Predictors of Early Variceal Rebleeding after Endoscopic Therapy in Cirrhotic Patients

Original Article

Mennat-Allah Mohamed El Sawaf, Madonna Magdy Fahmy, Saber Abd Elrahman Ismail, Sahar Abdel Tawab EL Yamani, Lobna Ahmed Abo Ali and Boshra Elsayed Talha

Department of Tropical Medicine and Infectious Disease, Faculty of Medicine, Tanta University, Tanta

ABSTRACT

Background: The management of cirrhotic patients experiencing variceal bleeding focuses on controlling the hemorrhage and preventing early rebleeding and mortality. Local risk factors, such as an HVPG above 12 mmHg, the size of the varices, and the presence of warning signs during endoscopy, are key predictors for early variceal rebleeding.
Aim: The work aimed predict risk factors for early variceal rebleeding after endoscopic therapy.
Methods: In this prospective study, 184 patients were enrolled from the endoscopy unit at Tanta University Hospital's Tropical Medicine and Infectious Diseases Department in Egypt. The study's duration was 5 months, encompassing both recruitment and follow-up.
Results: The results of the multivariate logistic regression analysis indicated that a Child-Pugh score of ≥10, MELD score ≥16, presence of fundal varices, serum creatinine and INR were independent predictors for 5-days rebleeding.
Conclusions: Child-Pugh score, MELD score, serum creatinine, INR and fundal varices are independent risk factors for 5-day rebleeding.

Key Words: Cirrhotic patients, endoscopic therapy, esophageal varices, variceal rebleeding.

Received: 28 March 2025, **Accepted:** 30 May 2025.

Corresponding Author: Mennat-Allah Mohamed El Sawaf, Tropical Medicine and Infectious Disease Department, Faculty of Medicine, Tanta University, Tanta, Egypt. **Tel.:** +201225548976, **E-mail**: mennaelsawaf.me@gmail.com

ISSN: 2735-3540, Vol. 76, No. 3, Sep. 2025.

INTRODUCTION

When liver cirrhosis is first diagnosed, 30% of patients present with varices, a figure that increases to 90% after 10 years. The 1-year risk of initial variceal bleeding is 5% for small varices in patients who have higher-than-average portal pressure despite having small varices. May be at early stages of decompensation. Have other risk factors like red wale signs (red streaks seen on endoscopy indicating increased risk of bleeding), liver failure progression, or concurrent infections increasing portal pressure acutely and 15% for large ones [1].

Variceal bleeding occurs in patients with HVPG greater than 12 mmHg, where the elevated portal pressure results in increased blood flow through the varices and higher intra-variceal pressure. An HVPG above 20 mmHg is associated with a higher risk of failed hemostasis and mortality. Reducing HVPG by more than 20% from the baseline is beneficial in lowering the risks of portal hypertension complications such as bleeding, ascites, encephalopathy, and death [2].

Small varices (<5mm) with risky signs such as red wheels have high risk for bleeding. Larger varices (>5mm), along with factors such as variceal size and wall tension (radius and thickness), have a greater likelihood of bleeding due to the increased wall tension. The 'red wale sign' (dilated capillaries on the variceal wall) is also indicative of a higher bleeding risk [3]. Additionally, the presence of active bleeding or a white nipple sign during endoscopy are strong predictors of early rebleeding [4].

Mechanism of bleeding in small varices occurred as follow: Increased Portal Pressure: The primary driver is elevated hepatic venous pressure gradient (HVPG). When HVPG exceeds 12 mmHg, even small varices can rupture, wall tension and fragility: Though small, the variceal walls are thin and fragile. If there's a sudden increase in portal pressure or if the mucosa overlying the varix erodes, rupture can occur, cirrhotic patients often have impaired coagulation and thrombocytopenia, which reduces the ability to stop minor bleeds and increases the risk of spontaneous bleeding, local Inflammation or erosion: inflammation, mechanical irritation, or local ulceration over a varix can weaken the mucosa and trigger bleeding.

DOI: 10.21608/ASMJ.2025.371942.1425

AIM TO THE WORK

The work aimed to predict risk factors for early variceal rebleeding after endoscopic therapy in cirrhotic patients.

METHODS

This prospective study was carried out on 184 patients aged ≥18 years old, with acute variceal bleeding and cirrhosis of Liver enrolled from the endoscopy unit of the Tropical Medicine and Infectious Diseases Department at Tanta University Hospital, Egypt. The study lasted for five months, covering both patient recruitment and follow-up.

ETHICAL APPROVAL

The study was done after approval from the Ethical Committee Tanta University Hospitals, Tanta, Egypt (Approval No: 36264PR969 / 11 / 24). An informed written consent was obtained from the patients.

