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"A STUDY ON CLINICOETIOLOGICAL PROFILE OF PATIENTS WITH UPPER GASTROINTESTINAL BLEEDING WITH SPECIAL REFERENCE TO HELICOBACTER PYLORI INFECTION."

General Medicine

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ABSTRACT

Background: Acute gastrointestinal bleeding is one of the most life threatening gastrointestinal emergencies encountered in the medical field. It remains a major cause of morbidity and mortality all over the world with a variable etiological profile. Hence, this study was undertaken with the aim to analyse the etiological and clinical profile of patients presenting with upper gastrointestinal bleeding and its association with H. Pylori from the region of North East India. **Methods:** This is a cross-sectional observational study, carried out in the Department of Medicine, at Jorhat Medical College and Hospital in North-east India. We enrolled patients from in-patient setting over a period of 1 year including a total of 120 subjects presenting with upper GI bleed. A detailed clinical history, physical examination and investigations were conducted in alongwith UGI endoscopy. Data was analysed by SPSS. **Results:** We analysed 120 patients diagnosed with Upper GI bleed (69.2% males, 30.8% females), Ratio of 2.4:1. The most common symptom was found to be melena with hematemesis, 51 patients(42.5%), endoscopy finding showed that 40.8% patients had UGI bleed due to oesophageal and/ or gastric varcies, 29.1% patients had peptic ulcer disease, 16.6% patients had gastric/ duodenal erosions, 1.7% had MW Tear, 1.7% had gastric malignancy and 1 patient had both oesophageal varices and peptic ulcer disease. H. Pylori was an independent risk factor in both variceal and non-variceal bleed($p<0.003$). **Conclusion:** This study concludes that varices due to portal hypertension is found to be the most common etiology of upper gastrointestinal bleeding, followed closely by peptic ulcer disease in the north east India. Melena with Hematemesis was found to be the most common presentation of these patients and infection with H. pylori acts an independent risk factor for both variceal and non-variceal bleeding.

KEYWORDS

Oesophageal varices, Upper gastrointestinal bleeding, H. Pylori.

1. INTRODUCTION

Acute gastrointestinal bleeding is one of the most life threatening gastrointestinal emergencies encountered in the medical field. Upper gastrointestinal bleed is defined as the bleeding proximal to the ligament of Treitz. This ligament is named after the Austrian physician Wenzel Treitz[1]. It is one of the most common medical emergencies with an incidence of 50 to 100 cases per 100 000 population[2] and hospital mortality of approximately 7% to 10% even in developed countries.[3] It remains a major cause of morbidity and mortality, accounting for up to 8% hospital admissions[4] Patients can be divided as having either variceal or non-variceal source of bleeding as they will have different management protocols and prognosis.[5]

The variceal source includes lesions that arise by virtue of portal hypertension namely Gastroesophageal varices, Hypertensive portal gastropathy and rarely Isolated gastric varices. Non-variceal causes include lesions as Peptic ulcer disease, Mallory-Weiss Tear, Gastritis or Duodenitis, Esophagitis and AV malformation.

Gastrointestinal bleeding occurs clinically as either Overt or Occult bleeding. Overt bleeding can manifest as Hematemesis (vomitus of red blood or coffee-ground material), Melena (black tarry stool) or Hematochezia (passage of red or maroon blood from the rectum). Occult (unknown to the patient; may present with symptoms of light-headedness, syncope, dyspnea or iron deficiency anaemia.

The bacteria Helicobacter Pylori is a well recognized risk factor associated with increased peptic ulcer disease and upper GI bleed risk, especially in patients using NSAIDs. In the world population, Helicobacter pylori is present in over 50% of all stomachs, making it the most frequent infection in humans[6]. There is marked disparity in occurrence between developed countries, where its prevalence ranges between 30% and 50%, and the developing countries, where H.Pylori prevalence ranges between 80% and 90%[7].

At present, as there is limited data on endoscopic etiological and clinical profile of patients presenting with upper gastrointestinal bleeding and its association with H. Pylori from this region of India, thus, the present study was conducted among the indoor patients of the Medicine ward of JMCH with the aim to study the etiology and clinical profile of patients presenting with acute upper gastrointestinal bleeding.

