Welcome to all

# RISK ASSESSMENT OF ACUTE UPPER GASTROINTESTINAL HAEMORRHAGE WITH ROCKALL SCORE IN DMCH

Dr. Md. Nazrul Islam

MD (Internal Medicine)

# Guide

Professor Dr. Khan Abul Kalam Azad,
Department of Medicine,
Dhaka Medical College, Dhaka.

## Co-guide

Dr. Md. Robed Amin
Associate professor,
Department of medicine
Dhaka Medical College, Dhaka.

# INTRODUCTION

- Upper gastrointestinal haemorrhage (UGIH) is defined as bleeding proximal to the ligament of Treitz.
- Acute UGIH is a common, potentially life threatening condition responsible for more than 300,000 hospital admissions and about 30,000 deaths per annum corresponding to hospitalization of 1 per 1000 population with 7% to 10% mortality in America ((Fallah, Prakash and Edmundowicz, 2000,Boonpongmanee et al.2004)

# Introduction cont'd

- The mortality of acute UGIH is much higher for patients who bleed after hospital admission than for those who does not bleed (Fallah, Prakash and Edmundowicz, 2000; Lewis, Shin and Metz, 2000).
- Peptic ulcer disease (PUD) accounts for about half of all and Variceal haemorrhage accounts for about 10 to 25% of acute UGIH, (Fallah, Prakash and Edmundowicz, 2000; Yavorski et al. 1995).

# Introduction cont'd

- Other causes includes inflammatory lesions of the upper gastrointestinal tract, Mallory-Weiss tears, angiodysplasia, Dieulafoy lesions. (Boonpongmanee et al. 2004 and Silverstein et al. 1981) and Postprocedural bleeding from endoscopic biopsy or therapy (Cappell and Abdullah, 2000) and bariatric surgery. (Yang et al.2006).

# Introduction cont’d

- NICE practice guideline for management of acute upper gastrointestinal bleeding recommends immediate risk assessment. Among risk assessment tools Rockall or Blatchford (2000) scoring system (Dworzynski, 2012) are used mostly.
- Rockall score is based on the patient's age, presence of shock, coexisting illness and Endoscopic findings.

# RATIONALE

- Clinical evaluation by numerical scoring system provides an unbiased, homogenous, evenly understandable clinical picture of an acute illness to all level of physicians.
- For Acute upper gastro intestinal haemorrhage a numerical scoring system developed for clinical evaluation called Rockall Scoring System which can predict the patients at risk of serious morbidity and mortality and used for early intervention for acute UGIH.

# OBJECTIVES

**General Objective:**

To describe the risk and outcome following acute upper gastrointestinal haemorrhage by Rockall score.

**Specific Objectives:**

1. To observe the risk involved in acute upper gastrointestinal haemorrhage by Rockall scoring system.
2. To observe the outcome among the study subject.
3. To describe the etiology of the study subject.
4. To describe the demographic profile of study population.

# MATERIALS AND METHODS

**Study design**

- This is a cross sectional hospital based observational study

**Place of study**

- In the Department of Medicine, Dhaka Medical College Hospital (DMCH).

**Sampling method**

- Non probability purposive sampling.

# MATERIALS AND METHODS Cont'd

## Study population

- Patients having acute upper Gastrointestinal Haemorrhage presenting in the department of Medicine, Dhaka Medical College Hospital (DMCH).

## Period of study

- April, 2013 to March 2014.

# Selection criteria:

## Inclusion criteria

All adult (Aged 18 years or above) patients presented with haematemesis with or without melaena acute upper gastrointestinal bleeding.

# Selection criteria Cont'd

**Exclusion criteria**

- Patients with Chronic UGIH.
- The patients diagnosed as coagulation disorder.
- The patients with sepsis.
- Any contraindication to endoscopy in which endoscopic evaluation was not possible.
- The patients who refuse to give consent.

# Study procedure

- All consecutive patients admitted with acute UGIH meeting the inclusion and exclusion criteria was enrolled in the study. After admission  patient was managed according to the unit consultants advice. The principal investigator evaluated the patient for enrollment when present and contacted over phone by duty physician at other times; but did not intervene in any management procedure.

# Study procedure cont'd

- Patient evaluation was done clinically for the features of Shock and for comorbidity including Ischaemic Heart Disease (IHD), Congestive Cardiac failure (CCF), liver failure, Renal failure and for metastatic cancer as mentioned in Rockall scoring table.
- Pre endoscopic risk assessment with Rockall scoring system was done from available information.