Exclusion criteria were initial failure to manage variceal bleeding during endoscopy, other potential causes of gastrointestinal tract bleeding, hepatocellular carcinoma (liver cancer), thrombosis within the portal vein, hepatorenal syndrome associated with dialysis treatment, ischemic heart disease, pregnancy or lactation state and sensitivity or allergy to octreotide.

All patients were subjected to complete history taking, physical examination and laboratory investigations [Complete blood count (CBC), serum and total bilirubin, aspartate aminotransferase (AST), alanine transaminase (ALT), international normalised ratio (INR), serum creatinine, blood urea nitrogen (BUN) and urea], radiological investigations [Abdominal ultrasound and electrocardiogram (ECG)], evaluation with Modified Child-Pugh, MELD, and Glasgow-Blatchford scores for bleeding and upper gastrointestinal endoscopy to identify and manage variceal bleeding.

Follow-up

All patients stayed in the hospital for at least 5 days following the initial bleeding episode, with discharge occurring only if no other reasons for hospitalization were observed. At discharge, nonselective beta-blockers were started, provided there were no contraindications, and patients were advised to return to the hospital if they noticed any signs of melena or hematemesis.

Sample Size Calculation:

A total of 184 patients were estimated as the sample size, based on a prior study [5] that found a 5-day rebleeding rate of 8.3% in cirrhotic patients with esophageal varices who received endoscopic therapy and continuous octreotide infusion for 5 days. This estimate was made with a non-inferiority margin of 15%, 80% power, and a 5% significance level (2-sided).

Statistical analysis

The statistical data were expressed as mean ± SD, frequencies (number), and percentages where appropriate. The student's t-test was used to compare numerical variables between two groups if the data followed a normal distribution. For categorical data, the χ^2-test was used. Multivariate logistic regression was applied to identify independent predictors of 5-day rebleeding. ROC curve analysis was used to determine the cutoff values for predicting rebleeding. A *p-value* of ≤ 0.05 was considered statistically significant. All statistical procedures were performed using SPSS version 20 (IBM Corp, Armonk, NY).

RESULTS

Two hundred-Fifty-one patients were assessed for eligibility, 65 patients did not meet the criteria, and 2 patients refused to participate in the study, 7 lost follow up. The remaining 177 patients were into two groups: Group I (*n*=148): Non bleeders and Group II (*n*=29): Re-bleeders. (Figure 1)

