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# ASSOCIATION BETWEEN ROCKALL SCORE AND CLINICAL PARAMETERS IN PATIENTS WITH UPPER GASTROINTESTINAL BLEEDING

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**ABSTRACT**

Upper gastrointestinal bleeding (UGIB) is a medical emergency that requires prompt risk assessment to guide treatment. One commonly used tool for this is the Rockall Score, which helps predict the chances of complications like rebleeding or death.This study looks at how the Rockall Score relates to a range of clinical factors, including patient age, co-existing illnesses, lab test results, vital signs, imaging findings, and patient outcomes. We analysed 141 cases and found strong links between higher Rockall Scores and several key factors-especially chronic liver disease, diabetes, hypertension, kidney problems, and the use of antiplatelet drugs. Abnormal vital signs (like increased heart rate or low oxygen levels), poorer neurological status, and certain blood markers (like lactate and INR) were also associated with higher scores. Importantly, patients with higher scores were more likely to die or require aggressive treatments like intubation or blood transfusions. Our findings reinforce the Rockall Score as a valuable guide in managing UGIB.



## INTRODUCTION

Bleeding from the upper part of the digestive tract is a serious and sometimes life-threatening condition. Fast and accurate assessment is critical to deciding how urgently a patient needs treatment [1,2]. The Rockall Score, which combines clinical signs and endoscopic findings, is a well-known tool used by doctors to estimate the risk of poor outcomes [3].In this study, we aimed to explore how the Rockall Score relates to various patient characteristics—such as age, existing health conditions, physical signs at presentation, lab results, and imaging findings. By doing this, we hoped to better understand what factors influence this scoring system and how it can guide doctors in real-time decisions.

## MATERIAL AND METHODS

Study was conducted at Emergency medicine department of King Georges's Medical University Lucknow. We collected data from 141 patients admitted with UGIB. For each, we calculated the Rockall Score based on standard criteria (Table-1) [3]. Then we looked for associations between this score and different variables. We used statistical methods suitable for non-normal data, such as the Wilcoxon-Mann-Whitney test for group comparisons and Spearman's correlation for continuous data. A p-value under 0.05 was considered significant.

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## RESULTS

Age was positively associated with the Rockall Score (older patients had higher scores) [4]. Men and women had similar scores, so gender wasn't a major factor. Co-morbidities like chronic liver disease (CLD), hypertension, diabetes, kidney disease, and antiplatelet drug use were all linked with higher scores. Among these, CLD stood out with the strongest association, supporting earlier findings that liver disease worsens UGIB outcomes due to clotting issues and portal hypertension [5, 6].Vital signs such as faster breathing, lower oxygen levels, higher pulse rate, and low blood pressure were linked with higher Rockall Scores—indicating more severe illness. Patients with poor neurological status (lower GCS, altered mental status) also had higher scores, which is expected in patients with more severe bleeding.

**Lab tests**

- Higher lactate, urea, INR, and anion gap were associated with higher scores, suggesting organ stress or failure [7, 8].
- Lower haemoglobin, bicarbonate, and GCS scores also tracked with more severe cases.
- Shock index and random blood sugar correlated positively with Rockall Scores, reinforcing their role in early warning systems [9].

Patients who needed intubation or blood transfusions (PRBC, platelets) had significantly higher scores. These interventions

**Table 1.** Clinical (pre-endoscopic) Rockall score

| Components | Score | | | |
|---|---|---|---|---|
| | 0 | 1 | 2 | 3 |
| Age( Year ) | <60 | 60-79 | >80 | |
| Hemodynamics | HR <100<br>SBP<100 | HR>100<br>SBP<100 | SBP<100 | |
| Co-morbidities | None | None | Ischemic<br>Renal failure<br>Heart disease,<br>Liver disease<br>Congestive<br>Metastasis<br>Heart failure<br>Any<br>Major<br>Co-morbidities | Renal failure<br>Liver disease<br>Metastasis |

