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DIAGNOSTIC ACCURACY OF AIMS-65 CLINICAL SCORING SYSTEM IN PREDICTING OUTCOME IN PATIENTS WITH UPPER GASTROINTESTINAL BLEEDING PRESENTING AT TERTIARY CARE HOSPITAL, KARACHI.

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ABSTRACT… Objectives: To determine the diagnostic accuracy of AIMS-65 clinical scoring system in patients with upper gastrointestinal bleeding by taking mortality as gold standard. **Study Design:** Cross Sectional study. **Setting:** Department of Gastroenterology, Liaquat National Hospital Karachi. **Period:** 6 months from 14th Nov 2018 to 14th May 2019. **Material & Methods:** All patients who fulfilled the inclusion criteria in the Department of Gastroenterology, Liaquat National Hospital, Karachi were included. After taking informed written consent clinical examination and lab investigations were done to determine the diagnostic accuracy of AIMS-65 clinical scoring system in patients with upper gastrointestinal bleeding by taking mortality as gold standard. **Result:** Total of 252 patients with UGIB were included. 183 (72.6%) were males & 69 (27.4%) were females, with the mean age was 35.10±7.065 years. The sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy of AIMS 65 scoring system in predicting mortality within 30 days was (77.4%, 84.4, 56.9, 93.3 and 82.93%) in patients with UGIB. **Conclusion:** In conclusion AIMS 65 score has higher diagnostic accuracy in predicting 30-day mortality in patients with UGIB.

Key words: Acute Coronary Syndrome, Cardiovascular Disease, Diabetes Mellitus, Pre-Diabetes.

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INTRODUCTION

Upper gastrointestinal bleeding (UGIB) is a frequent medical emergency and global problem.[1] It is a serious event associated with significant morbidity and mortality.

This incident takes place in America in 50 to 150 per 100,000 people per year. UGIB mortality rates vary between 4-14% depending on the condition and management of the patient.[2] The mortality rate in UBI bleed obtained in Robinson et al2 study was 23-35%, UGIB constitutes bleeding close to the ligament of Treitz. The most common reported cause of UGIB in Western countries is nonvariceal bleeding (87.2% to 98.3%).[3]

Gastrointestinal bleeding is expressed either by hematemesis and melena or by any one of these symptoms.[4] Commonest causes being peptic ulcer, gastric erosions, esophageal varices, mucosal tears, duodenal ulcers, gastritis, esophageal candidiasis and oesophagitis.[5] Identifying the patients who are at risk of death remains challengeful in upper GI bleeding.[6] Risk scores had been developed in order to identify the high and low risk and determining their outcomes[7] An ideal risk score is one that is accurate for outcomes, easy to calculate, and can be measured early presentation with Acute upper GI bleeding.[7] Numerous clinical scoring methods have been formulated to predict outcome in patients in terms of patient management and cost-effective use of resources.[8] In majority of published scoring systems, a combination of laboratory, clinical and endoscopic variables are recorded to create a score that predicts the risk of recurrent hemorrhage, mortality, need for endoscopic intervention, or decision for early discharge.[9] Various clinical scoring systems, including the Glasgow-Blatchford score (GBS), Rockall risk

score (RS), and AIMS65 score (AIMS65), have been validated to predict the clinical outcomes in patients with upper gastrointestinal bleeding (UGIB).[10] The complete RS, which depends on clinical and endoscopic variables, is also used to stratify patients presenting with Acute UGIB who died.[11]

AIMS65 has recently been presented. The system is made up of age, the level of the serum albumin, systolic blood pressure, prothrombin time and mental status. Only five variables are included to compute the AIMS-65 score and the calculation of AIMS-65 score is really simpler relative to other UGIB scores and can be calculated at bedside prior to endoscopy procedure. The scale of AIMS65 has been shown in some studies to predict the death in hospital, duration of hospital stay, and the cost of treatment in patients with acute upper GI bleeding.[12,13] This assessment is simple and precise. A score of AIMS65 of 2 was given as a mortality risk cut-off.

