ACCURACY OF HIGH ROCKALL SCORING SYSTEM IN PREDICTING EARLY REBLEED IN CIRRHOTIC PATIENTS PRESENTING WITH VARICEAL BLEED

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ABSTRACT

To determine the accuracy of high Rockall scoring system in predicting early rebleed in cirrhotic patients presenting with variceal bleed. Acute upper GI bleeding is the most common emergency dealt with by Gastroenterologist. It has an incidence ranging from approximately 50 to 150 per 100 000 of the population each year. Etiology of upper gastrointestinal bleeding can be variceal or non-variceal.

Study design: Descriptive case series.

Duration: The duration of study was six months after approval of synopsis.

Settings: Department of Gastroenterology and Hepatology Hayatabad Medical Complex Peshawar.

Results: In this study mean age was 30 years with SD $\pm$ 1.26. fifty five percent patients were male and 45% patients were female. Eighteen percent patients had Rockall score ranged from 0-3, 54% patients had Rockall score ranged from 4-7, 28% patients had Rockall score more than 7. Thirty five percent patients had Portal vein pressure ranged from 12-14, 33% patients had Portal vein pressure ranged from 15-17,32% patients had Portal vein pressure more than 17. Accuracy of High Rockall score among 140 patients was analyzed as 29% patients with high rockall score had early re bleeding while 71% patients with low Rockall score didn't had early re bleed.

Conclusion: Rockall score is feasible, accurate, effective system for predicting outcome in patients with upper GI bleeding. The risk factor for mortality are Rockall score >3, age >70 and rebleeding.

Key Words: Mortality, morbidity, upper GIT bleeding, Rockall score.

INTRODUCTION

Cirrhosis is a diffuse process of fibrosis and nodule formation on liver biopsy.[1] Liver cirrhosis is a disease with a high rate of prevalence and one of the most common causes of mortality.[2] Variceal bleed, ascites, hepatic encephalopathy etc are all features of decompensated cirrhosis and is associated with a 50% survival at 18 months as compared to survival of 50% at 10 years in compensated cirrhosis.[3] Portal hypertension is a major complication of cirrhosis. Gastro esophageal variceal bleeding accounts for 15 to 35% of all cases of bleeding from upper gastrointestinal tract.[4] Variceal hemorrhage occurs in 25 to 30% of the patients with cirrhosis and accounts for 80 to 90% of bleeding episodes in these patients.[5] Although gastric variceal bleeding occurs less frequently than esophageal varix bleeding.[6]

Gastroesophageal varices are present in almost half of patients with cirrhosis at the time of diagnosis,.[7] Variceal hemorrhage occurs at a yearly rate of 5%-

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15%, it is associated with a mortality of at least 20% at 6 weeks. Patients with an HVPG _20 mmHg have been identified as being at a higher risk for early rebleeding or failure to control bleeding (83% vs. 29%) compared to those with lower pressure. Late rebleeding occurs in approximately 60% of untreated patients.[8] Currently, OGD is the standard investigation of choice for UGIB.[9] Any bleeding occurring after initial treatment and more than 5 days from time zero but less than six weeks is considered to represent early rebleeding, and late rebleed is bleeding after 6 weeks.[10]

The Rockall risk scoring system is used for prediction of clinical and endoscopic parameters of upper gastrointestinal bleeding. The Rockall risk scoring system was developed to predict mortality as well as to predict rebleeding. It includes the following variables: patient's age, presence /absence of shock (TA, pulse) coexisting illness (Cardiac failure, ischemic heart disease, renal failure, liver failure, malignancy of upper GI tract, other and disseminated malignancy) Endoscopic classification of bleeding.[11] Rockall scoring system has good predictive and discriminative value for in-hospital rebleeding in patients with variceal bleeding due to cirrhosis.[12] The Rockall score enables the clinician to categorize the patient into high and low risk for rebleeding.[13] Post endoscopic Rockall score can be used as a predictor of outcome such as rebleed for mixed UGIB groups.[14] In one of the study, the rockall score of 7 or

more was considered as cutoff value for rebleeding to occur in 23% of patients.[15] In another study, rebleed occur in 44% of patients with cutoff rockall score of 7.[16]

