ORIGINAL ARTICLE

A Study of the Clinical Profile of Patients with Upper Gastrointestinal Bleed and Utility of Rockall Scoring in these Patients at a Tertiary Healthcare Setup

Sanjay Mundhe [1], Nagnath Redewad [1], Dhananjay Ogale [1], Khushmi Shah [1] and Rohidas Borse[1]
[1]Department of General Medicine, B. J. Medical College and Sassoon General Hospital, Pune - 411001 Maharashtra, India.

Abstract:
Background: Upper gastrointestinal bleed (UGI Bleed) is common emergencies contributing to hospitalization and associated morbidity and mortality. Numerous scoring systems have been designed to assess risk factors for morbid outcome. *Aim and Objectives:* To study demographic and clinical profile of patients with UGI bleed. To study the aetiology of patients with UGI bleed. To study utility of Rockall system and correlate severity of bleed with outcome. *Material and Methods:* This observational cross-sectional study was carried out at a tertiary care hospital. Study was carried out on patients presenting with UGI bleed and who consented to participate. Ethical committee approval was obtained. Relevant data of eligible patients over two years was collected. Data collected was compiled using excel sheet and analysed with Graph Pad Prism Version V. Results reported in terms of mean, percentages and p-value. P-value <0.05 was considered statistically significant. *Results:* Mean age was 44.73 years with range of 18-82 years. Males were 72% of and females 28%. Majority, 54% presented with hematemesis, 24% had melena, while 22% had both. Alcohol intake was found in 84 (56%) patients. 54.6% patients had variceal bleed and 45.3% had non-variceal bleed. Eleven patients (15.37%) with moderate category had re-bleeding while 1(50%) had re-bleed in severe category. There was no mortality amongst low and moderate categories and 50% mortality in severe category. *Conclusion:* UGI bleed commonly presents as hematemesis, seen in middle-aged males with significant alcohol intake. Higher Rockall score was associated with transfusion requirement, occurrences of rebleed and mortality.

Keywords: Alcohol, Hematemesis, Mortality, Rebleeding, Rockall score, Varices.

Introduction:
Upper gastrointestinal bleed (UGI Bleed) is one of the most common medical emergencies contributing to 250,000–300,000 hospitalizations in USA yearly [1-2]. At least 5% of all the admission from Emergency Department in India are due to this serious condition and its incidence ranges from 50 to 150/100,000 population annually [3]. It is more common amongst men and elderly [4]. Peptic ulcers are most common cause, followed by varices, gastric/duodenal erosions and Mallory-Weiss tear. It is associated with factors like H. pylori, NSAID and alcohol [2,5,6]. Despite developments in endoscopic interventions, overall mortality remains around 10% [7-9]. Numerous scoring systems have been designed to assess various risk factors for morbid outcome which could help in improving management and cost-effective use of resources [10]. We plan to study Rockall system to assess such outcome at our hospital.

Material and Methods:
This Hospital based Observational cross-sectional study was conducted in the department of General Medicine of a tertiary care hospital over a period of two years. Considering the confidence level as 95%, Absolute precision [L]=5%, prevalence (P) of approximately 10.1 % from previous studies and using the formula, n = 4pq/L2, the calculated sample size was 150). Permission from Institutional Ethical committee was obtained prior to commencement of the study. All the patients who were either admitted in the hospital or visited the OPD and satisfied the selection criteria were considered for enrolment. All patient participants were

informed and explained about the study and written consent for participating in this study was obtained.

Inclusion Criteria - Patients with upper gastrointestinal bleed in the form of hematemesis or melena or both. Patients above 18 years of age and who gave consent for the study.

Exclusion Criteria - Patients below 18 years of age. Patients who had any bleeding disorder which contradicts the procedure. Patients having GI bleed following a GI surgery. Unwilling, or non-consenting patients.