# Study procedure cont'd

- Endoscopy of upper GIT was done and Complete Rockall score calculated after information obtained from endoscopy of upper GIT.
- Follow up was done daily for Rebleeding /cessation of bleeding and discharge/ referral or death along with management like endoscopic intervention, blood transfusion and also duration of hospital stay.

# Data collection:

- Data was collected in a pre-designed proforma. Patient's information was obtained using information sheet which includes questionnaire, clinical findings and investigation findings.

# Statistical analysis:

- Statistical analyses were carried out by using the Statistical Package for Social Sciences version 16.0 for Windows (SPSS Inc., Chicago, Illinois, USA).
- Continuous variables were expressed as mean, standard deviation, and categorical variables as frequencies and percentages.
- The differences between groups was analyzed by unpaired t-test or chi-square ($X^2$) test and shown with cross tabulation and also the Pearson correlation coefficient was used for testing associations. The relationships between demographic variables with clinical variables were assessed by multiple logistic regression analysis.

- A p-value <0.05 was considered as significant.
- Sensitivity and specificity of test result was observed by ROC curve of AUC.

# Ethical consideration:

- Prior to the commencement of this study, the research protocol was presented in front of all Teachers of department of medicine for analysis of various aspect of study before placing for approval by the Dhaka Medical College Ethical Committee.
- The aims and objective of the study along with its procedure, risk and benefits was explained to the patients in easily understandable local language before enlisting and written consent was taken from each patient of study population.
- Patient was also assured that all records would be kept confidential .

# OBSERVATIONS AND RESULTS

- One hundred cases of acute Upper gastrointestinal haemorrhage was systematically observed by Rockall score pre endoscopically and post endoscopically to predict risk of rebleeding and mortality in DMCH medicine wards from April, 2013 to March 2014 . Patient with Chronic UGIH, coagulation disorder, sepsis and patients who did not give consent were excluded from the study. The results of present study are as follows.

# Table I: Distribution of the study patients by socio characteristics (n=100)

| Socio Characteristics | No. of Patient | Percentage |
|---|---|---|
| Age (in year) | | |
| ≤20 | 6 | 6.0 |
| 21-30 | 14 | 14.0 |
| 31-40 | 20 | 20.0 |
| 41-50 | 31 | 31.0 |
| 51-60 | 16 | 16.0 |
| 61-70 | 8 | 8.0 |
| 71-80 | 4 | 4.0 |
| >80 | 1 | 1.0 |
| Mean ± SD | 45.12±14.9 | |
| Range (min-max) | (18-82.0) | |

# Table I cont'd

| Socio Characteristics | No. of Patient | Percentage |
|---|---|---|
| Sex | | |
| Male | 80 | 80.0 |
| Female | 20 | 20.0 |
| Occupation | | |
| Service | 26 | 26.0 |
| Business | 19 | 19.0 |
| Labour | 6 | 6.0 |
| Cultivator | 14 | 14.0 |
| House Wife | 18 | 18.0 |
| Retired | 9 | 9.0 |
| Others | 8 | 8.0 |

# Table I cont'd

| Socio Characteristics | No. of Patient | Percentage |
|---|---|---|
| Marital status | | |
| Married | 91 | 91.0 |
| Unmarred | 9 | 9.0 |
| Education status | | |
| Illiterate | 25 | 25.0 |
| Primary | 48 | 48.0 |
| Secondary | 23 | 23.0 |
| Graduate | 4 | 4.0 |

# Table I cont'd

| Socio Characteristics | No. of Patient | Percentage |
|---|---|---|
| Income | | |
| Low | 50 | 50.0 |
| Middle | 36 | 36.0 |
| High | 14 | 14.0 |

# Table II: Distribution by presentation (n=100)

| Presentation | Number of patients | Percentage |
|---|---|---|
| Haematemesis/Melaena | | |
| Haematemesis | 18 | 18.0 |
| Melaena | 21 | 21.0 |
| Both Haematemesis and Melaena | 61 | 61.0 |
| Hospital arrival Duration | | |
| <24 Hour | 72 | 72.0 |
| >24 Hour | 28 | 28.0 |

