Original Article

Frequency of Mortality in Patient Having High Aims 65 Score Greater or Equal to 2 in Acute Upper Gastrointestinal Bleeding

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ABSTRACT

Objective: To determine the frequency of mortality in patient having high AIMS 65 score greater or equal to 2 in Acute Upper Gastrointestinal Bleeding.

Study Design: Retrospective observational study

Place and Duration of Study: This study was conducted at the Department of Gastroenterology and Hepatology, Liaquat national hospital, Karachi from December 2015 to December 2016.

Materials and Methods: We analyzed 158 patients who presented with melena or hematemesis in Emergency Unit Patients with hypovolemic shock or altered sensorium were shifted to intensive care unit for resuscitation, blood units were transfused to maintain hemoglobin up to 8gm/dl and patients having AIMS 65 score greater or equal to 2 were included in this study. The AIMS65 is simple and effortless to calculate, variables include albumin, international normalized ratio (INR), mental status, systolic blood pressure, and age. The score is calculated at bedside, in the emergency department, as an initial risk evaluation tool. Patients with AIMS 65≥2 were followed for one months and survival status in term of mortality or alive was noted.

Results: Overall 158 patients were included in our study, with mean age of 52.91±11.62 years. Frequency of mortality in patient having high aims 65 score in UGIB was observed in 8.86%.

Conclusion: AIMS 65 is a modest, validated, risk assessment score that prognosticate in hospital mortality in patients with UGIB.

Key Words: Upper Gastrointestinal Bleed, Mortality, AIMS 65 score

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INTRODUCTION

Upper gastrointestinal bleeding (UGIB) is a global challenge and disastrous medical entity that demands urgent intervention.[1] It is a serious event which can consequence in substantial morbidity and mortality. In America, this incident occurs in 50-150 per 100,000 people/year. Mortality rate due to UGIB varies between 4-14% in line with patient's condition and given management.[2] Acute upper gastrointestinal bleeding is a lethal and devastating casualty encountered frequently in emergency department. which requires urgent attention and therapeutic intervention. It is indeed is a challenging issue for Gastroenterologists. In United States every year 300,000 or more hospitalizations are due to UGIB with mortality rate around 15%.[3]

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UGIB is anatomically defined as hemorrhage proximal to the ligament of Treitz. Bleeding from gastrointestinal tract is manifested by both hematemesis and melena or either alone.[4]

There are many causes of upper gastrointestinal bleeding which mainly divided into variceal bleeding and non variceal bleeding. Causes of non-variceal Bleeding includes acid peptic disease, Mallory Weiss syndrome, Erosive Gastritis, severe Duodenitis, Angiodysplasia and malignancy.[5] Non-steroidal anti-inflammatory drugs use is associated with up to five folds raised the risk of bleeding.[6]

An ultimate hurdle and a challenge in managing patients with UGIB is to correctly identify on time patients who have the potential to rebleed or a high risk for mortality.[7] An optimal risk assessment score is the one , which can be effortlessly calculated in emergency room at bed side, immediately after UGIB and predict justified outcomes.[8,9] In previously published literature we came across a list of validated scoring system, which were complex and required of variables such as clinical parameters, endoscopic finding , and laboratory workup, which was integrated into a score that prognosticated the risk for re-bleeding, mortality, need for aggressive intervention and lastly appropriate time to discharge.[9]

Early risk stratification is now highly being recommended by application of risk stratification scores, such as Rockall and Glasgow Blatchford scores, which exceptionally guides to prioritize sick patients and estimate anticipated consequences[10]. Unfortunately the existing scores are not used commonly in clinical settings as they are time consuming to analyze and demands endoscopic findings, unobtainable in emergency department.[11] AIMS 65 is a easily calculated bedside risk assessment predicting infirmary fatality ,number of days in hospital stay and cost approximation. It contains 5 elements that includes serum albumin less than 3gms/dl, Internationalization unit (INR) 1.5 or greater, change in mental status, Systolic Blood Pressure 90mmHg or lower and Age greater than 65 years.[12]