2. MATERIALS AND METHODS

This is a cross-sectional observational study, carried out in the Department of Medicine, at Jorhat Medical College and Hospital, Jorhat in North-east India with permission and approval from the Institutional ethics committee. We enrolled patients from in-patient setting over a period of 1 year from August 2021 to July 2022 including a total of 120 subjects presenting with upper GI bleed. Inclusion criteria includes patients, aged more than 18 years, hospitalized with symptoms of acute upper GI bleeding and willing to give written informed consent. Exclusion criteria includes patients with history of epistaxis and bleeding gums and subsequently developed spurious hemetemesis. hematological disorders or presence of any contraindication for endoscopy and patient not willing to give consent.

A detailed clinical history, physical examination and investigations were conducted in all the patients admitted in medicine ward of JMCH with symptoms of UGI bleed like the number of episodes of hematemesis, the approximate quantity of blood vomited each time, the colour of the vomitus, whether it was associated with melena or presented with melena alone.

Symptoms of common diseases that can lead to UGI bleeding were enquired about and a detailed history regarding any drug intake like aspirin or other NSAIDS, steroids and symptoms due to blood loss were recorded in the questionnaire.

History regarding the risk factors of UGI bleeding like known peptic ulcer disease, alcoholism (those who are consuming alcohol at least 100ml/day Regularly for >3 months), stress and serious systemic illnesses of the patients, intake of drugs causing UGI bleeding like NSAIDs, steroids, bisphosphonates and chemotherapeutic agents, history of smoking were obtained. Routine general and systemic examination of the patients was carried out with the aim of assessing the general condition of the patient, severity of blood loss, the common causes of gastro intestinal bleeding like cirrhosis of liver with portal hypertension or peptic ulcer disease and rule out hematological disorders causing UGI bleed.

Routine blood and urine investigations to find out the hemoglobin status, blood grouping and typing for transfusion, to find out renal failure, hepatic failure, bleeding and clotting disorders and hematological disorders were carried out. Upper gastrointestinal

endoscopy was done for all the patients after overnight fasting, using PENTAX video endoscopic system, to directly visualize the mucosa of the esophagus, stomach and duodenum, and determine lesions like varices, ulcers, erosions. Biopsy tissue was collected from the gastric antrum of the patient and the specimens were submitted for rapid urease test for identification of H pylori infection.

Statistical Analysis: Data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS (version 27.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism. Chi square test was done to study the association between the study variables. P value < 0.05 was considered statistically significant.

3. RESULTS AND OBSERVATIONS

In our study, patients were included between the age group 18-70 years and out of the 120 patients presenting with episodes of UGI bleed, majority of the patients belonged to the age group 31 to 50 years and the mean age was 45.15 years.

Table 1: Distribution of Age in Group

Age(in years)	Frequency			Percent
	Total	Male	Female	%
≤30	11	9	2	9.2
31-40	37	23	14	30.8
41-50	36	26	10	30.0
51-60	23	15	8	19.2
61-70	13	10	3	10.8
Total	120	83	37	100.0

Majority of the cases in our study were males; that is out of the 120 patients, 83(69.2%) were males and 37(30.8%) females. The male to female ratio in our study was 2.4:1.

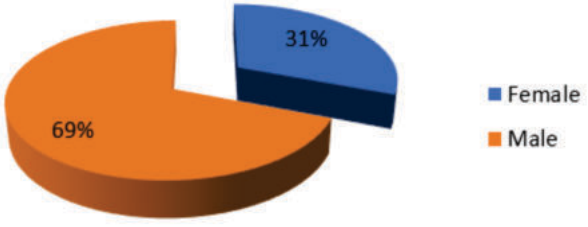

Fig 1: Sex Distribution

The most common clinical presentation found in our study was presentation with both episodes of haematemesis and melena (42.5%), followed by only melena in 28.3% patients, which was followed by 20.8% patients with only hematemesis.

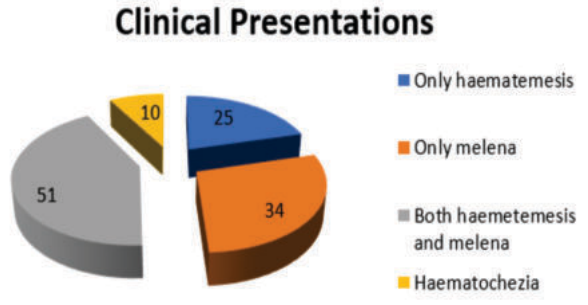

Fig 2: Distribution of Clinical Presentations

In our study, 91 (75.8%) patients were chronic alcohol consumers. In male, 69 patients were chronic alcoholic and in female, 22 patients were chronic alcoholic.