Data of the eligible patients regarding demographic information, detailed history including presenting symptoms, past history of any such episodes and other comorbidities and associated factors such as alcohol use, smoking, drugs use were recorded. The relevant data about clinical examinations including vital signs, laboratory investigations including pathological tests, imaging and endoscopic findings and treatment given to all patients including blood transfusion were collected. The patients were categorised as per Rockall score depending upon assessment. Upper GI endoscopy was performed in all patients using a Fujifilm Endoscope and the findings documented. H. Pylori testing was done in indicated patients using a Rapid Urease Test. The rebleed, requirement of blood transfusions and mortality were documented and the efficacy of Rockall score as a predictor of rebleed was analysed. The concordance between the initial clinical diagnosis and endoscopic findings were recorded. All data collected from medical records were compiled using excel sheet after ensuring the removal of confidential information. All the coded data was imported from excel sheet to graph pad prism version V for analysis. Descriptive statistics was used to describe frequencies and percentages for categorical data. The continuous variables were compared using independent sample t-test. Results reported were in terms of mean, percentages, and p-value. The p-value <0.05 was considered to be statistically significant.

Results:

A total of 150 patients aged 18-80 years with a mean age of 44.7 ± 15.21 were included in the study.

Majority of the patients, 68 (45.3%) belonged to the age group of 40-59 years and 2 patients above 80 years age group. Out of total 150 patients, 108 (72%) were males and 42 (28%) were females suggesting high frequency of male patients than females with upper GI bleed. In all age groups, the male population dominated the cases of UGI bleed as compared to the female population except in age group 80 years and above where there was equal representation of both genders (Table 1).

Majority of the patients, 81(54%) presented with hematemesis only, while 36 (24%) presented with isolated melena and 33 (22%) had both hematemesis and melena. In all age groups, hematemesis was the most common bleeding manifestation except in age group, 80 years and above where 1 (50%) patient presented with isolated hematemesis and 1(50%) had isolated melena as presenting symptom (Table 2).

Significant alcohol intake as decided by history (> 80g/day) was found in 84(56%) out of 150 patients who presented with UGI bleed. Out of 42 females, only 3(7.14%) had significant alcohol consumption as compared to 108 males, out of which 81(75%) had significant alcohol consumption. More patients with significant alcohol consumption were present in the age group, 40-59 years, 41(48.81%) and 20-39 years, 30 (35.71%). In all other age groups, non-alcoholics were more than alcoholics (table 3).

Most common cause of UGI bleed was found to be oesophageal varices, 78 patients (52%) followed by Gastritis, 40 (26.67%), Esophagitis, 21 (14%), and Peptic ulcer disease, 11 (7.33%). Most of the variceal bleed was in the age group 40-59 years (75%) and nonvariceal bleed was more common amongst all other age groups (Table 4). Out of 46 patients who were tested for H. pylori by Rapid Urease Test, 22 (52.17%) came positive and 24 (47.83%) were negative. Most of the patients (69) had a Rockall score of 4 (table 5).

The patients were classified into three risk groups, based on the Rockall score. Those with a score less than 3 into group A (low risk), score of 3-5 into group B (moderate risk) and those with a score of 6 or more into group C (high risk). Majority of the patients, 83

(55.34%) belonged to the category of moderate Rockall score followed by 65 (43.33%) low risk and 2(1.33%) with high Rockall category score. Patients with higher Rockall score required more transfusion than those with lower score. A total of 71 (47.33%) patients required blood transfusion (Table 6). Eleven patients (15.37%) with moderate Rockall score had re-bleeding while 1(50%) patient in the severe Rockall category had re-bleed (Table 7). There was no mortality amongst low and moderate Rockall score category and 50% mortality in patients belonging to severe Rockall score category (Table 8).