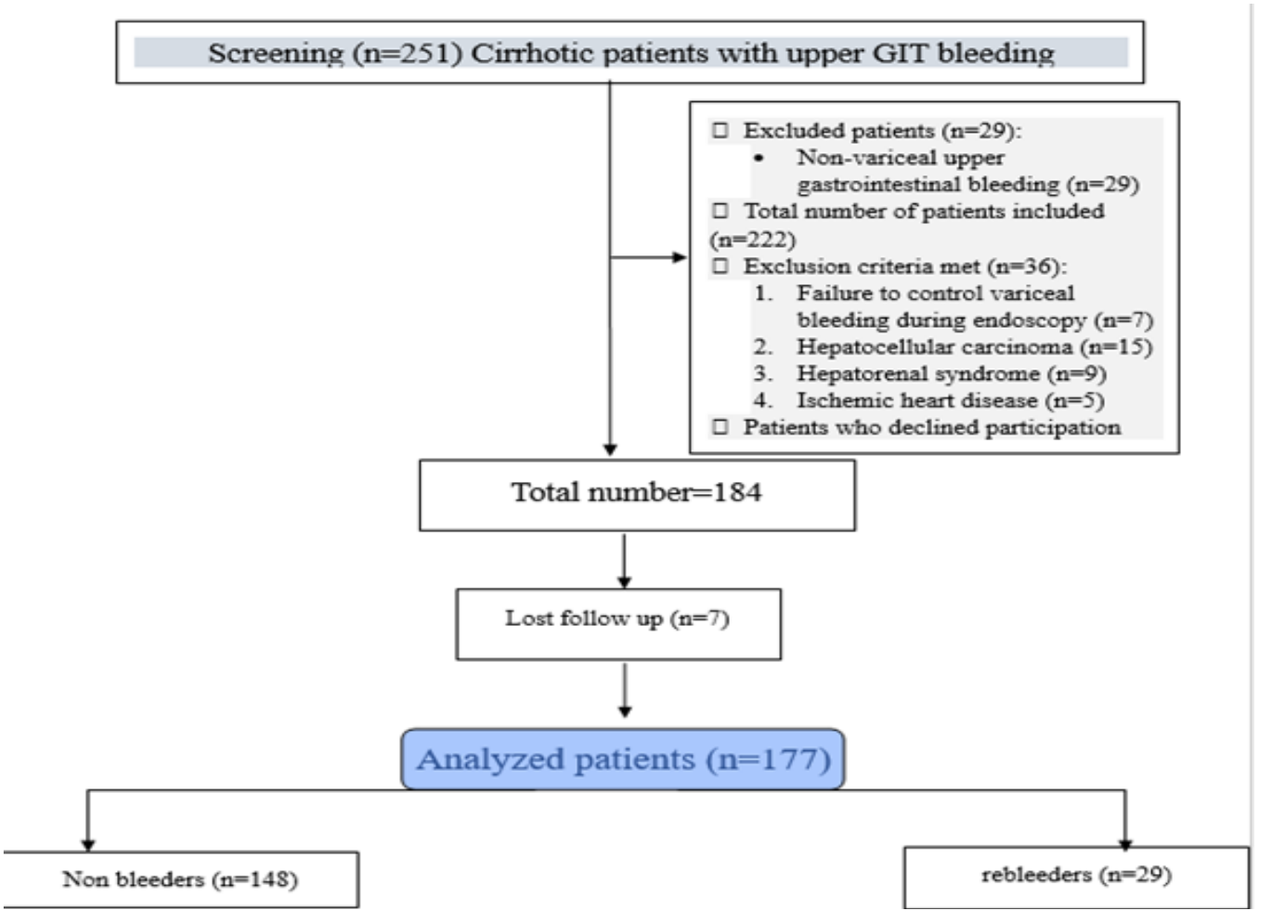


Fig. 1: Study flow chart.

Age, sex, previous upper GIT bleeding, esophageal varices, presence of risky esophageal varices and endoscopic therapy were insignificantly different between both groups. Diabetes, Past history of hepatic encephalopathy, Child-Pugh class, fundal varices, injection sclerotherapy, band ligation, stigma of GIT bleeding and beta blockers were significantly different between non-rebleeding and re- bleeding patients (P<0.05). (Table 1)

Table 1: Comparison of baseline data between 5-days rebleeding and non-rebleeding patients.

Parameters		Non-bleeders (*n*=148)	Re-bleeder (*n*=29)	X^2	*P*
Age (years)		59.547±7.442	60.345±7.138	t=-0.531	0.596
Sex	Female	51(34.46%)	10(34.48%)	0.000	0.998
	Male	97(65.54%)	19(65.52%)		
Diabetes		37(25.0%)	13(44.83%)	4.703	0.030*
Previous upper GIT bleeding		85(57.43%)	16(55.17%)	0.051	0.822
Past history of hepatic encephalopathy		53(35.81%)	18(62.07%)	6.960	0.008*
Child-Pugh class	Child A	24(16.22%)	1(3.45%)	28.102	<0.001*
	Child B	75(50.68%)	3(10.34%)		
	Child C	49(33.11%)	25(86.21%)		
Esophageal varices	Grade I	17(11.49%)	2(6.90%)	2.700	0.440
	Grade II	64(43.24%)	10(34.48%)		
	Grade III	58(39.19%)	16(55.17%)		
	Grade IV	9(6.08%)	1(3.45%)		
Presence of risky esophageal varices		91(61.49%)	21(72.41%)	1.246	0.264
Fundal varices	No fundal varices	101(68.24%)	7(24.14%)	59.003	<0.001*
	Fundal varices	38(25.68%)	4(13.79%)		
	Stomach full of blood	9(6.08%)	18(62.07%)		
Endoscopic therapy	Injection sclerotherapy	34(22.97%)	12(41.38%)	4.271	0.039*
	Band ligation	106(71.62%)	14(48.28%)	6.053	0.014*
	Scleroligation	8(5.41%)	3(10.34%)	1.015	0.314
Stigma of GIT bleeding	No	11(7.43%)	1(3.45%)	29.020	<0.001*
	Blood in GIT	106(71.62%)	16(55.17%)		
	Spurter	10(6.76%)	12(41.38%)		
	Dark spot	21(14.19%)	0(0.0%)		
Beta blockers	No	53(35.81%)	22(75.86%)	17.948	<0.001*
	Carvedilol	74(50.0%)	3(10.34%)		
	Propranolol	21(14.19%)	4(13.79%)		

Data are presented as mean ± SD or frequency (%); * Significant *p value* <0.05; t: student test; X^2= chi-square; GIT: gastrointestinal tract.

