

## Clinico-Endoscopic study in the patients of upper gastrointestinal bleeding: study from tertiary hospital North East, India.

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### **Abstract:**

*Objectives: upper gastro intestinal(GI) bleeding is a common medical emergency with significant morbidity and mortality rates. Diversity of lesions and its locations makes the diagnosis of upper GI bleeding and their management a problem that affect all ages,nationalities,different ethnic groups and socio economic strata. Despite modern technique of resuscitation, anaesthesia and surgery, it has significant mortality and only few studies have been done in this regard in the north-east region especially in Manipur. With this background, clinico endoscopic study in patients of upper GI bleeding was carried out in one of the tertiary hospitals of north-east India.*

*Materials and methods: after ethical committee approval, this cross sectional study was conducted in a tertiary care teaching hospital during the period of 2years from September 2014 to august 2016 to assess the clinical profile and the role of endoscopy in 100 patients of upper GI bleed. Fischers exact test and chi-square test were employed for statistical analysis.*

*Results: all patients were subjected to upper GI endoscopy following initial resuscitation and were managed either conservatively, endoscopic or surgical methods. It was observed that the commonest cause of upper GI bleeding was esophageal varices followed by duodenal ulcer, most common presentation being melena.*

*Conclusion: use of early endoscopy that is within 24 hours improves the patients outcome in terms of morbidity, mortality and duration of hospital stay. It also supplements the data on the causes of upper GI bleeding and its management which may be valuable for further study.*

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### **I. Introduction**

The upper gastrointestinal bleeding is common medical emergency with significant morbidity and mortality rates. The acute upper gastrointestinal bleeding is defined as clinical presentation of hematemesis, melena, or bloody nasogastric aspirate originating from the gastrointestinal tract proximal to ligament of treitz<sup>1</sup>.

The reported incidence of acute upper gastrointestinal bleeding spans a wide range of 36-172 per 100,000 inhabitants per year<sup>2</sup>. Non variceal upper gastrointestinal bleeding is the commonest cause (50% to 80%), among which peptic ulcer is the most common. Esophageal varices account for less than 10% of all causes of gastrointestinal hemorrhages, other less common causes are inflammatory lesions, Mallory Weiss tears, angiodysplasia, and dieulafoy's lesion. Despite of advanced diagnostic tools from barium meal x-ray to upper gastrointestinal endoscopy, visceral arteriography and recent development of surgical technique with availability of intensive care unit, the overall mortality of upper gastrointestinal bleed has remained stable over recent decades and is still 6–14% in most studies<sup>3,4</sup>. The majority of deaths are related to poorly tolerated blood loss and the resultant shock, aspiration, and therapeutic procedures.

International consensus guidelines recommend early endoscopy within 24 h of presentation, because it significantly reduces the length of hospital stay and improves outcome<sup>5</sup>. Very early endoscopy (< 12 h) has so far not been shown to provide additional benefit in terms of reduction of rebleeding, surgery and mortality, compared with later endoscopy (within 24 h)<sup>6,7</sup>. However, emergency endoscopy should be considered in patients with severe bleeding.

Rapid assessment, resuscitation and early endoscopy form the basis of early management of patients with severe bleeding. Risk stratification is based on clinical assessment and endoscopy finding. Early upper GI bleeding(within 24 hours of presentation) confirms the diagnosis and allows for targeted endoscopic treatment, which results in reduced morbidity, hospital stay, the risk of recurrent bleeding and the need for surgery. Despite successful endoscopic therapy, re bleeding remains a risk and a second attempt at endoscopic therapy is recommended in most.

Thus we felt the need to undertake this study which is aimed to assess the clinical profile of the patients with upper GI bleed and also to evaluate the role of endoscopy in the management of upper GI bleeding.

## II. Methods and materials:

After obtaining approval of the institutional ethics committee and written informed consent from all the participants, a descriptive cross sectional study was under taken in the department of surgery, Regional Institute of Medical Sciences during the period from September 2014 to august 2016. 100 patients (75 male and 25 female, mean age of 43.82 years, range from 24 years to 64 years) were studied prospectively. Patients who bled at least once (hematemesis or melena) were included in the study. Clinical presentation included hematemesis (28) melena (39), hematemesis with melena (33). Excluded were patients with history of recurrent myocardial ischemia, peritonitis, severe cardiac decompensation, shock and poor patient compliance. Prior to the procedure, a detailed clinical history was obtained and examination done accordingly. The duration of bleed, age, sex, history of NSAIDs use, history of alcoholism were recorded. The study tools comprises Fujijon system 2200 processor and endoscope(working length of 102cm, diameter of 9.8mm and biopsy channel of 2.8mm), variceal band applicator, polypectomy snare, sclerosant, injection adrenaline and biopsy forceps. Chi-square and Fisher Exact test were employed for statistical analysis.

## III. Results and observation

One hundred patients were admitted in the surgical wards of RIMS hospital for upper gastrointestinal bleeding during the study period between September 2014 and August 2016. The average age of the participants was 43.82 with a standard deviation of 9.5. The minimum age was 24 years and maximum 64 years. Melena is most common and it accounts for 39% followed by patients having both hematemesis and melena which accounts for 33%. Hematemesis is seen among 28% of patients.