Table No. 1: Distribution of cases based on age and gender

Age	18-19 year	20-39 year	40-59 year	60-79 year	80 year & above	Total
Gender	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Male	5 (55.55)	38 (80.85)	47 (69.12)	17 (66.67)	1 (50)	108 (72)
Female	4 (44.44)	9 (19.14)	21(30.88)	7 (33.33	1 (50)	42 (28)
Total	9 (6)	47 (31.33)	68 (45.33)	24 (16)	2 (1.33)	150 (100)

Table No. 2: Distribution of cases based on age and bleeding manifestation

Age	18-19 years	20-39 years	40-59 years	60-79 years	80 years & above	Total
Bleeding Manifestation	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Hematemesis	6 (66.67)	29 (61.7)	32 (48.53)	13 (54.17)	1 (50)	81 (54)
Melena	2 (22.22)	10 (21.28)	17 (25)	6 (25)	1 (50)	36 (24)
Hematemesis and Melena	1 (11.11)	8 (17.02)	19 (29.41)	5 (20.83)	0 (0)	33 (22)
Total	9 (6)	47 (31.33)	68 (45.33)	24 (16)	2 (1.33)	150(100)

Table No. 3: Distribution of alcohol intake based on gender

Alcohol intake	Absent	Present	Total
Gender	N (%)	N (%)	N (%)
Female	39 (92.86)	3 (7.14)	42 (28)
Male	27 (25)	81 (75)	108 (72)
Total	66 (44)	84 (56)	150 (100)

Table No. 4: Distribution of cases based on etiology of bleed

Etiology Of Bleed	N	%
Esophageal Varices	78	52
Gastritis	29	19.33
Esophagitis	10	6.67
Esophagitis+ Gastritis	10	6.67
Gastric Ulcer	6	4
Duodenal Ulcer	3	2
Duodenitis	3	2
Mallory Weiss Tear	3	2
Esophageal Ulcer	2	1.33
Fundal Varix	1	0.67
Esophagitis+Fundal Varix+Antral Ulcers	1	0.67
Gastric Varices	1	0.67
Esophageal Carcinoma	1	0.67
Gastritis+Duodenitis	1	0.67
Esophageal+ Gastric Ulcer	1	0.67
Grand Total	150	100

Table No. 5: Distribution of cases based on H. Pylori testing

H. Pylori infection	Frequency	Percent
RUT-Negative	24	52.17%
RUT-Positive	22	47.83%
Total	46	100.00%

Table No. 6: Correlation of Rockall category and Blood transfusion

Rockall category	Low	Moderate	High	Total	p- value
Blood transfusion	N (%)	N (%)	N (%)	N (%)	
Yes	28 (43.07)	41 (49.4)	2 (100)	71 (47.33)	0.0001
No	37 (56.92)	42 (50.6)	0 (0)	79 (52.67)	0.00001
Total	65 (43.33)	83 (55.33)	2 (1.33)	150 (100)	

Table No. 7: Correlation of Rebleed and Rockall category

Rockall category	Low	Moderate	Severe	Total	p-value
Outcome	N (%)	N (%)	N(%)	N (%)	
Death	0 (0)	0 (0)	1 (50)	1 (0.67)	0.0001
Survived	65 (100)	83 (100)	1 (50)	149 (99.33)	0.029
Total	65 (43.33)	83 (55.34)	2 (1.33)	150 (100)	

Table No. 8: Correlation of Rockall category and Death/survival

Rockall category	Low	Moderate	Severe	Total
Rebleed	N (%)	N (%)	N (%)	N (%)
No	65 (100)	72 (84.72)	1 (50)	138 (92)
Yes	0 (0)	11 (15.37)	1 (50)	12 (8)
Total	65 (43.33)	83 (55.33)	2 (1.33)	150 (100)

Discussion:

The clinical and endoscopic profile of one hundred and fifty patients presenting with UGI bleed were analysed. Age, gender, type of bleeding manifestation, requirement of blood transfusions, severity of bleed, etiology and associated factors were documented, along with Rockall score and its correlation with various parameters and outcomes. The Rockall score has been validated by several studies, for predicting rebleeding and mortality. In our study, in addition to determination of the Rockall score, the subjects were divided into one of the three risk groups. The available data was compared with contemporary literature and utility of Rockall score in risk stratification was evaluated.