# Table III: Distribution by comorbidity (n=100)

| | Number of patients | Percentage | 95% CI | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Hepatic Encephalopathy | 4 | 4.0 | 0 | 8.4 |
| Chronic Liver disease | 2 | 2.0 | 0 | 5.2 |
| Hepato cellular carcinoma | 2 | 2.0 | 0 | 5.2 |
| Gall stone | 1 | 1.0 | 0 | 3.3 |
| Gastric Carcinoma (Ca) | 1 | 1.0 | 0 | 3.3 |
| Gastric Ca with Metastasis | 3 | 3.0 | 0 | 6.9 |
| Gastrojejunostomy | 1 | 1.0 | 0 | 3.3 |
| Diabetes Mellitus(DM) | 8 | 8.0 | 1.86 | 14.1 |

# Table III cont'd

| | | | | |
|---|---|---|---|---|
| DM with coma | 1 | 1.0 | 0 | 3.3 |
| DM+DKA+Hypertension(HTN) | 1 | 1.0 | 0 | 3.3 |
| DM+Arthritis | 1 | 1.0 | 0 | 3.3 |
| DM+HTN | 1 | 1.0 | 0 | 3.3 |
| DM+HTN+Chronic Kidney Disease | 1 | 1.0 | 0 | 3.3 |
| HTN | 3 | 3.0 | 0 | 6.9 |
| HTN+Myocardial infarction(MI) | 1 | 1.0 | 0 | 3.3 |
| Pneumonia | 1 | 1.0 | 0 | 3.3 |
| COPD* | 1 | 1.0 | 0 | 3.3 |
| COPD+IHD** | 1 | 1.0 | 0 | 3.3 |
| Br.Ca+RA+Abdominal perforation | 1 | 1.0 | 0 | 3.3 |

# Table III cont'd

| | | | | |
|---|---|---|---|---|
| Rheumatoid arthritis(RA) | 1 | 1.0 | 0 | 3.3 |
| RA+Acute liver failure(ALF) | 1 | 1.0 | 0 | 3.3 |
| Arthritis+HTN | 1 | 1.0 | 0 | 3.3 |
| Connective Tissue Disease | 2 | 2.0 | 0 | 5.2 |
| Arthritis+Renal Failure | 1 | 1.0 | 0 | 3.3 |
| Arsenicosis | 1 | 1.0 | 0 | 3.3 |
| No Comorbidity | 58 | 58.0 | 48.14 | 65.9 |

COPD* - Chronic obstructive pulmonary disease, IHD** - Ischaemic heart disease.

# Table IV: Distribution by Drug intake, Tobacco and Alcohol consumption (n=100)

| | Number of patients | Percentage | 95%CI | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Drug history | | | | |
| NSAID intake | 13 | 13.0 | 6.0 | 20.0 |
| No drug history | 87 | 87.0 | 80.0 | 94.0 |
| Tobacco | | | | |
| Smoker | 19 | 19.0 | 10.12 | 27.9 |
| Ex smoker | 23 | 23.0 | 15.47 | 30.5 |
| Tobacco leaf chewing | 2 | 2.0 | 0 | 5.2 |
| No tobacco | 56 | 56.0 | 44.77 | 67.2 |

# Table IV cont'd

| Alcohol | Number of patients | Percentage | 95%CI | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Alcoholic | 4 | 4.0 | 0 | 8.4 |
| Ex alcoholic | 2 | 2.0 | 0 | 5.2 |
| Non alcoholic | 94 | 94.0 | 88.63 | 99.4 |

# Table V: Distribution of the study patients by CLD features (n=100)

| CLD features | Number of patients | Percentage | 95%CI | |
|---|---|---|---|---|
| | | | Lower | Upper |
| General stigmata | 3 | 3.0 | 0 | 7.0 |
| Ascites | 7 | 7.0 | 2.0 | 12.0 |
| Ascites+splenomegaly | 2 | 2.0 | 0 | 5.0 |
| Ascites+jaundice | 2 | 2.0 | 0 | 5.0 |
| Ascites+hepatomegaly | 1 | 1.0 | 0 | 3.0 |
| Hepatic encephalopathy | 2 | 2.0 | 0 | 5.0 |
| HE*+Splenomegaly | 1 | 1.0 | 0 | 3.0 |
| HE+hepatosplenomegaly | 2 | 2.0 | 0 | 5.0 |

# Table V cont'd

| | | | | |
|---|---|---|---|---|
| Hepatomegaly | 2 | 2.0 | 0 | 5.0 |
| Splenomegaly | 8 | 8.0 | 3 | 14.0 |
| Hepatoslenomegaly | 2 | 2.0 | 0 | 5.0 |
| Hepatosplenomegaly +jaundice | 1 | 1.0 | 0 | 3.0 |
| Jaundice | 1 | 1.0 | 0 | 4.0 |
| No CLD feature | 66 | 66.0 | 57.0 | 78.0 |

HE* - Hepatic Encephalopathy.