At baseline, the rebleeding patients had significantly higher MELD, Child-Pugh and Glasgow-Blatchford scores ($P \leq 0.001$). Serum bilirubin, serum creatinine and INR were significantly increased when compared with non-rebleeding patients ($P \leq 0.05$). There were significant decreases in hemoglobin level, platelet count and serum albumin in patients who rebled compared with non-re-bleeders ($P < 0.001$). (Table 2)

Table 2: Comparison of baseline laboratory data and patients scores between 5-days rebleeding and non-rebleeding patients.

	Non-bleeders (*n*=148)	Re-bleeder (*n*=29)	T	*P*
MELD score	14.608±5.412	20.724±6.035	-5.460	<0.001*
Child-Pugh score	8.730±2.049	11.276±1.750	-6.256	<0.001*
Glasgow-Blatchford score	9.818±2.802	11.690±3.001	-3.252	0.001*
Hb (g/dl)	9.249±1.422	8.076±1.348	4.098	<0.001*
WBCs (x10^3 /mm3)	6.213±2.936	7.276±4.904	-1.572	0.118
Platelets (x10^3 / mm3)	92.236±21.671	77.759±16.703	3.402	0.001*
Total bilirubin (mg/dl)	2.624±1.794	4.724±3.510	-4.782	<0.001*
Serum Albumin (g/dl)	2.689±0.353	2.359±0.272	4.758	<0.001*
AST IU/L (up to 37)	65.926±53.155	82.655±60.404	-1.515	0.132
ALT IU/L (up to 40)	41.378±38.358	58.207±59.931	-1.948	0.053
INR	1.491±0.419	2.090±0.631	-6.427	<0.001*
Serum creatinine (mg/dl)	1.036±0.325	1.176±0.291	-2.158	0.032*
BUN (mg/dl)	20.264±12.198	23.599±12.687	-1.338	0.183
Urea(mg/dl)	42.993±25.252	50.655±27.347	-1.474	0.142

Data are presented as mean ± SD; * Significant *p value* <0.05; t: student test; MELD: model of end stage liver disease; Hb: hemoglobin; WBCs: white blood cells; ALT: alanine aminotransferase; AST: aspartate aminotransferase; INR: international normalized ratio; BUN: blood urea nitrogen.

According to baseline clinical and ultrasonographic data, most of rebleeding patients had jaundice (68.97%), moderate to severe ascites (37.93% and 51.72% respectively), severe lower limb edema (62.07%) and splenectomy (17.24%) which were statistically significant when compared with non-rebleeding patients ($P \leq 0.05$). The rebleeding patients had a significantly higher pulse rate, lower SBP and DBP than non-rebleeding patients ($P \leq 0.05$). (Table 3)

Table 3: Comparison of baseline clinical and ultrasonographic data between 5-days rebleeding and non-rebleeding patients.

		Non-bleeders (*n*=148)	Re-bleeder (*n*=29)	X^2	*P*
Presenting complaint	Hematemesis	60(40.54%)	8(27.59%)	5.928	0.052
	Melena	65(43.92%)	11(37.93%)		
	Both	23(15.54%)	10(34.48%)		
Jaundice		65(43.92%)	20(68.97%)	6.094	0.014*
Ascites	No	42(28.38%)	1(3.45%)	17.220	0.001*
	Mild	42(28.38%)	4(13.79%)		
	Moderate	42(28.38%)	13(44.83%)		
	Severe	22(14.86%)	11(37.93%)		
Lower limb edema	No	11(7.43%)	1(3.45%)	12.738	0.005*
	Mild	30(20.27%)	0(0.0%)		
	Moderate	60(40.54%)	10(34.48%)		
	Severe	47(31.76%)	18(62.07%)		
Spleen	Splenectomy	8(5.41%)	5(17.24%)	4.992	0.025*
Ascites	No	36(24.32%)	1(3.45%)	16.060	0.001*
	Mild	33(24.32%)	2(6.90%)		
	Moderate	46(31.08%)	11(37.93%)		
	Severe	33(22.30%)	15(51.72%)		
P.V diameter (mm)		15.336±1.849	15.690±1.145	-0.991[a]	0.323
Spleen size (cm)		15.831±1.604	16.100±1.153	-0.787[a]	0.432
Pulse (b/m)		94.973±9.205	99.034±9.481	-2.162[a]	0.032*
SBP (mmHg)		104.459±10.708	97.241±9.963	3.355[a]	0.001*
DBP (mmHg)		66.014±8.786	62.069±8.185	2.235[a]	0.027*

Data are presented as mean ± SD or frequency (%); * Significant *p value* <0.05; X^2= chi-square; a: t test; U/S: ultrasound; PV diameter: portal vein diameter; b/m: beat per minute; SBP: systolic blood pressure; DBP: diastolic blood pressure.