The mean age was 44.73 years (S.D-15.21 years) with an age range of 18-82 years in this study. It was lower than that observed in the RUGBE (Canadian Registry on Upper Gastrointestinal Bleeding and Endoscopy Database of 1869 patients) by Barkun et al (mean age- 66 years and range: 7-105 years) and study by Rockall et al. (mean age- 66 years, range - 16-103 years, total patients-2332) [11, 12]. In a study done by Rathi et al. in Western India, the mean age of patients presenting with UGI bleed was 42 years, corroborating with the present study [13]. In a study by Lakhwani et al, the mean age of patients was 51.9 years [14]. In another study done by Anand et al, the mean age group was 49 years (SD-14.26) [15]. The majority of patients in the present study fell into the age group of 40-59 years. Only 2 subjects (1.33%) were 80 years or above, as compared to 634 (27.2%) noted by Rockall et al. [11]. This may be due to a large young population in India and a broad base age pyramid. Male patients comprised 72% of the study population and females 28% of study population. In a study by Shenoy and Rao, UGIB was seen in 74.2% males and 25.8% females [16]. In another study on 111 patients by Kashyap et al, 78.4%

patients were males [17]. This is in concordance with the present study. A study by Deep Anand et al. showed that 83.33% were male as compared to females which were 16.66% [15]. In RUGBE database 62% were males and that noted by Rockall et al. 57% were males [11, 12]. In a study by Longstreth et al, 67.9% were males [1]. Majority of patients, 54% had only hematemesis as a presenting complaint and 24% had only melena, while 22% had both hematemesis and melena. In a study by Shah et al, hematemesis was the most common (68%) presentation, followed by melena, 30% and mixed presentation, 2% [18]. Alcohol intake was found in 84 out of 150 patients (56%) who presented with UGI bleed. Longstreth et al. noted history of alcohol use in 3% of the patients in their series [1]. This may be due to increased male population in the study leading to increase in alcohol consumption and also increasing trend of alcohol consumption amongst youth. Out of 150 patients, 54.6% had variceal bleed and 45.3% had non-variceal bleed. Varices were observed in a much lower percentage by Rockall et al. and Vreeburg (4.6% and 9% respectively), in comparison with this study [11,19]. This difference may be due to more effective treatment options for non-variceal bleed and lower incidence of H. Pylori in recent years. In this study, the most common cause of UGI bleed was oesophageal varices, 52% followed by gastritis, 26.67%, esophagitis, 14% and peptic ulcer, 7.33%. Study done at Dehradun-Northern India by Deep Anand et al revealed 56.14% patients had portal hypertension related oesophageal and fundal varices, 14.91% had gastric and duodenal ulcer, 12.28% had gastric erosions/gastritis, 8.77% had Mallory–Weiss tear, 4.38% had gastric malignancy [15]. Dilawari et al. found variceal bleeding due to portal hypertension as the most frequent (36%) cause followed by peptic ulceration in 24% and gastric erosions in19% of the patients [20]. Barkun et al noted in the RUGBE study, that 56% had peptic ulcer disease as the primary etiology for UGI bleeding, followed by esophagitis (8.4%), Mallory Weiss tears (4.4%) and Dieulafoy lesions (2.5%) [12]. Majority of

the patients in the RUGBE study (53%) and study byRockall et al. (50.7), belonged to the moderate group as were results from our study (55.34%) [11, 12].

However, in our study, patients in mild category were 43.3% as in line with Rockall et al. (45.4%) and those in severe group were 1.33% as with Rockall et al. (3.9%). Results from our study were in concordance with the study by Rockall et al. where most of the patients belong to the moderate 55.34% risk group [11, 12]. Akash et al. in their study of upper GI bleed, noted that Rockall score correlated well with the need for blood transfusions, rebleeding and mortality [21]. Out of the 100 patients with nonvariceal upper GI bleed studied by them, 30 patients with low Rockall score had no rebleed and did not require transfusions. Twenty-eight patients had a score of 4-6 out of which 6(21.4%) had rebleed and 1 patient expired. Of the 20 patients with high Rockall score, 4(20%) patients had rebleed and 7 (35%) died and the remaining had prolonged hospital stay [21]. In the present study, out of 72 patients with a score of 4-6, 11(7.33%) had rebleed. The rebleed rates in the present study, 8% is corroborated by that noted by Yavorski et al, 7.1% [22]. It is similar to the rebleed rate in a study by Moledina et al where the rebleed rate was found to be 7.1% [23]. It is lesser than that observed by Rockall et al, 15.4% and Barkun et al .13.8% [11, 12]. Overall mortality was 0.67%. The information obtained from 61,067 cases (81% published since 1997) of whom 5,001 cases died, the mortality rate in all these cases had fallen significantly, from 11.6% (95% confidence interval, 11.0 to 12.2) in pre-1997 studies to 7.4% (7.2 to 7.6) in those studies published since 1997 [24]. This can be attributed to earlier and better diagnostic tools. In our study, lesser mortality rate may be attributed to lesser number of the patients belonging to the severe group, higher number of the patients with non-variceal bleeds and younger age of the patients etc.