Table 2: Distribution of chronic Alcohol consumption

Alcohol	Frequency			Percentage(%)
No	29(total)	15(male)	14(female)	24.2
Yes	91(total)	69	22	75.8
Total	120	84	36	100.0

In our study, 3 (1.7%) patients had Antiplatelets, 8 (6.6%) patients had NSAIDS, 8 (6.6%) patients had Both NSAIDS and Alcohol and1 (0.8%) patient had Anticoagulants.

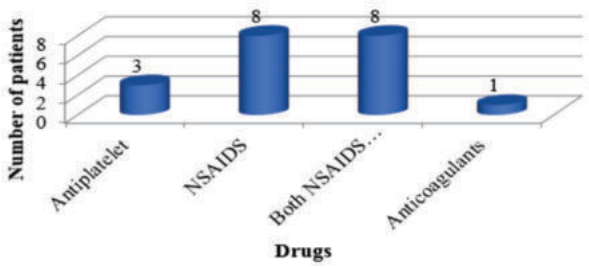

Fig 3: Chart showing the significant drug history in the study group

In our study, 3(2.5%) patients had a history of Asthma, 52 (43.3%) patients had Chronic liver disease, 12(10.0%) patients had COPD, 19(15.8%) patients had Diabetes Mellitus, 27 (22.5%) patients had HTN, 1(0.8%) patient had Chronic kidney disease, 3(2.5%) patients had Ischaemic Heart Disease and 2(1.5%) patients had Malignancy in Comorbidities.

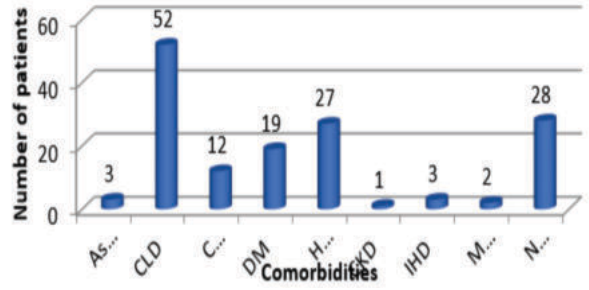

Fig 4: Chart showing comorbidities in the study group

In our study, in the laboratory paramaters, 14 patients had a Haemoglobin% of less than 7 g/dl, 105 patients had a normal hb% between 7-12 g/dl and only 1 patient had hb% more than 12 g/dl; 18 (15.0%) patients had a high MCV, 24 patients had a platelet count less than 1.5 lakhs, 91 patients had a platelet count between 1.5 to 4.5 lakhs and 5 patients had a platelet count more than 4.5 lakhs, 13 (10.9%) patients had elevated in ALT,17 (14.2%) patients had an elevated AST,14 (11.7%) patients had elevated in total bilirubin, 50(41.6%) patients had a low albumin level, 72(60%) patients presented with a prolonged Prothrombin time and 26(21.6%) patients had a raised urea and creatinine value.

Table 3: Laboratory Profiles of patients with UGI bleed

LABORATORY PARAMETERS	FINDINGS	FREQUENCY	PERCENTAGE
HAEMOGLOBIN	<7 g/dl	14	11.6%
	7-12 g/dl	105	87.5%
	>12 g/dl	1	0.8%
MCV	High	18	15.0%
Platelet	<150,000	24	20%
	150,000-450,000	91	75.8%
	>450,000	5	4.16%
ALT	Elevated	13	10.9%
AST	Elevated	17	14.2%
Total Bilirubin	Elevated	14	11.7%
Albumin	Low	50	41.6%
PT	Prolonged	72	60%
Urea and Creatinine	Elevated	26	21.6%

In our study, out of the 91 patients with a history of chronic alcoholism, 52 were found to have cirrhosis on USG whole abdomen and out of the 29 patients with no history of alcohol, only 1 was found to have cirrhosis. The p value here was found to be <0.05, that indicates that alcohol consumption is an independent risk factor for the development of cirrhosis in patients.