In rebleeding group, there were significant increases in pulse, WBCs, total bilirubin, AST, ALT, INR and blood transfusion requirement compared with non-rebleeding group at day-5 of index bleeding ($P \leq 0.05$). Also, there were significant decreases in SBP, DBP, hemoglobin level, platelets count and serum albumin in rebleeding group when compared with non-rebleeding group at day-5 of index bleeding ($P<0.001$). (Table 4)

Table 4: Comparison of clinical and laboratory data between 5-days rebleeding and non-rebleeding patients at day-5 of index bleeding.

	Non-bleeders (*n*=148)	Re-bleeder (*n*=29)	T-Test	*P*
Pulse (b/m)	78.297±6.679	105.552±11.596	-17.475	<0.001*
SBP (mmHg)	106.351±8.818	86.897±15.835	9.330	<0.001*
DBP (mmHg)	69.662±7.039	54.483±14.781	8.542	<0.001*
Hb (g/dl)	9.130±1.096	6.866±0.763	10.625	<0.001*
WBCs ($x10^3$ /mm^3)	6.076±2.062	7.662 ±5.365	-2.731	0.007*
Platelets ($x10^3$ / mm^3)	92.351±21.067	68.931±13.035	5.767	<0.001*
Total bilirubin (mg/dl)	3.037±2.277	6.231±4.075	-5.940	<0.001*
Serum albumin (g/dl)	2.611±0.371	2.293±0.293	4.351	<0.001*
AST IU/L (up to 37)	67.068±43.513	111.138±86.411	-4.112	<0.001*
ALT IU/L (up to 40)	44.730±29.501	74.000±58.068	-4.044	<0.001*
INR	1.517±0.413	2.373±0.561	-9.581	<0.001*
Blood transfusion	34(22.97%)	24(82.76%)	X^2=39.342	<0.001*

Data are presented as mean ± SD or frequency (%); * Significant *p value* <0.05; X^2= chi-square; b/m: beat per minute; SBP: systolic blood pressure; DBP: diastolic blood pressure; Hb: hemoglobin; WBCs: white blood cells; ALT: alanine aminotransferase; AST: aspartate aminotransferase; INR: international normalized ratio.

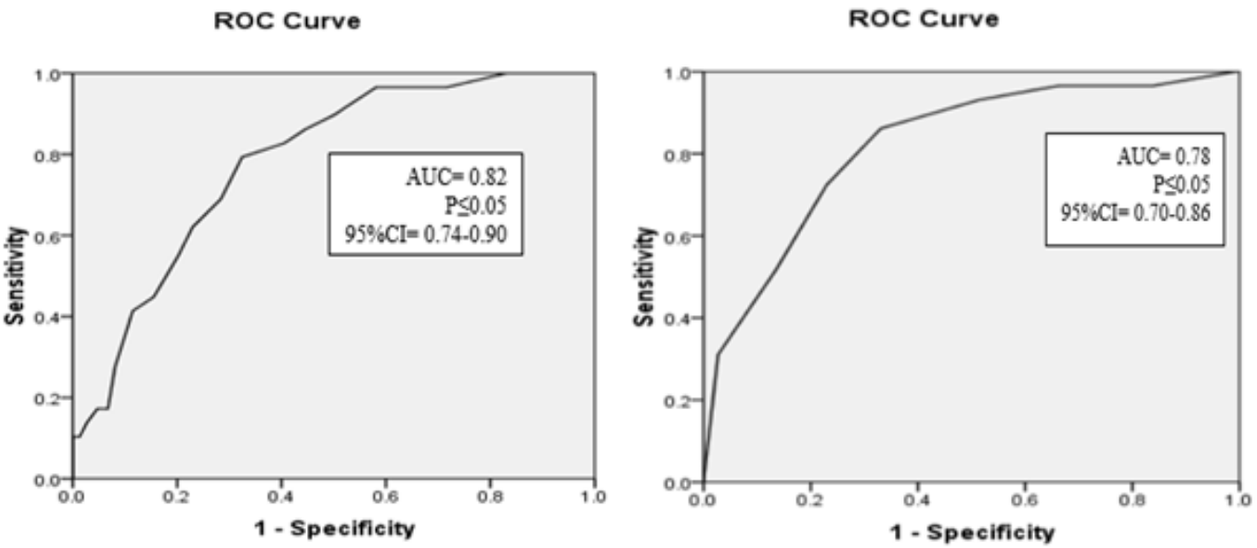
A multivariate analysis was performed to identify predictors for 5-days rebleeding. It revealed that Child-Pugh score, MELD score, presence of fundal varices, serum creatinine and INR were independent predictors for 5-days rebleeding. (Table 5)

Table 5: Multivariate analysis of predictors for 5-days rebleeding.