Conclusion:

Upper gastrointestinal bleed was commonly seen in middle aged population mostly between 40-59 years of age with male preponderance. Significant alcohol consumption was observed as a major risk factor for UGI bleed contributing to 56% of the cases. This reflects the burden of alcohol consumption on health issues. The most common presentation for UGI Bleed was isolated hematemesis. The most common etiology was esophageal varices, followed by gastritis, esophagitis and peptic ulcer disease. Based on Rockall scoring, majority of the patients belonged to low and moderate risk group. High Rockall score was associated with more transfusion requirement and had more occurrences of rebleed and higher mortality.

Conflict of Interest - Nil
Sources of Support - Nil

References

1. Longstreth GF. Epidemiology of hospitalization for acute upper gastrointestinal haemorrhage: a population-based study. *The American Journal of Gastroenterology* 1995; 90 (2):206 - 210.
2. Rockall TA, Logan RFA, Devlin HB, Northfield TC. Variation in outcome after acute upper gastrointestinal haemorrhage. The National Audit of Acute Upper Gastrointestinal Haemorrhage. *Lancet* 1995; 346(8971):346-350.
3. Kalpana C and Rajib K B. Upper gastro-intestinal bleeding in a tertiary care center in north-east India: A retrospective study. *International Journal of Advanced Research* 2020; 8: 559-563.
4. Rajendran P, Nagarajan R. A Study of Clinical and Endoscopic Profile of Upper Gastrointestinal Bleed in a Tertiary Care Centre – GRH, Madurai. *Indian Journal of Applied Research* 2017; 7(10):210-219.
5. Gilbert DA, Silverstein FE, Tedesco FJ. The National ASGE Survey on Upper Gastrointestinal Endoscopy in Upper Gastrointestinal Bleeding. *Gastrointestinal Endoscopy* 1981; 27: 94 -102.
6. Gostout CJ, Wang KK, Ahlquist DA, Clain JE, Hughes RW Acute Gastrointestinal Bleeding: Experience of a Specialized Management Team. *Journal of Clinical Gastroenterology* 1992; 14: 260-267.
7. Fallah MA, Prakash C, Edmundowicz S. Acute Gastrointestinal Bleeding. *Medical Clinics of North America* 2000; 84(5):1183-1208.