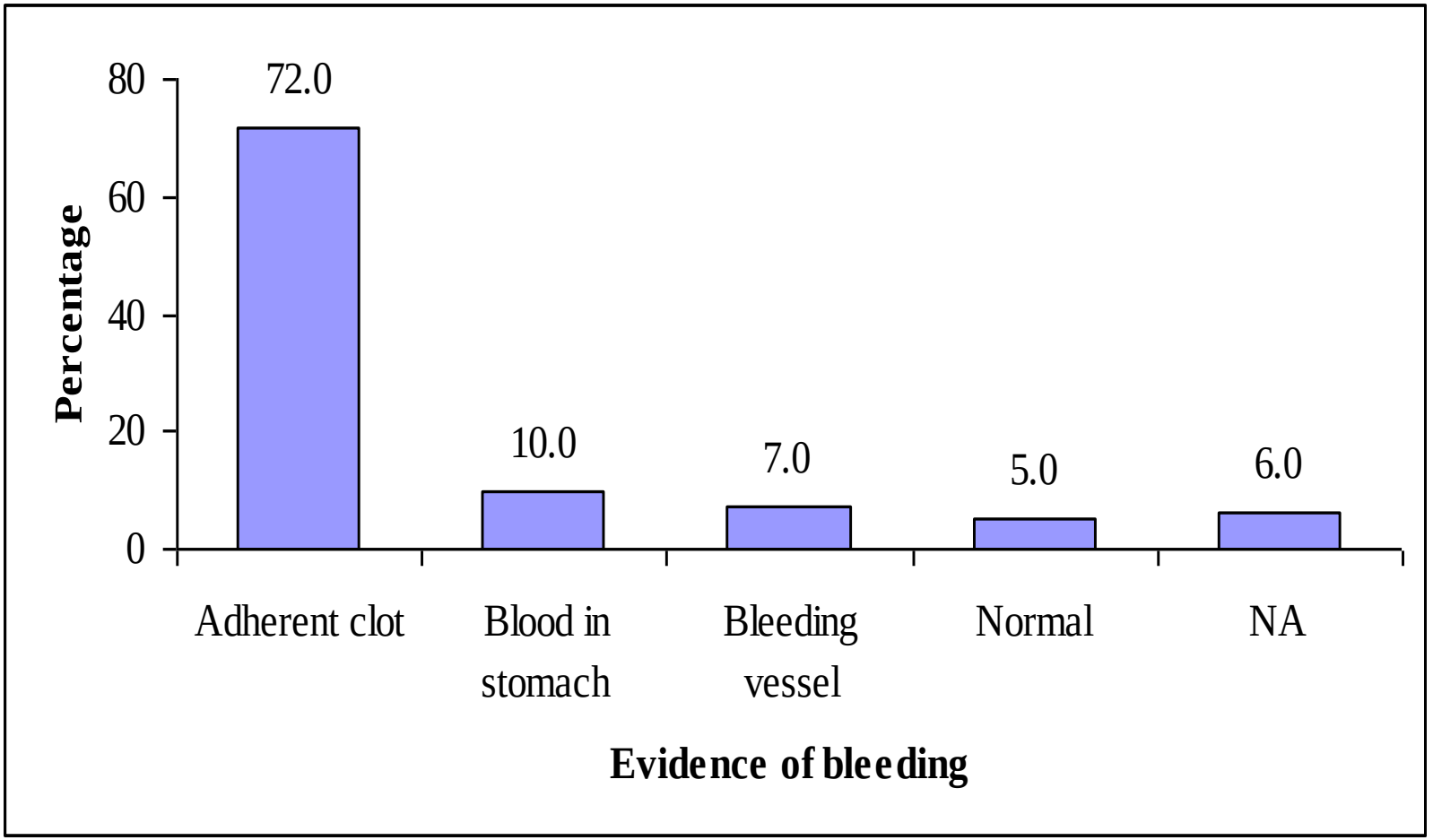
# Table VI: Distribution by endoscopic findings (n=100)