Several studies show variable predictive values moreover most of them are international with very few local studies. Data from this study would resolve the disparity to some extent in variable frequencies in light of variable demographic, cultural, socioeconomic and co-morbid condition and help in establishing the local perspective. Numerous other prognostic indices are available, including the Rockall, Glasgow-Blatchford score, and AIMS 65 scoring systems. The aim of our study is to determine the diagnostic accuracy of AIMS-65 clinical scores in risk stratification and predicting clinically meaningful outcomes in terms of mortality, by taking mortality score as gold standard. Diagnostic accuracy of AIMS-65 score will be achieved if it also stratifies the same risk and outcome in terms of mortality. In case of significantly high sensitivity and specificity of AIMS-65 clinical score, we can devise a strategy of using that score in our daily practice. On the basis of which admission and intervention can be planned in a timely manner in order to prevent mortality.

MATERIAL & METHODS

This cross sectional study was conducted in Department of Gastroenterology, Liaquat National Hospital Karachi from 14th Nov 2018 to 14th May 2019. This study was conducted after approval from College of Physicians and Surgeons, Pakistan. Consenting cases, meeting inclusion criteria was enrolled in the study from the department of gastroenterology, Liaquat National Hospital (LNH), Karachi.

Variable	Mean+Sd
AGE	35.10+7.065
Duration of Hematemesis	13.46+5.450
AIMS 65 score	1.43+0.798
Heart rate	95.539+12.365
GCS	14.615+0.487
INR	1.389+0.216
Serum Albumin	3.114+0.0226

Table-I. Descriptive statistics of age, Duration of Hematemesis, AIMS 65 score, Heart rate, GCS, INR, Serum Albumin.

183 patients (72.6%) were males & 69 patients (27.4%) were females (as shown in Table-II).
In our study 51 patients (20.2%) had family history of UGIB, as presented in Table-II.
76 patients (30.2%) were smokers, as presented in Table-II.
50 patients (19.8%) had history of alcohol use, as shown in Table-II.
On clinical examination 108 patients (42.9%) had melena while 144 (57.1%) had coffee ground NG aspirate, as shown in Table-II.

According to socioeconomic status 64 patients (25.4%) belonged to lower income group (monthly income ≤ 5000), 35 (13.9%) belonged to lower middle income group (monthly income 5001-10000), 62 (24.6%) belonged to middle income group (monthly income 10001-15000), 66 (26.2%) belonged to upper middle income group (monthly income 15001-20000) and 25 (9.9%) belonged to upper income group (monthly income >20001), as presented in Table-II.

Our study found sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy of AIMS 65 scoring system in predicting 30-day mortality in upper gastrointestinal bleeding was 77.4%, 84.4, 56.9, 93.3 and 82.93% respectively. As presented in Table-III.

Gender	Frequency (n)	Percentage (%)
Male	183	72.6%
Female	69	27.4%
Total	252	100%
Clinical examination	Frequency (n)	Percentage (%)
Melena	108	42.9%
Coffee ground NG aspirate	144	57.1%
Total	252	100%
Family history of upper GI bleed	Frequency (n)	Percentage (%)
Yes	51	20.2%
No	201	79.8%
Total	252	100%
Smoker	Frequency (n)	Percentage (%)
Yes	76	30.2
No	176	69.8%
Total	252	100%
Alcohol use	Frequency (n)	Percentage (%)
Yes	50	19.8%
No	202	80.2%
Total	252	100%
Socioeconomic status	Frequency (n)	Percentage (%)
Lower income group (monthly income <5000)	64	25.4%
Lower middle income group (monthly income 5001-10000)	35	13.9%
Middle income group (monthly income 10001-15000)	62	24.6%
Upper middle income group (monthly income 15001-20000)	66	26.2%
Upper income group (monthly income >20001)	25	9.9%
Total	252	100%
Mortality within 30 days	Frequency (n)	Percentage (%)
Yes	53	21%
No	199	79%
Total	252	100%

Table-II. Frequency distribution of gender, clinical examination, family history of upper GI bleed, smoker, alcohol use, socioeconomic status & mortality within 30 days (n=252).

	Mortality Within 30 Days			
AIMS 65 Score	Yes (n=53)	No (n=199)	Total	
Yes (n=72)	41	31	72	
No (n=180)	12	168	180	
Total	53	199	252	
Sensitivity	Specificity	PPV	NPV	Accuracy
56.9%	93.3%	77.4%	84.4%	82.93%

Table-III. Diagnostic accuracy of AIMS-65 score with mortality within 30 days as gold standard to diagnose mortality in upper gastrointestinal bleeding patients.