	Odd's ratio	95.0% C.I. for Odd's ratio	*P*
Child-Pugh class	1.182	0.126-11.089	0.884
Child-Pugh score	2.521	0.958-6.632	0.041*
MELD score	0.513	0.299-0.882	0.016*
Glasgow- Blatchford score	0.900	0.639-1.268	0.547
Splenectomy	1.298	0.701-2.348	0.115
Ascites(U/S)	0.631	0.197-2.019	0.438
Fundal varices	5.578	2.272-13.693	<0.001*
Injection sclerotherapy	0.423	0.050-3.548	0.428
Band ligation	0.344	0.040-2.931	0.329
Stigma of GIT bleeding	0.924	0.285-2.997	0.895
Beta blockers	0.798	0.305-2.086	0.645
Diabetes	1.949	0.399-9.510	0.409
Serum creatinine	1.807	0.528-4.661	0.048*
Pulse (b/m)	0.978	0.904-1.057	0.569
SBP (mmHg)	0.978	0.911-1.050	0.543
Hb	0.972	0.553-1.709	0.922
Platelets	0.979	0.942-1.018	0.287
Total bilirubin	1.557	0.995-2.438	0.050
Serum Albumin	0.824	0.234-1.660	0.264
INR	9.339	1.667-15.990	0.027*

* Significant *p value* <0.05; Hb: hemoglobin; MELD: model of end stage liver disease; U/S: ultrasound; b/m: beat per minute; SBP: systolic blood pressure; INR: international normalized ratio.

The accuracy of Child-Pugh score in detecting 5 days rebleeding at cut off ≥10 is sensitivity (86%), specificity (67%), PPV (34%) and NPV (96%). The accuracy of MELD score in detecting 5 days rebleeding at cut off ≥16 is sensitivity (82%), specificity (67%), PPV (33%) and NPV (95%). (Figure 2)



(A) (B)

Fig. 2: ROC curve to detect accuracy of (A) Child-Pugh score and (B) MELD score in detecting 5-days rebleeding.

DISCUSSION

In this work, 86.21% of rebleeding patients were Child C versus 33.11% in non-rebleeding patients. Child-Pugh score ≥10 can predict 5 days rebleeding with 86% sensitivity and 67% specificity. Rebleeders also had significantly higher MELD score when compared with non-rebleeders. MELD score ≥16 can detect 5 days of rebleeding with 82% sensitivity and 67% specificity.

These results are in agreement with ***Zaghloul et al.***[6], ***Alia et al.***[7] and ***Shi et al.***[8] indicated that the highest risk factors for rebleeding include Child B status with active bleeding, Child C status, a MELD score higher than 18, and a hepatic vein pressure gradient ≥20 mmHg. Variceal rebleeding is particularly common in patients with poor liver function, mainly due to uncontrolled portal hypertension, with the five parameters of the Child-Pugh classification being independent risk factors for bleeding[9, 10]. The Child-Pugh score acts as a surrogate for liver cell function, which declines as cirrhosis progresses, with cirrhosis being the leading cause of portal hypertension[7].

On the other hand, ***Xu et al.***[11] demonstrated that Child-Pugh and MELD scores can identify patients at higher risk for 6-week mortality but not for 6-week rebleeding. The Child score includes five parameters: albumin, bilirubin, PT or INR, ascites, and hepatic encephalopathy, which have problems of subjective judgment and threshold definition, and may not accurately reflect the severity of liver disease. The MELD score is mainly applicable to patients with end-stage liver disease and is not applicable to all patients with cirrhosis. Furthermore, the MELD score does not clearly define the threshold value for liver disease classification[12]. Also in disagreement with ***lee et al.***[13] conducted a study involving 136 patients with first-time variceal bleeding and found that both Child-Pugh and MELD scores demonstrated similar predictive accuracy for 6-week and 1-year mortality.

In our work, we found that 68.24% of non-re-bleeders have no fundal varices versus 24.14% of re-bleeders. ***Aluizio et al.***[14] evaluated the risk factors for predicting early variceal bleeding after elective endoscopic variceal ligation in 342 cirrhotic patients and reported that 71.2% of non-re-bleeders have no fundal varices versus 3.9% in re-bleeders. This finding is in agreement with ***Kim et al.***[15] found that gastric varices were present in 25.9% of patients with cirrhosis-induced portal hypertension. Among these, fundal varices accounted for a significant proportion, and the study emphasized the need for careful evaluation of these varices due to their potential for bleeding and increase risk of rebleeding. This finding can be explained by that fundal varices are fed by the short or posterior gastric vein and drain to the inferior vena cava through well-developed gastrorenal shunt and had higher blood flow with increased risk of rebleeding[16].

