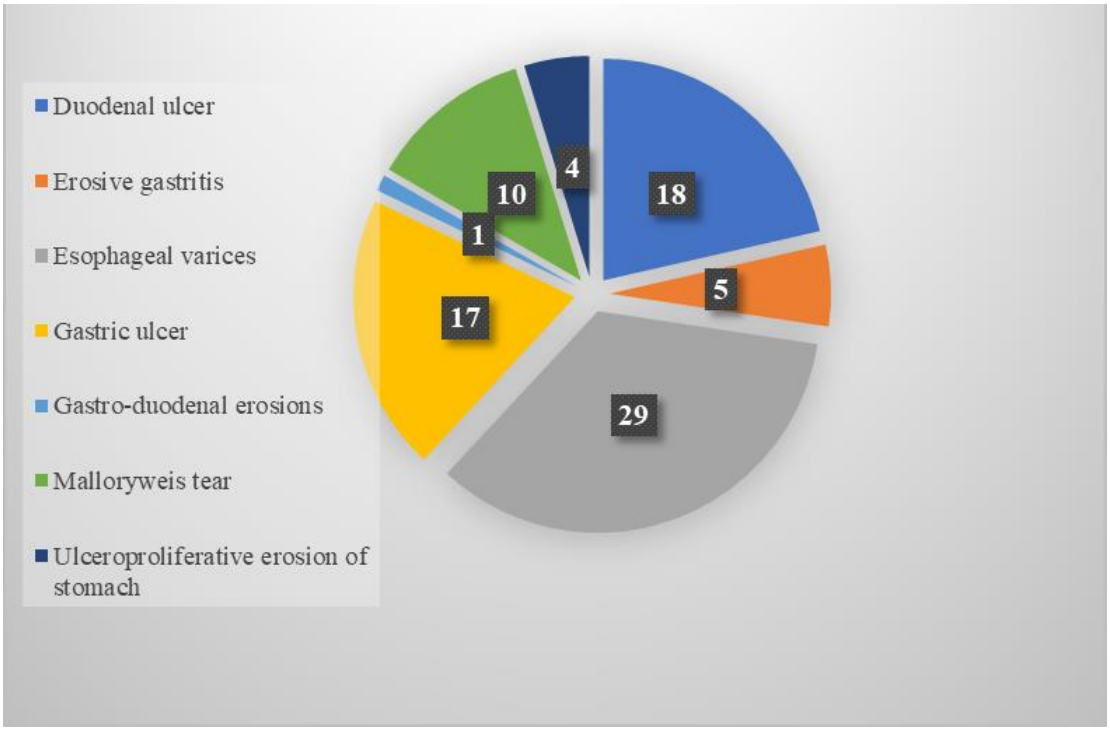
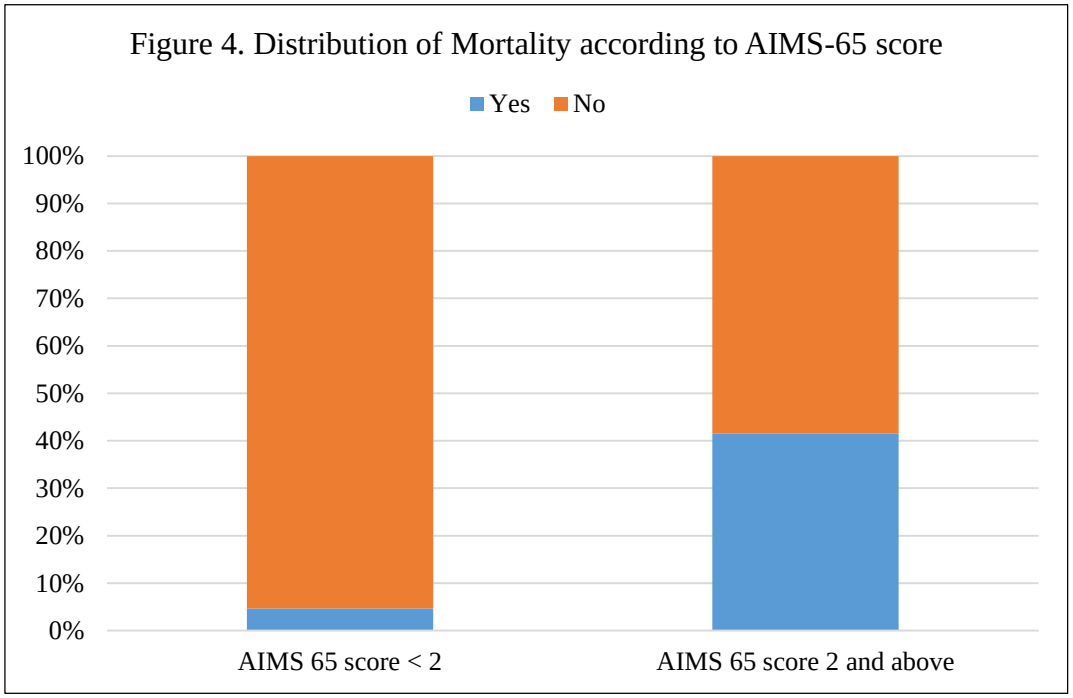