| Endoscopic findings | Number of patients | Percentage | 95%CI | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Oesophageal varix | 25 | 25.0 | 17.0 | 34.0 |
| Oesophageal Ulcer | 2 | 2.0 | 0 | 5.0 |
| Oesophageal+gastric varix | 17 | 17.0 | 10.0 | 25.0 |
| Oesophageal varix+DU* | 4 | 4.0 | 0 | 8.0 |
| Gastric Ulcer (GU) | 12 | 12.0 | 6.0 | 18.0 |
| Gastric carcinoma | 6 | 6.0 | 2.0 | 11.0 |
| Gastric erosion | 7 | 7.0 | 2.0 | 12.0 |
| Duodenal Ulcer (DU) | 14 | 14.0 | 8.0 | 21.0 |
| Duodenal polyp | 1 | 1.0 | 0 | 4.0 |
| Normal | 6 | 6.0 | 2.0 | 11.0 |
| No endoscopy done | 6 | 6.0 | 2.0 | 11.0 |

# Table VI cont'd

- Oesophageal pathology is found in 48% cases.
- Gastric pathology involved 42% cases.
- Duodenal pathology involved 15.0%.
- No pathology is found in 6.0% cases which indicate obscure acute upper GI bleeding.
- Endoscopy could not be done in 6.0% cases.

**Figure 1: Bar diagram showing evidence of bleeding of the study patients**



# Table VII: Distribution by pre endoscopic (n=100) and post Endoscopic Rockall Score (n=94).

| Pre Endoscopic Rockall score | Number of patients | Percentage | 95%CI | |
|---|---|---|---|---|
| | | | Lower | Upper |
| 0 | 15 | 15.0 | 8.0 | 22.0 |
| 1 | 19 | 19.0 | 12.0 | 27.0 |
| 2 | 41 | 41.0 | 31.0 | 51.0 |
| 3 | 14 | 14.0 | 8.0 | 21.0 |
| 4 | 9 | 9.0 | 4.0 | 15.0 |
| 5 | 1 | 1.0 | 0 | 3.0 |
| 6 | 1 | 1.0 | 0 | 4.0 |
| Mean ± SD | 1.9±1.2 | | | |
| Range (min-max) | 0- 6.0 | | | |
| | | | | |

# Table VIIcont'd

| Post Endoscopic Rockall Score | Number of patients | Percentage | 95%CI | |
|---|---|---|---|---|
| | | | Lower | Upper |
| 1 | 3 | 3.0 | 0 | 7.0 |
| 2 | 6 | 6.0 | 2.0 | 11.0 |
| 3 | 11 | 11.0 | 7.0 | 20.0 |
| 4 | 24 | 24.0 | 19.0 | 36.0 |
| 5 | 30 | 30.0 | 21.0 | 40.0 |
| 6 | 13 | 13.0 | 7.0 | 20.0 |
| 7 | 6 | 6.0 | 2.0 | 11.0 |
| 9 | 1 | 1.0 | 0 | 3.0 |
| Not done | 6 | 6.0 | 2.0 | 11.0 |
| Mean ± SD | 4.8 | 3±1.93 | | |
| Range (min-max) | 1 | -9.0 | | |

# Table VIII: Distribution by re-bleeding and outcome (n=100)

| Re-bleeding | Number of patients | Percentage | 95%CI | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Present | 89 | 89.0 | 83.0 | 95.0 |
| No | 11 | 11.0 | 5.0 | 17.0 |
| Outcome | | | | |
| Discharge | 89 | 89.0 | 83.0 | 94.0 |
| Referred | 6 | 6.0 | 2.0 | 11.0 |
| Expired | 5 | 5.0 | 1.0 | 10.0 |

It was observed that re-bleeding occurred in 89(89.0%) cases, discharge could be done in 89(89.0%) cases, and patient was referred to corresponding centre for treatment of malignancy in 6 (6.0%) case and 5 (5.0%) patient died in hospital.