MATERIALS AND METHODS

This study was conducted patients with acute upper GI bleeding admitted at the Department of Gastroenterology and Hepatology, Liaquat National Hospital Institute for Postgraduate of health Sciences, Karachi after the approval by the institutional ethical review board, written consent was taken from the patient or attendants. All patients, either gender, with age 18-70 years, presented with history of melena or hematemesis, coffee ground vomiting, fresh blood in nasogastric tube aspirate, in emergency unit, undergone comprehensive assessment in the emergency department incorporating detailed history and clinical examination checking vitals (blood pressure, pulse, temperature respiratory rate), hematology and biochemistry investigations included(Complete blood count, INR liver functions test, Albumin and creatinine). Patients with hypovolemic shock or altered sensorium were shifted to intensive care unit for resuscitation, blood units were transfused to maintain hemoglobin up to 8gm/dl. AIMS 65 was calculated by allocating one point to each variable, serum albumin less than 3gms/dl, Internationalization unit (INR) 1.5 or greater, altered mental Sensorium, Systolic Blood Pressure 90mmHg or lower and Age greater than 65 years. All patients were given intravenous omeprazole infusion. Urgent endoscopy was done within 12 hours to make endoscopic diagnosis and take therapeutic decisions to achieve hemostasis.

Mortality risk as per inclusion criteria of all patients with AIMS 65 ≥2 was included in this study. Patients with AIMS 65≥2 were followed for one months and survival status in term of mortality or alive was noted. Patients excluded were those with acute or chronic liver diseases and patients who were on antiplatelet and anticoagulation. Microsoft excel and SPSS version 20 was used.

RESULTS

A total of 158 acute upper gastrointestinal bleeding patients presented with melena or hematemesis in Emergency Unit and patients having AIMS 65 score greater or equal to 2 were included in this study. Most of the patients' were above 40 years of age as presented in Figure I. The average age of the patients was 52.91±11.62 years (95%CI: 51.08 to 54.73) and median AIMS score was 3(IQR=1) as shown in Table I. There were 82(51.9%) male and 76(48.1%) female as shown in figure 2.

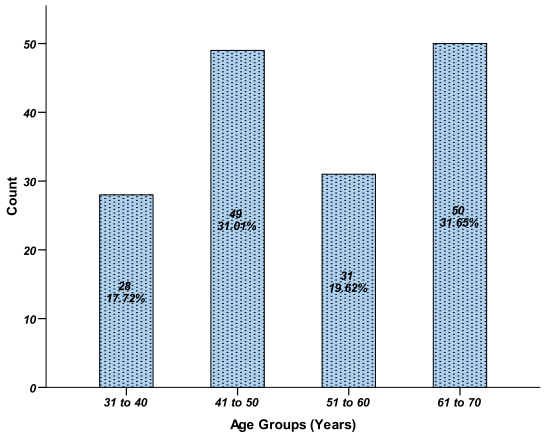

Figure No.I: Age distribution of the patients

Table No.1: Descriptive statistics of patients (n=158)

Statistics		Variables	
		Age (Years)	AIMS65 Score
Mean		52.91	2.78
95% Confidence Interval for Mean	Lower Bound	51.08	2.68
	Upper Bound	54.73	2.88
Median		51.50	3.00
Std. Deviation		11.625	.645
Inter quartile Range		20	1

The commonest cause of upper gastrointestinal bleed was duodenal ulcer was seen in 76%of patients, the most common site of duodenal ulcer was duodenal bulb. 15% of the patients had gastric ulcer, the most common site was incisura of stomach, 8% patients had esophageal ulcers, 1% of patients had Mallory Weiss tears**.** 30% of patients came with hypovolemic shock and resuscitated and required blood transfusion. 5% of the patients went radiological angioembolization in which endoscopic hemostasis could not be achieved.

Frequency of mortality in patient having high aims 65 score in acute upper gastrointestinal bleeding was observed in 8.86% (14/158) cases as presented in figure 3.