This study is carried out to determine the accuracy of rockall scoring system in terms of early rebleed in cirrhotic patients presenting with variceal bleed so that we can categorize the patients in high risk and low risk in terms of early rebleed. The results of this study will be compared with already available international data as the literature suggested variable frequency of rebleed of patients having different rockall scores, on the basis of results we can draw conclusion and recommendations for future research work into it and also the same results will be shared with other health professionals and guidelines and suggestions will be given for required changes in routine management of patients of variceal bleed. This will help our already compromised population with liver cirrhosis in reducing the burden of morbidity related to it.

METHODS AND MATERIAL

Study Setting: Department of gastroenterology, Hayatabad Medical Complex, Peshawar.
Study Design: Cross Sectional Study.
Duration of Study: Six months
Sample Size: Sample size was 140, keeping 23%[15] proportion of high Rockall scoring system in predicting early rebleed, 95% confidence interval and 7% margin of error under WHO sample size calculations.
Sampling Technique: Non probability consecutive sampling.

SAMPLE COLLECTION

Inclusion Criteria:
*   All patients who are aged 13 years or above of either gender.
*   Patients have cirrhosis manifesting as acute variceal bleed on basis of Baveno V[10] was included.
*   Patients with Rockall scoring of 7 or above.

Exclusion Criteria

1. Upper GI bleed due to other causes like peptic ulceration.
2. History of bleeding disorders or intake of anticoagulation drugs.

The above mentioned conditions act as confounders and if included will introduce bias in the study results.

RESULTS

This study was conducted at gastroenterology Department Hayatabad Medical Complex Peshawar in which a total of 140 patients were observed to determine the accuracy of high Rockall scoring system in predicting early rebleed in cirrhotic patients presenting with variceal bleed and the results were analyzed as:

Age distribution among 140 patients was analyzed as 3(2%) patients were in age range 20-30 years, 25(18%) patients were in age range 31-40 years, 50(36%) patients were in age range 41-50 years, 53(38%) patients were in age range 51-60 years, 9(6%)

patients were above 60 years. Mean age was 30 years with SD $\pm$ 1.26 (as shown in Table No 1) Gender distribution among 140 patients was analyzed as 77(55%) patients were male and 63(45%) patients were female. (as shown in Table No 2)

Status of Rockall Scoring among 140 patients was analyzed as 25(18%) patients had Rockall score ranged from 0-3, 76(54%) patients had Rockall score ranged from 4-7, 39(28%) patients had rockall score more than 7. Mean Rockall score was 4 with SD $\pm$ 3.13 (as shown in Table No 3) Status of portal vein pressure among 140 patients was analyzed as 49(35%) patients had Portal vein pressure ranged from 12-14, 46(33%) patients had Portal vein pressure ranged from 15-17, 45(32%) patients had Partial vain pressure more than 17. Mean Partial vain pressure was 16 with SD $\pm$ 2.74 (as shown in Table No 4)

Status of early re bleeding among 140 patients was analyzed as 41(29%) patients had early re bleeding while 99(71%) patients didn't had early re bleed. (as shown in Table No 5) Accuracy of High Rockall score among 140 patients was analyzed as 41(29%) patients with high Rockall score had early re bleeding while 99(71%) patients with low Rockall score didn't had early re bleed. (as shown in Table No 6)

Table No 1. Age Distribution (n=140)

Age distribution	Frequency	Percentage
20-30 years	3	2%
31-40 year	25	18%
41-50 years	50	36%
51-60 years	53	38%
> 60 years	9	6%
Total	140	100%

Mean age was 30 years with SD $\pm$ 1.26

Table No 2. Gender Distribution (n=140)

Gender distribution	Frequency	Percentage
Male	77	55%
Female	63	45%
Total	140	100%

Table No 3. Rockall Scoring System (n=140)

Rockall Scoring System	Frequency	Percentage
0-3	25	18%
4-7	76	54%
> 7	39	28%
Total	140	100%