| **Table 2.** Association between Rockall Score and Parameters | | |
|---|---|---|
| Parameters | Rockall Score | p value |
| Age | Correlation Coefficient (rho) = 0.34 | <0.001 |
| Co-Morbidities: HTN | | 0.001 |
| Co-Morbidities: DM | | 0.003 |
| Co-Morbidities: CLD | | <0.001 |
| Co-Morbidities: CKD | | 0.001 |
| Co-Morbidities: Antiplatelet Use | | 0.009 |
| Clinical Features: AMS | | 0.021 |
| Respiratory Rate (CPM) | | |
| SpO2 (%) | Correlation Coefficient (rho) = 0.17 | 0.045 |
| Pulse Rate (BPM) | Correlation Coefficient (rho) = -0.25 | 0.003 |
| Systolic BP (mmHg) | Correlation Coefficient (rho) = 0.33 | <0.001 |
| Diastolic BP (mmHg) | Correlation Coefficient (rho) = -0.22 | 0.009 |
| GCS | Correlation Coefficient (rho) = -0.13 | 0.177 |
| RBS (mg/dl) | Correlation Coefficient (rho) = -0.28 | <0.001 |
| Shock Index | Correlation Coefficient (rho) = 0.29 | <0.001 |
| | Correlation Coefficient (rho) = 0.33 | <0.001 |
| Intubation | | 0.038 |
| IV Fluids /Blood Transfusion: PRBC | | 0.012 |
| IV Fluids /Blood Transfusion: RDP | | 0.015 |
| Hemoglobin (g/dL) | Correlation Coefficient (rho) = -0.18 | 0.030 |
| $HCO_3$ (mmol/L) | Correlation Coefficient (rho) = -0.18 | 0.028 |
| Lactate (mmol/L) | Correlation Coefficient (rho) = 0.26 | 0.002 |
| Anion Gap | Correlation Coefficient (rho) = 0.24 | 0.005 |
| Urea (mg/dL) | Correlation Coefficient (rho) = 0.22 | 0.009 |
| INR | Correlation Coefficient (rho) = 0.18 | 0.036 |
| Outcomes: Death | | 0.005 |
| UGI Endoscopy Finding: Esophageal varices | | 0.065 |
| Glasgow Blatchford Score | Correlation Coefficient (rho) = 0.49 | <0.001 |

usually indicate critical illness, and the association validates the Rockall Score as a useful triage tool [10]. Interestingly, patients with splenomegaly had lower Rockall Scores, a finding that contradicts expectations. This may reflect sample-specific trends or hidden factors and should be studied further. When we looked at patient outcomes, the Rockall Score was clearly higher in those who died than in those who recovered. This finding strengthens the score's credibility as a mortality predictor. Also, the Rockall Score strongly correlated with the Glasgow Blatchford Score, another tool used to assess UGIB risk [11].

## DISCUSSION

This study confirms that the Rockall Score effectively reflects illness severity in patients with UGIB. Older age, abnormal vital signs, altered mental status, and specific blood test results all contribute to a higher score. These associations make sense clinically, as they point to poor perfusion, blood loss, and organ stress. What stood out was the strong role of chronic conditions like liver disease and kidney failure in raising the Rockall Score. Liver disease, in particular, has long been known to complicate UGIB through poor clotting and portal hypertension [5, 6]. Our findings agree with that and suggest that such patients need extra attention.

The correlation with emergency interventions like blood transfusions and intubation shows that a high Rockall Score is not just a number—it's a red flag for the need for critical care [10]. The link with mortality further cements its role in early risk assessment. The unexpected finding regarding splenomegaly may be a statistical anomaly or reflect a unique feature of our sample. It deserves a closer look in future research.

## CONCLUSION

The Rockall Score remains a valuable, practical tool for evaluating patients with upper gastrointestinal bleeding. It reflects current clinical status and predicts who is likely to need advanced care or have a poor outcome. Our study highlights how age, coexisting illnesses (especially liver and kidney problems), neurological status, and several blood markers influence this score. Recognising these links can help clinicians act quickly and decisively.

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