Figure 3: Distribution of endoscopic findings

All the patients in the study underwent endoscopy, and the most common finding on endoscopy was esophageal varices, found in 29 patietns (34.5%)(Figure 5.). The other common findings were duodenal ulcers (18 patients, 21.4%), gastric ulcer (17 patients, 20.2%), Mallory-Weiss tears (10 patients, 11.9%, erosive

gastritis (5 patients, 6%), ulceroproliferative erosions of the stomach (4 patients, 4.8%), and gastro-duodenal erosions (1 patient, 1.2%).



2 patients with AIMS-65 score below 2 died. Of those with a score of 2 or more, 17 patients (41.5%) died. On analysis using Fisher's exact t-test, there was a strong assoication between an AIIMS-65 of 2 or more, and in-patient mortality ($\chi 2$ 16.25, $p < 0.001$) (Figure 4).

Table 2: Association between AIMS-65 score status and Mortality

AIMS 65 score status	Death		χ^2	p-value
	Yes N (%)	No N (%)		
AIMS-65 score < 2	2 (4.7)	41 (95.3)	16.25	<0.001*
AIMS-65 score ≥ 2	17 (41.5)	24 (58.5)		

P value <0.05 is considered statistically significant.
Fisher's Exact test.
41 patients (48.8%) had an AIMS-65 score of 2 or more, and 19 patients (22.6%) died during their admission.

Table 3. Association between AIMS-65 scores and in-patient mortality

AIMS65 Score	Death	
	Yes	**No**
0	0 (0.0)	29 (100.0)
1	2 (14.3)	12 (85.7)
2	0 (0.0)	9 (100.0)
3	5 (33.3)	10 (66.7)
4	11 (68.8)	5 (31.2)
5	1 (100.0)	0 (0.0)

The proportion of people who survived was higher among those with scores of 0, 1, 2, or 3. However, the majority of people with scores 4 or 5 died during their hospital stay.

IV. Discussion

Most patients enrolled in the study were males (n = 67, 79.8%), reflecting the greater proportion of males among those presenting to the hospital with complaints of upper GI hemorrhage (Table 1). The mean age of the study population was 56.4 years, with a wide age range of 20 to 78 years. Smoking and alcohol use was

frequent among the study population, with over half of the patients reporting regular alcohol intake or smoking (53.6%), which are known risk factors for chronic liver disease and erosive pathologies of the upper GI tract (Table 1).

There was a statistically significant association between the AIMS-65 score status and the mortality status (Table 2.). Patients who had a score less than 2 had a higher chance of survival than those with the score 2 or above. As the AIIMS-65 score increased, there was an increemntal increase in the risk of in-hospital mortality, with the most at risk being those with scores of 4 or 5 (Table 3).