Table 4: Association of Alcoholism with Chronic Liver disease

Risk factor and Disease	Yes	No	P-value
Alcohol	91	29	0.001
Cirrhosis	52	1	

In our study, 20 (16.6%) patients had Erosion, 2 (1.7%) patients had Esophagitis, 1 (0.8%) patient had Gastric Varices, 5 (4.2%) patients had Gastritis, 2 (1.7%) patient had Malignancy, 2 (1.7%) patients had Mallory Weiss Tear, 4 (3.3%) patients had Normal endoscopy, 35 (29.2%) patients had PUD, 48 (40.0%) patients had Oesophageal Varices, 1 patient had both Varices and Peptic ulcer disease.

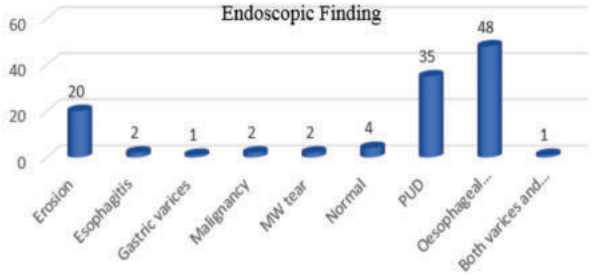

Fig 5: Number of cases of various etiologies on endoscopy

In our study, 13 patients had Gastric Ulcer and 22 patients had Duodenal Ulcer, out of which, 8 patients with Gastric Ulcer and 17 patients with Duodenal Ulcer had H.Pylori(RUT+). Among the non-ulcer causes, 19 out of the 49 patients with variceal bleed had H.pylori positive status, 14 out of the 20 patients with erosive disease were RUT(+), 4 patients of the 5 having gastritis were H. pylori positive, both the patients out of the 2 patients with esophagitis were found to be RUT(+). Out of the 2 patients with Mallory Weiss Tear, both were H. pylori positive and among the 4 patients with a normal endoscopy report, 2 were found to be RUT(+). 1 patient had both esophageal varices and Peptic ulcer disease who was found to be RUT(+).

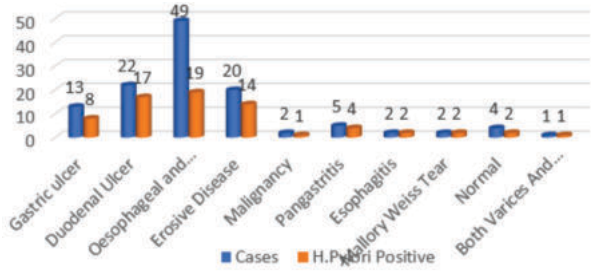

Fig 6: Etiology wise distribution of H. Pylori positivity

In our study, a total of 36 cases had peptic ulcer disease(gastric and duodenal ulcer), out of which 26 patients were RUT(+) and out of the 84 non-ulcer cases, 44 were found to be RUT(+) cases. The p value found here was <0.05 which was considered significant.

Table 5: Association of H. Pylori positive cases with ulcer and non-ulcer etiology:

	RUT Positive	RUT Negative	Total	P-Value
ULCER	26	10	36	0.04
NON-ULCER	44	40	84	
TOTAL	70	50	120	

In our study, positive RUT associated with non- variceal upper GI bleed (mainly Peptic ulcer disease, duodenal / gastric erosions and erosive gastritis) was seen in 51 patients (71.8 % of total nonvariceal upper GI bleed) and positive RUT associated with variceal upper GI bleed was seen in 19 patients (38.7% of total variceal upper GI bleed). H. Pylori infection is an independent predictor of both variceal and non- variceal bleed [p = < 0.05].

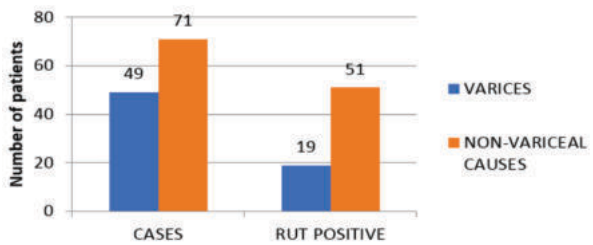

Fig 7: Chart showing RUT positivity between overall variceal and non-variceal cases

4. DISCUSSION

Out of the 120 patients presenting with episodes of UGI bleed, majority of the patients belonged to the age group 31 to 50 years and the mean age was 45.15 years. In the study performed by Shaffin S. Ranjan et al[8] in the year 2018 in Tanzania, the mean age was found to be 42 years which is comparable to the finding in our study.