8. Cook DJ, Guyatt GH, Salena BJ, Laine LA. Endoscopic Therapy for Non-Variceal Upper Gastrointestinal Haemorrhage: A Meta-Analysis. *Gastroenterology* 1992; 102: 139-148.
9. Katschinski B, Logan R, Davies J, Faulkner G, Pearson J, Langman M et al. Prognostic Factors in Upper Gastrointestinal Bleeding. *Digestive Diseases and Sciences* 1994; 39: 706-712.
10. Cameron EA, Pratap JN, Sims TJ. Three-Year Prospective Validation of a Pre-Endoscopic Risk Stratification in Patients with Acute Upper Gastrointestinal Haemorrhage. *European Journal of Gastroenterology and Hepatology* 2002; 14: 497-501.
11. Rockall. T A, Logan R F A, Devlin. Influencing the Practice and Outcome in Acute Upper Gastrointestinal Haemorrhage. *Gut* 1997; 41; 606 - 611. `
12. Barkun A, Sabbah S, Enns R. The Canadian Registry on Nonvariceal Upper GI Bleeding and Endoscopy (RUGBE): Endoscopic Haemostasis and Proton Pump Inhibition Are Associated with Improved Outcomes in A Real-Life Setting. *The American Journal of Gastroenterology* 2004; 99:1238-1246.
13. Chandnani S, Rathi P, UdgirkarSuhas, Sonthalia N and Jain A. Clinical Utility of Risk Scores in Variceal Bleeding. *Arquivos de Gastroenterologia* 2019; 56(10), 1590-1598.
14. Lakhwani, M, Ismail AR, Barras C, Tan W. Upper Gastrointestinal Bleeding in Kuala Lumpur Hospital, Malaysia. *Medical Journal of Malaysia* 2001; 55:498-505.
15. Anand D, Gupta R, Dhar M, Ahuja V. Clinical and Endoscopic Profile of Patients with Upper Gastrointestinal Bleeding at Tertiary Care Center of North India. *The Journal of Digestive Endoscopy* 2014; 5:139 -143.
16. Rodrigues G, Shenoy R, Rao A. Profile of Nonvariceal Upper Gastrointestinal: Bleeding in a Tertiary Referral Hospital. *The International Journal of Surgery* 2004; 5:17 - 22.
17. Kashyap R, Mahajan S, Sharma B, Jaret P, Patil RK, Rana S. a Clinical Profile of Acute Upper Gastrointestinal Bleeding at Moderate Altitude. *The Journal, Indian Academy of Clinical Medicine* 2005; 6:224-228.
18. Shah GM, Jamali AA, Khokhar RA, Rind S, Endoscopic Diagnosis in Patients with Acute Upper Gastrointestinal Bleeding. *The Journal of Islamabad Medical & Dental College* 2017; 6(2):83-86.
19. Van Leerdam ME, Vreeburg EM, Rauws EA. Acute Upper GI Bleeding: Did Anything Change? Time Trend Analysis of Incidence and Outcome of Acute Upper GI Bleeding Between 1993/1994 And 2000. *The American Journal of Gastroenterology* 2003; 98(7):1494-1499.
20. Dilawari J, Kaur U, Narayanan V, Augustine P, Das J, Ali H et al. Pattern of Upper Gastrointestinal Haemorrhage in Northern India. An Endoscopic Study of 316 Patients. *Journal of Gastroenterology and Hepatology* 2008; 2: 443-449.
21. Akash C. Validation of Rockall Score for Non-Variceal Upper GI Bleed. *Indian Journal of Gastroenterology* 2007; 26 (2):A131-138.
22. YavorskiRT, Wong RK, Maydonovitch C, Battin LS, Furnia A. Analysis of 3,294 Cases of Upper Gastrointestinal Bleeding in Military Medical Facilities. *American Journal of Gastroenterology* 1995; 90(4):568-573.
23. Moledina, S.M., Komba, E. Risk factors for mortality among patients admitted with upper gastrointestinal bleeding at a tertiary hospital: a prospective cohort study. *BMC Gastroenteroogy* 2017; 17:165-172.
24. Straube S, Tramèr MR, Moore RA, Derry S, McQuay HJ. Mortality with upper gastrointestinal bleeding and perforation: effects of time and NSAID use. *BMC Gastroenterology* 2009; 9:41- 56.

Address for correspondence: *Dr. Sanjay A Mundhe, Associate Professor, Department of General Medicine, B. J. Medical College and Sassoon General Hospital, Pune - 411001. Maharashtra, India.*
Email: drsanjaymundhe@gmail.com,
Mobile: +91 9890120629.

How to cite this article: Sanjay Mundhe, Nagnath Redewad, Dhananjay Ogale, Khushmi Shah and Rohidas Borse. A Study of the Clinical Profile of Patients with Upper Gastrointestinal Bleed and Utility of Rockall Scoring in these Patients at a Tertiary Healthcare Setup. Walawalkar International Medical Journal 2021; 8(2):69-75. http://www.wimjournal.com.

Received date: 11/01/2022 Revised date: 27/01/2022 Accepted date: 28/01/2022