DISCUSSION

AIMS65 score has been appeared to foresee mortality in various studies[13] anyway the estimation of AIMS65 score in anticipating the requirement for endoscopic mediation has not been proven.[14] We needed to inspect the prognostic estimation of AIMS65 score in patients with cirrhosis giving UGIB. Singular parts utilized for figuring of AIMS65 score (excepting age) are incredibly affected by fundamental liver ailment. This is obvious from the perception that there was an immediate relationship between's the AIM65 score and MELD score in patients admitted to the emergency clinic with UGIB.

The commitment of hidden characteristic liver malady and other restorative comorbidities (counting congestive heart failure and ischemic coronary illness which are represented, in estimation of Total Rockall score) to the length of hospitalization couldn't be exclusively found out. The arrangement of reviewing endoscopic stigmata utilizing Forrest Criteria is somewhat subjective and has potential for huge interobserver changeability. AIMS65 score has been appeared to foresee the requirement for endoscopic mediation in patients with UGIB.

Ongoing writing demonstrates the across the board and convention based utilization of implantations of proton pump inhibitors starting when the patient is conceded.

In spite of the fact that the pharmacological approach is the foundation of treatment, interventional endoscopy is a brilliant supplement in patients who keep on having dynamic bleeding, and a couple of cases require interventional radiology or even surgical procedure. In the contemplated gathering, the interventional endoscopy treatment was unimodal-injection epinephrine.

The AIMS65 was created to decide indicators of mortality in patients admitted to the crisis department.[13] Even in a few investigations, AIMS65 was better than GBS in anticipating mortality and ICU admission.[15] Thus, some debate remains with respect to a perfect scoring framework that is consistently proper in clinical settings and flawlessly predicts clinical results.

The viability of this treatment is imperfect and must be utilized in blend with other methods.[16] The present pattern is to direct a second endoscopy just in high-risk patients (clinical or endoscopic), those in whom the first EGD was in fact troublesome or outlandish and those with a reoccurrence of bleeding.[17]

Ongoing writing demonstrates a reduction in the requirement for surgical intervention for UGIB (required in around 4-10% of the patients)[18] in this report, just 2.2% of the patients required surgical treatment, and this may reflect early conference, convenient consideration given to the patients, the board dependent on proton pump inhibitors, early endoscopy and the likelihood of an interventional radiological treatment with embolization by selective catheterization.[19]

There are a few contrasts in the consequences of this examination contrasted with past investigations. The death rate got in this examination was 3-14%, which was higher contrasted with the past investigation, 10-14%.[20] This was on the grounds that the information included mortality in patients with UGIB on emergency clinic affirmation and mortality due to UGIB happened amid hospitalization. Furthermore, a large portion of the patients were 50 or under 50 years old. This is diverse contrasted with different nations, in which tests were for the most part over 60 years old.[21]

In our examination as contrast with Bakhtavar et al found sensitivity, specificity, positive predictive value and negative predictive value in various scoring system in predicting 30-day mortality in upper gastrointestinal bleeding to be AIMS 65 score (35%,.82%, 89% and 23%) respectively.[23] Score limits of ≥4 for PNED (Progettonazionaleemorragiadisgestiva), ≥2 for AIMS65, ≥4 for confirmation Rockall, and ≥5 for full Rockall were ideal at foreseeing passing, with sensitivities of 65.8-78.6% and specificities of 65.0-65.3%.[22] In Kim et al[23] study total of 17/512 patients (3.3%) died and rebleeding developed in 65/512 patients (12.7%).

Studies performed by Salimi et al and Kollef et al expressed that increase in prothrombin time was one of the mortality indicators in gastrointestinal bleeding.[24,25]

Hypo-albumin < 3.5 g/dL which is most often connected with a few going with co-morbidities, especially liver sickness evidently does not assume job in mortality hazard factors in UGIB. In any case, if the cut off estimation of hypo-albumin is brought down to underneath 2.5g/dl the esteem was stastically critical as gotten in the consequence of the examination by one previous study.[25]

These discoveries should incite the Identification of patients who present with a higher danger of having a deadly result; this will add to the improvement of the management of patients with UGIB, including an early helpful intercession.

AIMS65 score of at least 2 have the most elevated blend of sensitivity and specificity for anticipating 30 day mortality or endoscopic treatment, separately, yet the positive predictive value for both is low. Hence the clinical utility of these scores to direct decisions in high risk patients appears to be constrained.

The main limitation was single center study, smaller sample size and involvement of different gastroenterologists. So further studies with larger sample sizes are required.

CONCLUSION

In conclusion AIMS 65 score has higher validity (diagnostic accuracy) in predicting 30-day mortality in patients with UGIB.

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