

Original Research Article

Modified Rockall score: a predictor for outcome in patients presenting with upper gastrointestinal bleed

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Received: 11 March 2023

Revised: 12 April 2023

Accepted: 09 May 2023

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ABSTRACT

Background: Upper gastrointestinal bleeding (UGIB) is a life-threatening emergency with an overall mortality rate of around 10%. Complete Rockall score is designed to identify patients who are at greater risk of adverse outcome. The aim of this study was to assess the Rockall score as a predictor of adverse outcome in elderly population presenting with UGIB.

Methods: Cross-sectional observational study to be carried out in indoor patients presenting with upper GI bleed and to study the correlation between Rockall score and outcome of patients at GSVM Medical College, Kanpur during 2020-2022.

Results: Patients were grouped according to Rockall score with number of patients having score less than 3-13, 3-6-63, more than 6-18. Out of 120 cases, 56 (46.66%) had re-bleeding during hospital stay has an average score of 5.05 and rest 64 (53.33%) did not had re-bleeding and has a score of 4.11. Number of cases requiring having average score <3 has 8.1, score 3-6 has 8.38 and >6 has 9.67 has average hospital of stay (days). Number of cases requiring intensive care were 27 (22.5%) has 5.19 average Rockall score. Out of 120 studied cases, 101 (84.16%) were discharged has 4.29 and 19 (15.83%) were expired has 5.95 average Rockall score.

Conclusions: Acute UGIB is a medical emergency and Rockall score is ideal to stratify elderly patients to anticipate outcome and prognosis.

Keywords: Rockall score, Upper gastrointestinal bleed

INTRODUCTION

Upper gastrointestinal bleeding (UGIB) is a common life-threatening emergency that accounts for over 507,000 annual hospital admissions accounting for over 4.85 billion annual health expenditure.¹ In spite of the development of newer interventions, the overall mortality rate remains around 10% in most studies.² Advanced age is a risk factor for adverse outcome among patients presenting with non-variceal UGIB. Mortality rate is found to be much higher (12-35%) in elderly males aged more than 60 years.³ Endoscopic study done within the first 24 hrs of bleeding has been shown to be the most reliable investigation which can identify the source which

helps in stratifying the patients into different risk groups.⁴ UGIB is defined as hemorrhage that originates proximal to the ligament of Treitz. Clinically, it can present as hematemesis (vomiting of blood) or melena (passage of black, tarry, and semi-solid stools) or both.⁵ The most common cause of UGIB is peptic ulcer disease that includes duodenal ulcer (DU) and gastric ulcer (GU). Several scoring tools have been developed to stratify the severity of bleeding to identify patients who are at great risk for mortality and rebleeding.⁶ The most used post-endoscopy scoring system is the complete Rockall score designed to combine information such as patients' age, occurrence of shock assessed from systolic blood

pressure records and pulse rate, presence and severity of comorbid conditions, and stigmata of hemorrhage.⁷

Upper gastrointestinal bleeding (UGIB) is a life-threatening condition and requires careful evaluation from the very first episode as an attempt to predict and reduce the risk of re-bleeding and death.⁸ Several risk-scoring systems exist to assess patients presenting with upper gastrointestinal hemorrhage.

The Rockall system has been shown to be an accurate and valid predictor of re-bleeding and death. Rockall scores are designed to combine information such as the patients' age, occurrence of shock assessed from systolic blood pressure records and pulse rate, presence and severity of comorbid conditions, and stigmata of haemorrhage.⁹

Results of the previous investigations and validations of the scoring system have highlighted that those with a score of ≤ 3 is associated with a very low rate of bleeding, recurrence, and death. This gives an opportunity to clinicians for a more appropriate management of patients based on their assessed risk of complications following the initial UGIB.¹⁰

In this study, aim was to evaluate the effectiveness of Rockall scoring system in long-term setting for the prediction of re-bleeding and mortality after an incidence of upper gastrointestinal bleeding.

METHODS

This hospital based observational study was conducted from December 2020 to September 2022 in K.P.S. Post Graduate Institute of Medicine, GSVM Medical College Kanpur, Uttar Pradesh, India.

Inclusion criteria

All the patients of age more than 18 years of either sex presenting with complaints of upper GI Bleed (hematemesis, melena) who gave informed consent were assessed to be part of this study.

Exclusion criteria

Any patient with clinical condition that precludes UGI endoscopic examination (e.g., Uncooperative patient, hemodynamically instability, altered sensorium, neck injury, cervical spondylosis etc.) were excluded.

The study was conducted after due approval from Institutional Ethics Committee. After assessment of eligible patients as per inclusion and exclusion criteria, we had sample size of 120 patients, who underwent detailed history and thorough clinical examination after written informed consent. A diagnosis of acute UGIB was based on the presence of hematemesis and/or melena. We collected baseline clinical data, laboratory reports, records of transfused blood units (if any)

endoscopic records and Rockall scores. We also subsequently followed up patients till their discharge from the hospital or death.