In the present study, there were significant increases in INR at day-5 of index bleeding in rebleeding group when

compared with non-rebleeding group. These results were in agreement with ***Aluizio et al.***[14] and ***El-Makarem et al.***[17] as the prolongation of prothrombin time suggests a lack of coagulation factors I, II, VII or X, or fibrinolysis acceleration[6]. Also, in agreement with Hunter and Hamdy[18] who involve 100 patients with acute variceal hemorrhage found that patients who rebled within 5 days had significantly higher mean INR levels compared to those who did not rebleed.

In our study, serum creatinine was significantly higher in rebleeding patients when compared with non-rebleeding patients at baseline. This finding agreed with ***El Sheref et al.***[19] and ***Kim et al.***[20] reported that serum creatinine was a predictive indicator of rebleeding of inpatients with cirrhosis. This finding can be attributed to that serum creatinine is a sensitive marker of renal function, and it is one component of the MELD model and hypovolemia as a consequence of variceal bleeding is a common cause of impaired renal function in cirrhosis. Also, in agreement with ***Kim, et al.***[21] found that the mechanism of renal impairment in cirrhosis is primarily related to the development of circulatory dysfunction which increased by variceal bleeding.

Limitations of the study included that the sample size was relatively small. The study was in a single center.

CONCLUSIONS

The multivariate logistic regression analysis showed that Child-Pugh score, MELD score, serum creatinine, INR and fundal varices are independent risk factors for 5-day rebleeding.

Child-Pugh score ≥10 and MELD score ≥16 had sensitivity >80% and specificity of 67% in predicting 5-days rebleeding.

ACKNOWLEDGEMENT

Nil

CONFLICT OF INTERESTS

There is no Conflicts of interest.

The authors have no financial or proprietary interests in any material discussed in this article.

AUTHORS' CONTRIBUTION

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by [MME], [MMF], [SAI] and [SAE]. The first draft of the manuscript was written by [LAA] and [BET] and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

REFERENCES

1. **Barbu LA, Mărgăritescu ND, Şurlin MV.(2017)** Diagnosis and treatment algorithms of acute variceal bleeding.Curr Health Sci J;43:191-200.

2. **Boregowda U, Umapathy C, Halim N, Desai M, Nanjappa A, Arekapudi S, *et al.*(2019)** Update on the management of gastrointestinal varices.World J Gastrointest Pharmacol Ther;10:1-21.

3. **Zanetto A, Garcia-Tsao G.(2019)** Management of acute variceal hemorrhage.World J Gastrointest Pharmacol Ther;8:178-200.

4. **Poza Cordon J, Froilan Torres C, Burgos García A, Gea Rodriguez F, Suárez de Parga JM.(2012)** Endoscopic management of esophageal varices.World J Gastrointest Endosc;42:312-22.

5. **Silva G, Quera R, Fluxá F, Sanhueza E, Segovia R, Brahm J, *et al.*(2004)** [Octreotide administration and/or endoscopic treatment in cirrhotic patients with acute variceal bleeding: a multicentric study].Rev Med Chil;132:285-94.

6. **Zaghloul SG, El Hady HA, Hussein HM, Hassan IA.(2018)** Predictors of variceal bleeding after esophageal varices band ligation in egyptian cirrhotic patients.ZUMJ;24:80-92.

7. **Alia MSA, Elsawy AA, Elarabawy RA, Hegazy HM.(2021)** Predictors of early rebleeding after endoscopic therapy of first variceal bleeding in liver cirrhosis.EGLJ;11:52-66.

8. **Shi Y, Shen W, Xu G, Wang X, Ning B.(2023)** Hepatic venous pressure gradient and rebleeding risk of patients with nonalcoholic steatohepatitis cirrhosis after variceal bleeding.Front Med (Lausanne);10:1224506.

9. **Giri S, Sundaram S, Jearth V, Bhrugumalla S.(2022)** Predictors of early bleeding after endoscopic variceal ligation for esophageal varices: a systematic review and meta-analysis.Clin Exp Hepatol;8:267-77.

10. **Peng Y, Qi X, Dai J, Li H, Guo X.(2015)** Child-Pugh versus MELD score for predicting the in-hospital mortality of acute upper gastrointestinal bleeding in liver cirrhosis.Int J Clin Exp Med;8:751-7.

11. **Xu L, Ji F, Xu Q-W, Zhang M-Q.(2011)** Risk factors for predicting early variceal rebleeding after endoscopic variceal ligation.WJG;170:33-47.