Rate of mortality was high in 61 to 70 years of age patients (p=0.025) as shown in Table 2. Similarly rate of mortality was 11% in male and 6.6% in female as

shown in table 3 but significant difference was not observed (p=0.33) as shown in table 3. Rate of mortality was significantly high in 4-5 AIMS score as compare to 2-3 AIMS score patients (35.3% vs. 5.7% p=0.0005) as shown in Table 4.

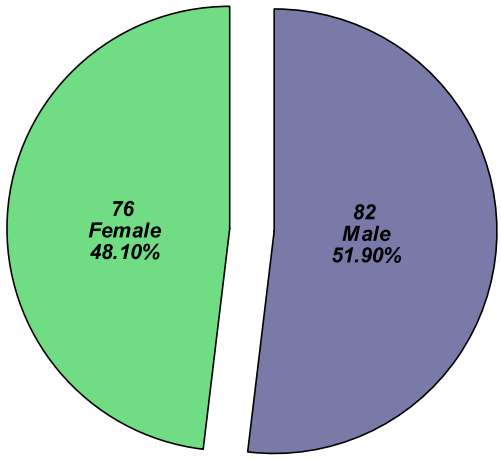

Figure No.2: Gender distribution of the patients n=158

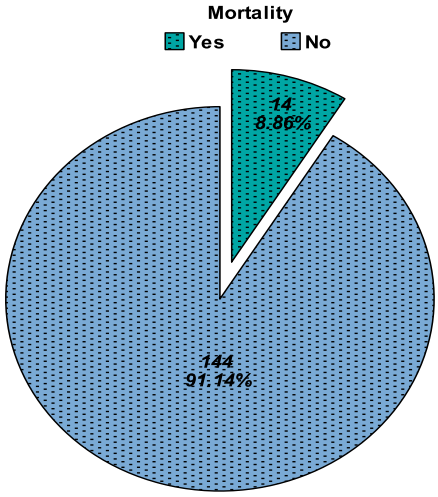

Figure No.3: Frequency of mortality in patient having high aims 65 score in acute upper gastrointestinal bleeding n= 158

Table No.2: Frequency of mortality in patient having high aims 65 score in acute upper gastrointestinal bleeding with respect to age groups

Age Groups (Years)	Mortality		Total
	Yes n=14	No n=144	
31 to 40 Years	0(0%)	28(100%)	**28**
41 to 50 Years	2(4.1%)	47(95.9%)	**49**
51 to 60 Years	3(9.7%)	28(90.3%)	**31**
61 to 70 Years	9(18%)	41(82%)	**50**

Chi-Square =9.305 p=0.025

Table No.3: Frequency of mortality in patient having high aims 65 scorein acute upper gastrointestinal bleeding with respect to gender

Gender	Mortality		Total
	Yes n=14	No n=144	
Male	9(11%)	73(89%)	**82**
Female	5(6.6%)	71(93.4%)	**76**

Chi-Square =0.94 p=0.33

Table No.4: Frequency of mortality in patient having high aims 65 scorein acute upper gastrointestinal bleeding by aims score

AIMS Score	Mortality		Total
	Yes n=14	No n=144	
2 – 3	8(5.7%)	133(94.3%)	**141**
4-5	6(35.3%)	11(64.7%)	**17**

Chi-Square =16.48 p=0.0005

DISCUSSION

Acute upper gastrointestinal (GI) bleeding is a catastrophic event, which needs urgent assessment, resuscitation, risk prognostication, and lastly urgent intervention, with an annual mortality rate 10 - 14 %.[13] Early risk stratification is now highly being recommended in the managing patients by application of precise, authentic risk stratification scoring system, will lead to better Triage and outcome.[14,15] Unfortunately the existing scores are not used commonly in clinical settings as they involve multiple variables to calculate and requires endoscopic findings, which are unobtainable in emergency department.[16] AIMS 65 is a easily calculated bedside scoring system , with easily accessible variables easily calculated in causality unit. It contains 5 elements that includes serum albumin <3gms/dl, International normalization unit (INR)>1.5, change in mental Sensorium, Systolic Blood Pressure 90mmHg or lower and Age >65 years .Literature search has revealed its accuracy in prognosticating mortality.[17] Nevertheless it's accuracy in taking decision of intervening with need for endoscopy is still uncertain.[18]

