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Original Article

Comparative Study of Clinical Profile and Outcome Among Variceal and Nonvariceal Bleeding in a Tertiary Referral Hospital of Nepal During Covid Pandemic

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ABSTRACT

Introduction: Upper Gastrointestinal Bleeding is a common medical emergency that is broadly classified into variceal and non-variceal bleeding. Preendoscopicemperical treatment is based on clinical findings and laboratory parameters. The article aimed to compare these parameters among variceal and non-variceal bleeding.

Materials and Methods: This is a retrospective descriptive study conducted in a tertiary level referral hospital after taking approval from the Institutional review board. The data included was from September 2020 to August 2021. All patients with relevant data who underwent upper GI endoscopy were enrolled. The clinical and laboratory parameters were compared using appropriate statistical tests.

Results: A total of 85 patients were studied with 40 (47.06%) in the variceal and 45 (52/94%) in the non-variceal group. Significantly more patients in the variceal bleeding group had a history of alcohol consumption (85% vs 60%) and smoking history (52.50 % vs 31.10%) compared to the non-variceal group. Jaundice, ascites, splenomegaly, low platelet count, and high INR all were predictors of variceal bleeding ($p<0.005$). In the variceal group, 39 (97.5%) needed endo therapy compared to only 4 (8.9%) in the non-variceal group.

Conclusion: Clinical and laboratory parameters differ significantly in the variceal and non-variceal groups which can guide the pre-endoscopic management of the patients.

Keywords: Non-variceal; Upper GI bleeding, Variceal.

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INTRODUCTION

Upper Gastrointestinal bleeding(UGI) is a common medical emergency with hospital mortality of approximately 7-10 percent.[1] Based on the cause, UGI Bleeding can be classified into variceal bleeding(esophageal, gastric varices) and non-variceal bleeding(peptic ulcer, erosive gastroduodenitis, malignant growth, vascular ectasia, etc). Endoscopy provides both the confirmatory and therapeutic role.[2]

Pre-endoscopic management in the emergency room is mainly targeted toward volume resuscitation and empirical treatment for the etiology of the bleeding. Guidelines recommend treatment with vasoactive agents for variceal bleeding and a high-dose proton pump inhibitor for non-variceal bleeding while waiting for endoscopy.[3,4] It is hard to predict the cause, yet the clinicians must distinguish between them based on clinical history, examination, risk factors, and laboratory findings and start with the empirical treatment which could help in decreasing overall mortality.

Few studies have been published that explored the comparison between the two groups,[5,6] Moreover, the trends in the spectrum of etiology of UGI bleeding change with time.[7] The COVID pandemic and the restrictions due to it might have changed the severity at presentation which would further change investigation findings and thus the outcome. The aim of the study is to compare the clinical profile, investigations, and outcomes of variceal and non-variceal gastrointestinal bleeding, especially during the COVID19 pandemic.

MATERIALS AND METHODS

This is a descriptive cross-sectional retrospective study conducted in Shree Birendra Hospital, which is a tertiary level referral hospital. The study included the patients admitted between September 2020 to August 2021. Approval was taken from the Institutional Review Committee of the Nepalese Army Institute of Health Sciences (Reg no 598). The convenience sampling method was used hence all the patients presenting with upper gastrointestinal bleeding on the above-mentioned date with data available for the analysis and who had endoscopic diagnosis were included in the study. Continuous data were analyzed using mean and standard deviation (SD) or median depending on the variable distribution. Differences between the two groups with continuous data were assessed using a student-t test. Quantitative data were described using percentages and compared by the chi-square. A two-sided p-value of less than 0.05 was considered statistically significant. All statistical calculations were performed with SPSS ver 20.0.

RESULTS

A total of 85 patients were analyzed during the study period. The mean age of the population was 58.44 (SD±13.05). Most of the patients (54.10%) were in the age group (41-60) followed by 40% above 60 years of age. Out of 85 patients, 65 (76.50%) were male.

When the data were compared as per the final etiology as identified by the upper GI endoscopy, significantly more patients in the variceal bleeding group had a history of alcohol consumption (85% vs 60%) and smoking history (52.50 % vs 31.10%) compared to the non-variceal group (Table 1). The patients presenting with hematemesis were more likely to have variceal bleeding than presenting with Malena alone. On clinical examination, having jaundice, ascites and splenomegaly were associated with variceal bleeding significantly (p<0.05).

Table 1. Comparison of clinical presentation

	Variables	Bleeding group		P value
		Variceal (n=40)	Non-variceal (n=45)	
Risk factors	Alcohol n(%)	34 (85.0%)	27(60.0%)	0.01
	Smoking n(%)	21 (52.5%)	14 (31.1%)	0.04
	NSAIDs n(%)	3 (7.5%)	7 (15.6%)	0.24
	History of UGI bleeding in the past n(%)	16 (40.0%)	8 (17.8%)	0.02
Gender	Male n(%)	31 (77.0%)	34 (75.0%)	1.00
Clinical presentation	Hematemesis n(%)	34(85.0%)	37 (60.0%)	0.01
	Melena n(%)	29 (72.5%)	31 (68.9%)	0.71
	Syncope n(%)	2 (5.0%)	1 (2.2%)	0.59 (FE)
	Dizziness n(%)	7 (17.5%)	8 (17.8%)	0.97
	Splenomegaly n(%)	10 (25.0%)	3 (6.7%)	0.01
	Hepatomeagalyn(%)	6 (15.0%)	2 (4.4%)	1.4 (FE)
	Ascites n (%)	16 (40.0%)	7 (15.6%)	0.01
	Jaundice n(%)	16 (40.0%)	7 (15.6%)	0.01

When the vital parameters were compared between the two groups, they were not significantly different (Table 2). During investigations, having low platelet and high INR were associated more with variceal bleeding (Table 2).