12. **Xavier SA, Vilas-Boas R, Boal Carvalho P, Magalhães JT, Marinho CM, Cotter JB.(2018)** Assessment of prognostic performance of Albumin-Bilirubin, Child-Pugh, and Model for End-stage Liver Disease scores in patients with liver cirrhosis complicated with acute upper gastrointestinal bleeding.Eur J Gastroenterol Hepatol;30:652-8.

13. **Lee JY, Lee JH, Kim SJ, Choi DR, Kim KH, Kim YB, *et al.*(2002)** [Comparison of predictive factors related to the mortality and rebleeding caused by variceal bleeding: Child-Pugh score, MELD score, and Rockall score].Taehan Kan Hakhoe Chi;8:458-64.

14. **Aluizio CLS, Montes CG, Reis G, Nagasako CK.(2021)** Risk stratification in acute variceal bleeding: Far from an ideal score.Clinics (Sao Paulo);76:29-55.

15. **Kim T, Shijo H, Kokawa H, Tokumitsu H, Kubara K, Ota K, *et al.* (1997)** Risk factors for hemorrhage from gastric fundal varices.Hepatol;25:307-12.

16. **Park EJ, Jang JY, Lee JE, Jeong SW, Lee SH, Kim SG, *et al.* (2013)** The risk factors for bleeding of fundal varices in patients with liver cirrhosis.Gut and Liver;7:704.

17. **El-Makarem MAA, Mohammad AA, Afifi OA, Abbas NI, El-Zaher TAA, Halim SMA, *et al.*(2024)** The coagulation changes associated with acute variceal bleeding in patients with HCV-induced cirrhosis as assessed by rotational thromboelastometry.Egyptian Liver Journal;14:16.

18. **Hunter SS, Hamdy S.(2013)** Predictors of early re-bleeding and mortality after acute variceal haemorrhage.Arab J Gastroenterol;14:63-7.

19. **El Sheref S, Afify S, Berengy MS.(2022)** Clinical characteristics and predictors of esophagogastric variceal bleeding among patients with HCV-induced liver cirrhosis: An observational comparative study. PLoS One;17:27-35.

20. **Kim JH, Im CB, Lee SS, Jeon H, Choi JW, Kim HJ, *et al.*(2021)** Impact of acute kidney injury on mortality in patients with acute variceal bleeding. BMC gastroenterol;21:1-9.

21. **Kim JH, Im CB, Lee SS, Jeon H, Choi JW, Kim HJ, *et al.*(2021)** Impact of acute kidney injury on mortality in patients with acute variceal bleeding. BMC Gastroenterol;21:290.

التنبؤات بعودة نزيف المبكر لدوالي المرئ بعد العلاج بالمنظار لدى مرضى التليف الكبدي

منة الله محمد الصواف، مادونه مجدي فهمي، صابر عبد الرحمن إسماعيل، سحر عبد التواب اليماني، لبنى أحمد أبو علي و بشرى السيد طلحة

قسم طب المناطق الحارة والأمراض المعدية، كلية الطب، جامعة طنطا، مصر

المقدمة: يركز علاج مرضى التليف الكبدي الذين يعانون من نزيف دوالي المرئ على التحكم على النزيف ومنع عودة النزيف المبكروالوفاة. تعتبر العوامل مثل الضغط الوريدي البابي الكبدي فوق ١٢ مم زئبقي، وحجم الدوالي، ووجود العلامات التحذيرية أثناء المنظارمن المؤشرات الرئيسية لإعادة نزيف دوالي المرئ المبكر.

المرضي وطرق البحث: أجريت هذه الدراسة المستقبلية علي ١٨٤ مريضًا من وحدة مناظير الجهاز الهضمي بقسم طب المناطق الحارة والأمراض المعدية بمستشفى جامعة طنطا في مصر. واستغرقت الدراسة ٥ أشهر، شملت التسجيل والمتابعة.

النتائج: أشارت نتائج تحليل الانحدار اللوجستي متعدد المتغيرات إلى أن تقسيم تشايلد للتليف الكبدي ≤١٠، و مقياس ميلد ≤١٦، ووجود دوالي في المريء، وكرياتينين و النسبة المعيارية الدولية، كانت عوامل تنبؤ مستقلة لتكرار النزيف خلال ٥ أيام.

الاستنتاجات: تقسيم تشايلد للتليف الكبدي، و مقياس ميلد وكرياتينين، النسبة المعيارية الدولية، ودوالي المعدة، كانت عوامل خطر مستقلة لتكرار نزيف دوالي المرئ المبكر خلال ٥ أيام.