Mean rockall score was 4 with SD $\pm$ 3.13

Stratification of accuracy (of High Rockall score) with age distribution was analyzed as in 41cases of positive accuracy of high Rockall score with early re bleeding, one patient was in age range 20-30 years, 10 patients were in age range 31-40 years, 14 patients were in age range 41-50 years, 14 patients were in age range 51-60 years and 2 patients were more than 60 years. (as shown in Table No 7) Stratification of accuracy (of High Rockall score) with gender distribution was analyzed as

Table No 4. Portal Vein Pressure (n=140)

Portal Vein Pressure	Frequency	Percentage
12-14	49	35%
15-17	46	33%
> 17	45	32%
Total	140	100%

Mean Portal vein pressure was 16 with SD ± 2.74

Table No 5. Early Re Bleed (n=140)

Early re bleed	Frequency	Percentage
Yes	41	29%
No	99	71%
Total	140	100%

Table No 6. Accuracy High Rockall Scoring System (n=140)

Accuracy	Frequency	Percentage
Yes	41	29%
No	99	71%
Total	140	100%

in 41cases of positive accuracy of high Rockall score with early re bleeding, 23 patients were male and 18 patients were female. (as shown in Table No 8)

DISCUSSION

Acute upper gastrointestinal bleeding is one of the most common emergency dealt with by Gastroenterologist It has an incidence ranging from approximately 50 to 150 per 100 000 of the population each year. Rates of morbidity and mortality are 10% to 12 % and 8% to 10%, respectively, and these have remained fairly constant during the past 40 years.[4] The epidemiology of various causes of upper GI bleeding has been changing in recent years. Variation in disease pattern from time to time requires the need for periodic studies to define the changing etiological distribution for continuous medical education and learning[17].

Our study showed that the most common finding in patients with upper GI bleeding is esophageal varices (53.4%) followed by peptic ulcer (30.9%) and gastric erosions (6%). Other less common causes include gastric varices, gastric neoplasm, Mallory Weiss tear, gastric vascular anomalies, Cameron ulcer, esophagitis and Dieulafoy's lesion. Regarding the etiology of acute upper GI bleeding, our study has been in concordance with the prior studies conducted on the national level; however, differences do exist when comparison is made with the international data, particularly the studies carried out in the West[18].

Ahmad et al[19] reported that esophageal varices (44%) accounted for the majority of the lesions causing upper GI bleeding followed by peptic ulcer (19.7%), esophagitis, gastric neoplasm, gastric erosions (4.9%) and gastric varices. Ahmad et al[19] drawn in their study that esophageal varices (46%) is the most common

Table No 7.Stratification of Accuracy High Rockall Scoring System in Age Distribution (n=140)

Accuracy	20-30 years	31-40 years	41-50 years	51-60 years	> 60 years	Total
Yes	1	10	14	14	2	41
No	2	15	36	39	7	99
Total	3	25	50	53	9	140

Table No 8. Stratification of accuracy high rockall scoring system in gender distribution (n=140)

Accuracy	Male	Female	Total
Yes	23	18	41
No	54	45	99
Total	77	63	140

Table No 9. stratification of accuracy high rockall scoring system in portal vein pressure (n=140)

Accuracy	12-14	15-17	> 17	Total
Yes	14	14	13	41
No	35	32	32	99
Total	49	46	45	140

cause of upper GI bleeding followed by peptic ulcer(30%) and gastric erosions (19%), gastric carcinoma and Mallory Weiss tear are among the less common causes. Similarly Rockall TA[20] et al showed in their study that esophageal varices (39%) were the most frequent cause of upper GI bleed followed by peptic ulcer (28%) and superficial mucosal lesion (21%). Tham TCK et al [21] concluded in their study that variceal bleed (45.7%) is the most common cause of upper GI bleeding followed by peptic ulcer (31.4%), gastroesophageal reflux disease, carcinoma of the stomach and Mallory Weiss tear. Our study is also in accordance with studies performed in Nigeria and African region which also reported esophageal varices (45.5%) as the commonest cause of upper GI bleeding followed by erosive mucosal disease (23.7%), peptic ulcer (16.9%), gastric cancer and Mallory Weise tear [22,23].