With guidance from risk assessment scoring systems one can foresee the most adverse outcomes in patients with upper gastrointestinal hemorrhage, one of which is death. Several factors have been acknowledged, which includes history of ongoing cardiac, kidney or other diseases, age of patient, presence of ongoing hemorrhage, endoscopic findings, ongoing hypovolemic shock, all there prognosticate risk for mortality.[19,20] Rockall score is one of the most commonly implicated one in clinical practice but requires endoscopy finding to calculate the score, which is impossible to assess in emergency room. The other

scores have a list of variables and parameters, which makes them complex to comprehend.

In this study the average age of the patients was 52.91±11.62 years (95%CI: 51.08 to 54.73) There were 82(51.9%) male and 76(48.1%) female. Frequency of mortality in patient having high AIMS 65 score in acute upper gastrointestinal bleeding was observed in 8.86% (14/158) cases within 66 weeks. A study showed that patients with AIMS65 score more than and equal to 2 had mortality was 5.3%. They also reported that AIMS 65 is an authentic scoring system foresees in hospital fatality.[12]

Rate of mortality was high in 61 to 70 years of age patients (p=0.025). Similarly rate of mortality was 11% in male and 6.6% in female. Rate of mortality was significantly high in 4-5 AIMS score as compare to 2-3 AIMS score patients (35.3% vs. 5.7% p=0.0005).

One of the variables is directly co-related to in hospital mortality, is serum albumin levels literature search has revealed low albumen levels are associated with increased in hospital mortality.[21,22] A multi-centric study was conducted in United Kingdom, study highlighted the direct correlation with impaired coagulation profile in patients with upper GI bleed, it concluded INR greater the 1.5 is an independent factor associated with rebleeding, mortality and requiring retherapeutic intervention endoscopic or radiological.[23, 24]

The AIMS65 score, noninvasive, preendoscopic score which precisely foresees in-hospital death and number of days in hospital spent, it is modest, and with variables prognosticating outcomes.[25] recent literature has validated its strength in risk stratification in both of variceal and non-variceal bleed.[12, 25]

AIMS65 is a risk assessment scale that uses data available prior to endoscopy. Literature propose its validity for foreseeing adverse outcomes.[12, 25]

Literature search, gastroenterology societies, such as American journal of gastroenterology's clinical guiding principles stresses upon the use of risk stratification scores for prognostication which guide further therapeutic plans in management of UGIB.[24,26] Rockall and Glasgow Blatchford score (GBS)were mostly used previously. In previous studies (GBS) was seen to be better than rockall score.[26,27] However, GBS requires integration of clinical history, vitals laboratory variables and require quiet an effort to calculate.

In a comparison study between AIMS 65 and (GBS), Hyett et al. concluded AIMS 565 much more reliable than GBS in prediction of mortality, both of the scores showed equal in prediction of rebleeding, endoscopic, surgical or radiological intervention, need for ICU, timing of endoscopy and no of days of hospital stay.[17] Prospective studies are desired to endorse the capability of the score to estimate rebleeding, length of stay, and cost.

CONCLUSION

AIMS 65 is a modest, validated, pre-endoscopic, noninvasive risk assessment scoring system that prognosticate hospital mortality in patients with UGIB.

Author's Contribution:

Concept & Design of Study:	Baseer Sultan Ahmad
Drafting:	Shahid Karim
Data Analysis:	Muhammad Mansoor ul Haq
Revisiting Critically:	Perzez Ashraf
Final Approval of version:	Shahid Karim & Baseer Sultan Ahmad

Conflict of Interest: The study has no conflict of interest to declare by any author.

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