# Table IX: Outcome of patients in relation to Presentation, Rebleeding, Pre and Post Endoscopic Rockall Score and (n=100).

| Presentation | Outcome | | |
|---|---|---|---|
| | Discharge | Referred | Expired |
| Haematemesis | 17 | 1 | 0 |
| Melaena | 19 | 1 | 1 |
| Both Haematemesis and Melaena | 53 | 4 | 4 |
| Rebleeding | | | |
| Rebled | 78 | 6 | 5 |
| No Rebleeding | 11 | 0 | 0 |

# Table IX cont'd

| Pre Endoscopic Rockall Score | Discharge | Referred | Expired |
|---|---|---|---|
| 0 | 14 | 1 | 0 |
| 1 | 19 | 0 | 0 |
| 2 | 37 | 2 | 2 |
| 3 | 13 | 1 | 0 |
| 4 | 9 | 0 | 0 |
| 5 | 0 | 1 | 0 |
| 6 | 0 | 1 | 0 |

# Table IX cont'd

| Post Endoscopic Rockall score | Discharge | Referred | Expired |
|---|---|---|---|
| 1 | 3 | 0 | 0 |
| 2 | 6 | 0 | 0 |
| 3 | 11 | 0 | 0 |
| 4 | 23 | 1 | 0 |
| 5 | 28 | 0 | 2 |
| 6 | 10 | 2 | 1 |
| 7 | 5 | 1 | 0 |
| 9 | 0 | 1 | 0 |
| Endoscopy not done | 3 | 1 | 2 |

# Table X: Distribution by duration of hospital stay (n=100)

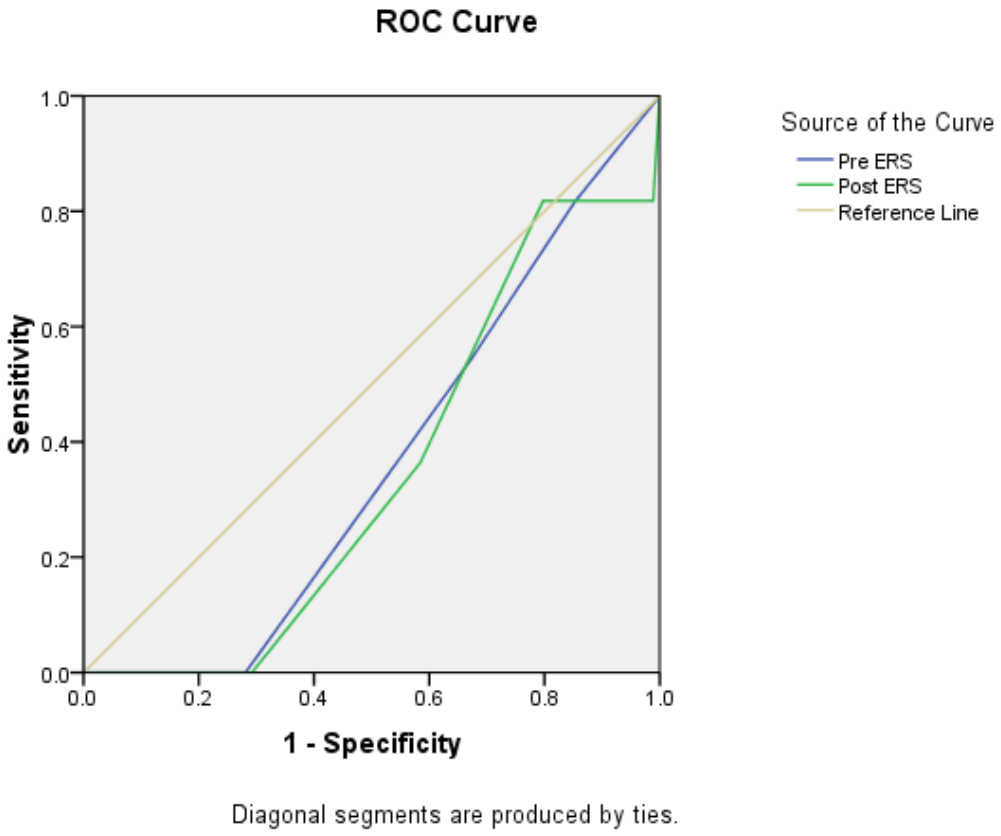
| Hospital stay (in days) | Number of patients | Percentage |
|---|---|---|
| 1-3 days | 26 | 26.0 |
| 4-7 days | 50 | 50.0 |
| >7 days | 24 | 24.0 |
| Mean ± SD | 6.36±4.5 | |
| Range (min-max) | (1-22.0) | |

It was observed that 50(50.0%) patients stayed in hospital between 4-7 days and their mean hospital stay was found 6.36±4.5 days.