In this study the mean age was 30 years which is similar what was reported before in Sudan[24] This is also comparable to that reported in North Ireland where mean age was reported to be 44 years[25] In our study, the upper GI bleeding was found to be common in males which similar to the study reported earlier from Sudan.[24] This is most likely explained as by prevalence of oesophageal varices in farmers which are mainly male jobs.

The main cause of acute upper GI bleeding in this study is oesophagealvarices; in contrast to the fact that peptic ulcer was the main cause of bleeding in a study done in Germany and USA. and that is because of bilharzia is an endemic disease in Sudan. Other studies show high association with co-morbid diseases in 24.4%. it has also been reported before.[18] reaching 22.2%-26.7%. 17.2% of the patients were unstable and 44.1% were haemodynamically stable with lower normal BP at presentation making a total number of 61.3% patients in shock or impending shock. Major stigmata of recent haemorrhage were seen in 47.9% patients, while in a study done in Canada.[17] found it 31% and that may indicate late referral of Sudanese patients. Rebleeding after endoscopy was seen in 7.6% patients of the study population which is similar to a study done in Italy.[23] that showed rebleeding rate 5.35%.

The mortality rate in this study was 3.8% which is similar to a study done in USA.[25] where mortality was reported as 2.1%, while in previous study done in Sudan.[26] reported the mortality as 26.7%. This is probably due to improvement in the facilities of the Bleeding Centre with enough blood and blood products in the blood bank, use of somatostatin analogue for patients with bleeding varices and Injectable PPIs for patients with bleeding ulcers, and the early intervention to stop bleeding.

Antibiotic prophylaxis during acute bleeding episodes in patients with cirrhosis has resulted in significant decreases in mortality rates, but did not become standard protocol until recent years.[26] However, in our study it seems the impact of bleeding over-ride the benefits of prophylactic antibiotics. However, the use of prophylactic antibiotics in bleeding patients with end stage liver disease in Sudan needs further study.

The mean Rockall Score in this study 4 is similar to a study done in UK.[27] in which the mean Rockall score was 4. Most dead patients in our study were Child class C which is similar to a recent study done in North America.[27] that proved the association of the increased mortality with the increased Child score. In our study rebleeding was associated with increased mortality which is similar to a study reported in Germany. [27]

In our study we found the distribution of mortality according to the age group; that in those less than 60 years the mortality is seven (3.7%) out of 190 patients in contrast to those more than 80 years the mortality is two out of two, i.e. 100%. So the mortality increased proportionally with age as concluded in a study from UK.

In another study, these scoring systems have shown good predictability for survival in patients with variceal bleeding with Rockall score being the best. Sanders et al[24]. concluded that Rockall scoring system was a valid method of assessing outcome in all-cause upper GI bleeding. MELD is the score of choice for stratification of liver transplant candidates for allocation of donor liver. It is superior to CTP score due to its objective variables which are statistically validated.

Contrary to this, we have found CTP score to have better c-statistics (0.801 vs. 0.688) for mortality than MELD. This difference might be due to different behavior of liver disease in our population with regard to etiology, age group and complications. Ascites and encephalopathy, both major complications in our patients, are in CTP score but not in MELD score and are associated with adverse outcome in our patients. Both scoring systems have not shown predictability for rebleeding as compared to Rockall score which had excellent c-statistics (0.803).[20] Our study establishes the status of Rockall scoring system as best for predicting mortality and in-hospital rebleeding in variceal bleeding. MELD and CTP scores can be used for survival prediction of bleeding patients but not for assessing chances of rebleeding.

CONCLUSION

The mean Rockall Score in this study is 4. Rebleeding after endoscopy is seen in 29%. Rebleeding is associated with increased mortality. Most of the mortality in this study was Child class C. Mortality increased proportionately with age. Therefore Rockall score is an effective tool for outcome prediction in patients with acute upper GI bleeding.

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