Majority of the cases in our study were males; that is out of the 120 patients, 83(69.2%) were males and 37(30.8%) females. The male to female ratio in our study was 2.4:1. It is comparable to the finding of a study by Hyasinta et al[9] done in the year 2012 in north western Tanzania where males were about 73% and females 26.6%.

The most common clinical presentation found in our study was presentation with both episodes of haematemesis and melena(42.5%), followed by only melena in 28.3% patients, which was followed by 20.8% patients with only hematemesis. This is similar to the study done by Shaffin S. Ranjan et al[8] where also hematemesis with melena was the most frequently encountered presentation and, also comparable to the study findings of Jyoti Jain et al[10]. However, in the study done by Shivaram Prasad Singh et al[11] melena was found to be the most common symptom on presentation among the subjects, followed by both hematemesis and melena and hematemesis only.

In our study, 91 (75.8%) patients were chronic alcohol consumers, 8(6.6%) patients had a history of NSAIDs intake, 8(6.6%) patients had both chronic alcohol intake and NSAIDs intake. In the study done by Bharath H. R. et al[12] in the year 2020 in north east India found that 95 patients (81.19 %) out of the 117 patients analysed had a history of chronic alcohol consumption and 7 patients (5.98 %) had history of NSAIDs intake.

In this study, 92 patients suffered from atleast one co-morbidity. Chronic liver disease being the commonest comorbidity (52 patients; 43.3%), followed by Hypertension (00.5%) closely followed by Diabetes Mellitus (15.8%). In a study done by K. Siebenhüner in 2021[13], it was found that alcohol use disorder is a severe and complex comorbidity known for unplanned 30-day readmissions and mortality. They concluded that many patients with alcohol use disorder have chronic liver disease and, also to some degree, coagulopathy which may contribute to gastrointestinal bleeding.

In the present study, 49 patients (40.8%) were found to have upper GI bleed due to oesophageal varices, gastric varices and 35 patients (29.1 %) due to peptic ulcer disease which is found to be similar to the studies done by Jyoti Jain et al[10] and Bharath H. R et al[12].

However, in the study by A.K Sen et al[14], peptic ulcer disease was found to be the commonest cause of upper GI bleed.

The rapid urease test (RUT) performed showed that overall positive RUT was found in 70 patients (56.7 %,p-value<0.05). In the study by Del Piano M,et al[15] in 2013, Positive RUT was found positive in 51.3% tested cases. Positive Rapid Urease Test in non-variceal upper GI bleed(mainly peptic ulcer disease and erosive gastritis) was seen in 51 patients (71.8 % of total non- variceal upper GI bleed) which is similar to the findings of the studies by Bharath H.R.et al[12] in 2020 and Henrickkson AE et al[16] in 1998. Positive RUT in variceal upper GI bleed was seen in 19 patients (37.2 % of total variceal upper GI bleed), which is similar to study done by Mohamed A. Elsebaey et al[17].

5. Limitations:

- The study includes patients from a single tertiary care center only in a resource poor setting.
- Most of the patients enrolled in the study were referred cases from peripheral centers therefore many patients were missed in our study.
- Also due to the ongoing COVID19 crisis in about 6 months of the study period, the sample size of the present study was comparatively small. It will be more reliable on conducting the study with a large sample size.

6. CONCLUSION

Upper gastrointestinal (GI) bleeding is recognized as a common and potentially life-threatening abdominal emergency that essentially requires a prompt assessment and aggressive emergency treatment. The present study carried out in a tertiary care centre in the North-eastern region of India, concludes that varices due to portal

hypertension is found to be the most common etiology of upper gastrointestinal bleeding, followed closely by peptic ulcer disease. Melena with haematemesis was found to be the most common presentation of these patients and chronic alcohol consumption was a significant risk factor for the development of cirrhosis in these patients and infection with H. pylori acts an independent risk factor for both variceal and non-variceal bleeding.

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