**Receiver-operator characteristic (ROC) curve of pre endoscopic and post endoscopic Rockall score for prediction of re-bleeding.**

The area under the ROC curves for re-bleeding shows cut off value of ≥1.50, with 54.5% sensitivity and 32.6% specificity and post endoscopic cut off value of ≥3.50, with 81.8% sensitivity and 20.2% specificity.

**Figure 2: Showing receiver-operator characteristic (ROC) curve of pre and post endoscopic Rockall score for prediction of re-bleeding.**

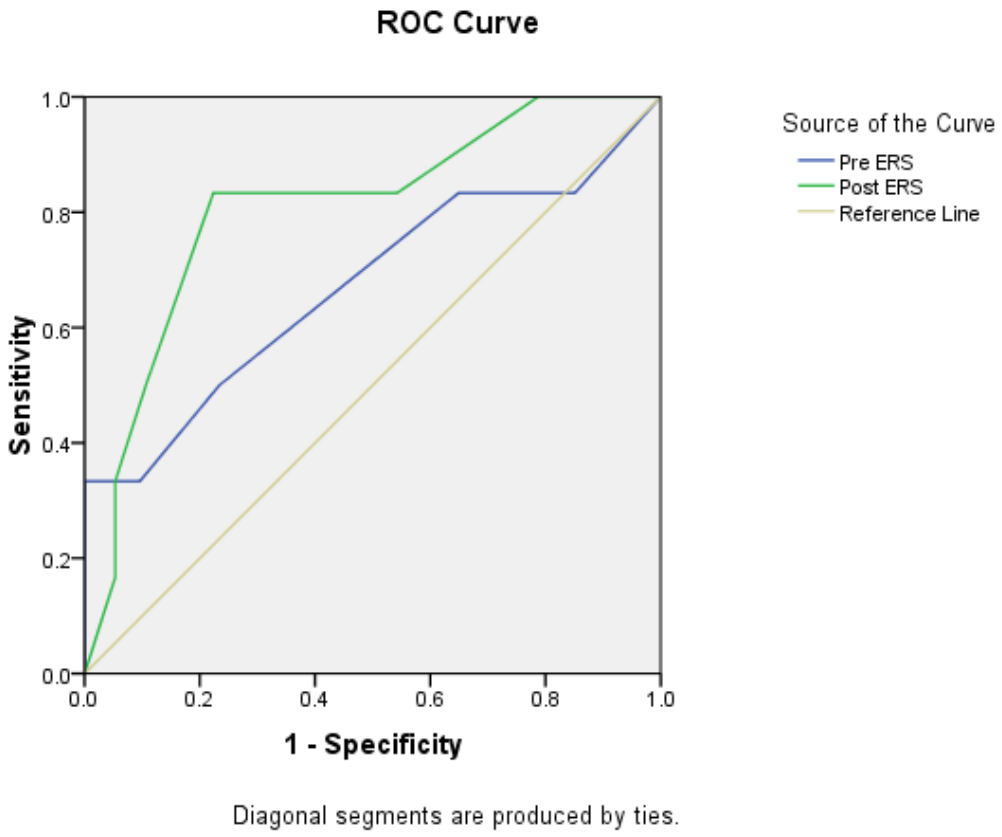


**Receiver-operator characteristic (ROC) curve for pre and post endoscopic Rockall score for prediction of mortality.**

The area under the ROC curves for the mortality shows Pre endoscopic Rockall score cut off value of ≥2.50, with 50.0% sensitivity and 76.6% specificity.

Post endoscopic Rockall score cut off value of ≥5.50, with 83.0% sensitivity and 78.7% specificity.

# Figure 3: Receiver-operator characteristic (ROC) curve of pre and post endoscopic Rockall score for prediction of mortality



# CONCLUSIONS

- Pre endoscopic Rockall score cut off value of ≥1.50 had shown highest sensitivity for identifying the re-bleeding than post endoscopic Rockall score value. Whereas post endoscopic Rockall score cut off value of ≥3.5 had best area under the curve for identifying the mortality.
- In this study we observed no death in 18% patients presented with haematemesis. The patients died had intimate relationship with melaena (1 of 5), mostly in combination with haematemesis (4 out of 5).

# Conclusion Cont'd

- In our study we observed rebleeding in 89% cases and all the 5 death were associated with rebleeding.
- We observed between 0-1 (< 2) pre endoscopic Rockall Score in 34% of cases and found no death with this score. In case of post endoscopic Rockall score, no death was observed < 5 Rockall score.

Thank you