Table 2. Comparison of clinical profile and lab parameters

Clinical Parameters	Bleeding group		P value
	Variceal (n=40)	Non-variceal (n=45)	
Pulse rate/min (Mean ± SD)	92.53± 18.32	90.16 ± 16.24	>0.05
SBP mmHg (Mean±SD)	111.25± 23.66	114.22 ± 22.91	>0.05
DBP mm Hg (Mean±SD)	71.75 ± 15.34	73.78 ± 14.02	>0.05
Hemoglobin g/dl (Mean±SD)	7.88 ± 2.87	8.66 ± 3.40	>0.05
Platelet count number/ml (Mean±SD)	151.69 ± 51.36	199 ± 111.05	=0.01
INR (Mean±SD)	1.71±0.96	1.27 ± 0.69	<0.05
Urea Median (IQR)	46.00 (31.07,84.00)	30.00 (21.20, 47.00)	>0.05
Creatinine Median (IQR)	0.90 (0.62, 1.40)	0.90 (0.76, 1.10)	>0.05
Albumin	2.50 (1.90, 3.00)	2.60 (0.00, 3.50)	>0.05

Patients in both groups required blood transfusion and there was no significant difference. The median amount of blood transfusion was 1.0 (0.0,2.0) vs 2.0 (0.0,2.75), p=0.58 in variceal and non-variceal group respectively. The outcome in terms of discharge,

re-bleeding, and death were not significantly different between the two groups (Table 3). Significantly higher proportions of patients in the variceal group needed endotherapy as they all needed variceal band ligation (97.5%) compared to only 8.9% in the non-variceal group (p<0.05).

Table 3: Requirement of transfusion, endotherapy, and final outcome

Clinical Parameters		Bleeding group		p-value
		Variceal (n=40)	Non-variceal (n=45)	
Transfusion required n(%)		25 (62.5%)	24 (53.3%)	0.39
Endotherapy required n(%)		39 (97.5%)	4 (8.9%)	0.00
No of Units of blood transfusion (Median, IQR)		1.0 (0.0, 2.0)	2.0 (0.0, 2.75)	0.58
Outcome	Discharged n(%)	35 (87.5%)	41 (91.5%)	0.82
	Re-bleeding n(%)	2 (5.0%)	2 (4.4%)	
	Death n(%)	3 (7.5%)	2 (4.4%)	

DISCUSSION

Upper GI bleeding is a medical emergency and needs the initiation of appropriate therapy from the emergency room itself. The distinction between variceal and non-variceal bleeding is important as the treatment modalities are different between them. Our studies showed almost half the proportion (47.06%) of upper GI bleeding is from variceal sources. Previous studies done in Nepal had shown a lesser prevalence that is 25 % in a study by Adhikari KR et al[8] and 23% in a study by Poudel MS et al[9]. The changing prevalence may reflect the different scenarios of the COVID lockdown period where the patients with minor GI bleeding may have been treated in the local primary health centre and only those with a large amount of bleeding or with co-morbidities referred to the tertiary health care centre like ours. The mean age of the participants and the proportion of males were comparable with the other studies done previously in Nepal.[8-10]

Among clinical parameters, the presence of jaundice, ascites, and splenomegaly was significantly more in the variceal group and decreased platelet count and elevated INR among laboratory parameters in our study. Alharbi A et al showed that among 205 patients with variceal bleeding in their study, liver disease (OR 6.36 [95% CI 3.59 to 11.3]), excessive alcohol use (OR 2.28 [95% CI 1.37 to 3.77]), hematemesis (OR 2.65 [95% CI 1.61 to 4.36]), hematochezia (OR 3.02 [95% CI 1.46 to 6.22]) and stigmata of chronic liver disease (OR 2.49 [95% CI 1.46 to 4.25]) were the main predictors.[11] Similarly in a large comparative study between variceal and non-variceal sources by Matei D et al, six factors were associated with variceal hemorrhage viz history of prior variceal hemorrhage, ascites, thrombocytopenia, elevated INR, and elevated bilirubin levels.[12]

An accurate prediction of the cause of upper GI bleeding before the endoscopy procedure is important in a country like Nepal where there are few endotherapy centers besides a few major cities. This prior knowledge will enable clinicians to choose the most appropriate pharmacological therapy before performing the procedure or transferring to the higher facility center. Moreover, when there is a clinical suspicion of variceal bleeding and the patient is not responding to usual pharmacotherapy, a Sengstaken -Blakemore tube can be inserted to buy time before doing the specialized endotherapy procedure. Even in a tertiary level center, the high clinical suspicion of variceal bleeding may prompt early endoscopy, as endoscopy has been recommended to be performed within 12 hours of the hospital admission by the guidelines in such cases.[13]

Our study was done during the COVID pandemic lockdown period which presented a new insight into the old disease and the changing prevalence of the etiology due to difficulty in accessing the health care facility and fear of COVID transmission. Some study has shown increases in the number of drinking days amongst the male participants during the COVID pandemic due to decrease office hours and isolation.[14] This might have contributed to the increase in alcohol-related precipitation of variceal bleeding in our study.

The limitation of our study is due to its low sample size and retrospective nature. Further large samples prospective studies are needed to see the changing pattern of upper GI bleeding, their risk factors, and the predictors of the particular etiology.

CONCLUSIONS

The presence of jaundice, splenomegaly, and ascites are simple bedside clinical parameters along with low platelet count and elevated INR which can predict the possible etiology as variceal bleeding. This knowledge will help to outline pre-endoscopy pharmacotherapy.

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