Rockall risk scoring system was used to classify patients at admission. Age, hemodynamics, and comorbidities are used in initial score and all parameters used for complete Rockall score. The patients were followed-up, patients with recurrent bleeding and mortality were re-evaluated for outcomes.

RESULTS

Number of patients having Rockall score less than 3 were 13, and patients having score between 3-6 were 63 and >6 were 18. Mean Rockall score (SD) was 4.55 (1.78) and median (IQR) was 4.00 (3-6).

Table 1: Correlation of Rockall score with outcome of patient.

Outcome	No. of patients	Rockall Score
Discharge	101	4.29
Expired	19	5.95

The results shows that the average duration of hospital stays of patients with Rockall score 1-3, 3-6 and 6-8 was 8.1, 8.38 and 9.67 respectively (P value-0.17). Out of 120 patients, the average Rockall score of patients who were discharged was 4.29 compared to score of 5.95 among patients which were expired (Table 1).

Table 2: Correlation of Rockall score with ICU admission.

Intensive care (Yes/No)	No. of patients	Rockall score
Yes	27	5.19
No	93	4.36

Out of 120 patients, the average Rockall score of patients who had rebleeding were 5.05 compared to score of 4.11 (P value - <0.001). The average Rockall score of patients who required ICU admission were 5.19 compared to score of 4.36 in non-ICU patients (P value- <0.001) (Table 2).

DISCUSSION

The management of acute UGIB has significantly progressed since the introduction of emergency endoscopy and modern endoscopic techniques for haemostasis. The most common cause was found to be varices followed by peptic ulcer is the cause of acute UGIB in 36 (30%) of patients.¹¹

Further re-bleeding has been consistently described as the most important risk factor for mortality and affects the UGIB patients' outcome.

Dicu et al showed that Rockall score can successfully stratify patients with UGIB into high- and low-risk categories for mortality and is the most useful tool in identifying patients who need intensive care to improve their outcome. The results of the present study are similar with the previous one as patients with Rockall score 4 or 5 had significantly higher mortality and re-bleeding rates than the others. Rockall scoring system is found to be correlated with mortality rate in the previous studies. In our study, mortality occurred in 19 patients. Mortality rate was significantly higher in patients with Rockall scores more than 6.¹²

Another significant superiority of the Rockall scoring system is about the need for transfusion.¹³ In our study, 49 (40.83%) patients required the need for blood transfusion.

Sharma et al took mean age of patient's 48.4±16.4 years and 78.9% were males. History of intake of NSAIDs in patients of AUGIB was present in 13.7% and of antiplatelet in 13.7%. Variceal bleed was the most common etiology (45.7%) followed by peptic ulcer disease (24.0%). Overall rates of surgery, rebleed and mortality were 6.9%, 22.9% and 20% respectively. Both clinical and complete Rockall risk scoring systems were useful tools for stratifying patients with AUGIB into high and low risk categories for mortality. However, for the prediction of rebleed, the complete Rockall scoring system was found to be better than the clinical scoring system. These scoring systems performed much better in predicting the outcomes in non-variceal bleed than in patients with variceal bleed.¹⁴

Wang et al a linear correlation between clinical Rockall scores and patient outcomes in terms of rebleeding, surgery and mortality was observed ($r=0.962$, 0.955 and 0.946 , respectively, $p=0.001$). High clinical Rockall scores >3 were associated with adverse outcomes (rebleeding, surgery and death). There was a significant correlation between high Rockall scores and the occurrence of rebleeding, surgery and mortality in the entire patient population.¹⁵

Mokhtare et al compared Glasgow-Blatchford score and full Rockall score systems to predict clinical outcomes in patients with upper gastrointestinal bleeding. It was found that full Rockall score system is better for 1-month mortality prediction compared to Glasgow-Blatchford score.¹⁶

Vreeburga et al also concluded that risk scoring system developed by Rockall and co-workers is a clinically useful scoring system for stratifying patients with acute UGIB into high and low risk categories for mortality.¹⁷

CONCLUSION

Acute UGIB is a medical emergency and stratification of patients is of critical importance. The Rockall score helps

in stratifying patients into different risk groups at the initial stage. Low-risk group patients can be discharged early, whereas direct specialized care including intensive care unit transfer with closed monitoring is advisable in high-risk group patients. Patients with Rockall score ≥ 6 are the most vulnerable group for fatal outcome. Prolongation of hospitalization, increased risk of rebleeding, increased requirement of blood transfusion, or supportive care can be anticipated with the help of Rockall scoring early at the time of admission. In a tertiary care centre, the Rockall scoring system should ideally be used at the time of hospitalization for appropriate cost-effective management which will definitely help to reduce morbidity and mortality among elderly patients during hospitalization.

This study has few limitations. This study was conducted in small sample size. Authors recommend to conduct multicentric study.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Khan F, Gupta AC, Giri R, Kumar V. Modified Rockall score: a predictor for outcome in patients presenting with upper gastrointestinal bleed. *Int J Res Med Sci* 2023;11:2032-5.