Gaduputi et al. studied the significance of the AIIMS65 score in 1255 cirrhotic and no-cirrhotic patients with UGIB, and found that the AIMS65 score in the noncirrhotic and cirrhotic group, the average AIMS65 score in patients who died from UGIB was significantly higher than that of patients who did not. This is similar to the results obtained in the present study, which showed an increased risk for mortality with an increase in AIMS 65 score.

Maharjan et al. conducted a single-center study in Nepal, studying the prognostic significance of the AIIMS65 score in patients admitted with UGIB[76]. A total of 84 patients were enrolled. AIMS 65 score ≥ 2 showed statistically significant positive correlation (p=0.000) with in-patient mortality, the need for blood transfusion, endoscopic therapy and need for ICU admission.

V. Conclusion

1. The AIMS 65 score was seen to co relate significantly with mortality risk in patients with upper GI bleed. An increased score was seen to be associated with an increased mortality risk.
2. The AIMS 65 score can assist in deciding on the need for urgent endoscopy in admitted patients as those with scores >/= 2 had a higher mortality risk.

References

[1]. Kim J, Gong Ej, Seo M, Et Al. Timing Of Endoscopy In Patients With Upper Gastrointestinal Bleeding. Sci Reports 2022 121. 2022;12(1):1-6. Doi:10.1038/S41598-022-10897-3
[2]. Mahajan P, Singh Chandail V. Etiological And Endoscopic Profile Of Middle Aged And Elderly Patients With Upper Gastrointestinal Bleeding In A Tertiary Care Hospital In North India: A Retrospective Analysis. Published Online 2017. Doi:10.4103/Jmh.Jmh_86_17
[3]. Hearnshaw Sa, Logan Rfa, Lowe D, Travis Spl, Murphy Mf, Palmer Kr. Acute Upper Gastrointestinal Bleeding In The Uk: Patient Characteristics, Diagnoses And Outcomes In The 2007 Uk Audit. Gut. 2011;60(10):1327-1335. Doi:10.1136/Gut.2010.228437
[4]. Laine L, Yang H, Chang Sc, Datto C. Trends For Incidence Of Hospitalization And Death Due To Gi Complications In The United States From 2001 To 2009. Am J Gastroenterol. 2012;107(8):1190-1195. Doi:10.1038/Ajg.2012.168
[5]. Dhir V, Shah R. Scoring Systems For Upper Gastrointestinal Bleeding: Which One Scores Better? Indian J Gastroenterol. 2019;38(2):95-97. Doi:10.1007/S12664-019-00945-8
[6]. Monteiro S, Gonçalves Tc, Magalhães J, Cotter J. Upper Gastrointestinal Bleeding Risk Scores: Who, When And Why? World J Gastrointest Pathophysiol. 2016;7(1):86. Doi:10.4291/Wjgp.V7.I1.86
[7]. Saltzman Jr, Tabak Yp, Hyett Bh, Sun X, Travis Ac, Johannes Rs. A Simple Risk Score Accurately Predicts In-Hospital Mortality, Length Of Stay, And Cost In Acute Upper Gi Bleeding. Gastrointest Endosc. 2011;74(6):1215-1224. Doi:10.1016/J.Gie.2011.06.024
[8]. Rockall Ta, Logan Rfa, Devlin Hb, Northfield Tc. Risk Assessment After Acute Upper Gastrointestinal Haemorrhage. Gut. 1996;38(3):316-321. Doi:10.1136/Gut.38.3.316
[9]. Blatchford O, Murray Wr, Blatchford M. A Risk Score To Predict Need For Treatment For Upper-Gastrointestinal Haemorrhage. Lancet (London, England). 2000;356(9238):1318-1321. Doi:10.1016/S0140-6736(00)02816-6
[10]. Maharjan K, Mandal Rk, Shrestha S. Clinical Application Of Aims65 Score To Predict Outcome In Patients With Acute Upper Gastrointestinal Bleeding. Nepal Mediciti Med J. 2021;2(2):77-81. Doi:10.3126/Nmmj.V2i2.41281