**Table 1. proportion of hematemesis and melena among upper GI bleed)**

Variables	Frequency (N=100)	Percentage (%)
Hematemesis	28	28.0
Melena	39	39.0
Hematemesis and melena	33	33.0

On an average an amount of 400ml of blood was vomited with an average frequency of 3. The minimum amount of blood vomited is 50ml and maximum is 800ml. the frequency of hematemesis ranges from 1-7. The average duration of hematemesis between two episodes was 12.7 hours and it ranges from 3 hours to 48 hours. Previous history of melena was seen in 20% of the total patients who presented with melena. While the frequency of melena ranges from 1 to 6 with an average of 2. The average duration of melena was 12.81 hours and the minimum duration was 2 hours with the maximum of 48 hours. More than half (60%) of upper GI bleeding were smokers and alcohol consumption was reported in 58% of patients.

**Table 2: Proportion of smoking and alcohol consumption among patients with upper gastrointestinal bleeding.**

Variable	Frequency	Percent
Smoking		
● Yes	60	60.0
● No	40	40.0
Alcohol consumption		
● Yes	58	58.0
● No	42	42.0

Varices were the most common endoscopic finding seen among upper GI bleeding patients. About 48% of the patients had esophageal varices. Duodenal ulcer was the second most common cause found among 25% of patients. Male had significantly higher proportion of esophageal varices as compared to females. 60% of males had esophageal varices while 3(12%) female had esophageal varices.

**Table 3: Causes of upper gastrointestinal bleed**

Variables	Frequency	Percentage
Varices (Esophageal)	48	48.0%
● Grade I	14	14.0%

●	Grade II	26	26.0%
●	Grade III	6	6.0%
Gastroesophageal			
●	GOV I	2	2.0%
●	GOV II	0	0%
Duodenal ulcer		25	25.0%
Gastric ulcer		4	4.0%
Gastritis		13	13.0%
Duodenitis		5	5.0%
*GIST		1	1.0%
Duodenal polyp		4	4.0%

\*Gastro intestinal stromal tumor

**Table 4: Proportion of varices by gender**

Varices			
Gender	Present	Absent	p-value
Male	45 (60.0%)	30 (40.0%)	<0.001**
Female	3 (12.0%)	22 (88.0%)	

There was no significant differences in the proportions of esophageal varices across different religion although the proportion was highest among hindus(54%).

**Table 5: Proportion of varices by gender**

Varices			
Gender	Present	Absent	p-value
Male	45 (60.0%)	30 (40.0%)	<0.001**
Female	3 (12.0%)	22 (88.0%)	

Esophageal varices were seen among 67.2% of hematemesis patients as compared to 17.9% of patients among non hematemesis patients. This difference was found to be statistically significant. 89.5% of patients with previous episode of hematemesis had esophageal varices as compared to 38.2% patients without hematemesis and it was found to be statistically significant. The proportion of esophageal varices was higher among melena patients as compared to those with no melena although there was no significant association. But there was a significant difference in occurrence of esophageal varices among patients with previous history of melena (75%) and patients without past history of melena.

**Table 6: Proportion of hematemesis and previous h/o hematemesis in varices**

Varices			
Hematemesis	Present	Absent	p-value
● Yes	41(67.2%)	20(32.8%)	<0.001**
● No	7 (17.9%)	32(82.1%)	
Previous h/o Hematemesis			
● Yes	17 (89.5%)	12 (10.5%)	0.058+
● No	31 (38.2%)	50 (61.8%)	

Smoking was not significantly associated with esophageal varices but alcoholism had statistically significant association with esophageal varices. Esophageal varices were found in 58.3% smokers and 63.8% of patients with alcoholism.

**Table 7. Esophageal varices by smoking and alcoholism**

Esophageal varices			
Variable	Present	Absent	p-value
Smoking			
● Yes	35(58.3%)	25 (41.7%)	0.058+
● No	13(32.5%)	27 (67.5%)	
Alcoholism			
● Yes	37 (63.8%)	21 (36.2%)	0.001**

●	No	11 (26.2%)	31 (73.8%)	
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21.4% of patients with history of NSAIDs intake developed esophageal varices as compared to 58.3% among those who did not take NSAIDs and it was found to be statistically insignificant.

**Table 8. NSAID use in varices**

Varices			
NSAID	Present	Absent	p-value
Yes	6 (21.4%)	22(78.6%)	0.945
No	42(58.3%)	30(41.7%)	

Mann-Whitney U test a non-parametric test is used instead of t-test since the Kolmogorov-Smirnov statistic shows that the variable days of hospital stay was not normally distributed. There was a significant difference in the number of days stayed in the hospital among patients who have undergone endoscopic management (viz. endoscopic variceal band ligation, Sclerotherapy, inj. Adrenaline and Polypectomy) as compared to those who were managed conservatively. The average days of hospital stay among those who were managed conservatively was 11 days (range 7-15 days) as compared to only 2 days (range 2-3 days) for endoscopically managed patients.

**Table 9: Days of hospital stay**

Variable	Endoscopic management	N	Median	Min	Max	Mean Rank	Sum of Ranks	Mann-Whitney U
Days of hospital stay	No intervention	37	11.00	7	15	42.00	1554.0	<0.001**
	endoscopic management	23	2.00	2	3	12.00	276.0	

7 patients with esophageal varices had rebleeding among which 5 were those who had undergone variceal band ligation and 2 had undergone injection Sclerotherapy. Among duodenal ulcer 2 cases had rebleeding, both had received 4 quadrant inj adrenaline. Out of 100 patients 3 patients were managed surgically, of which 2 were gastric ulcer whose biopsy showed malignancy, and the other GIST. All three cases underwent subtotal gastrectomy.

**Table 10: Blood group and Rh typing among upper gastrointestinal bleed.**

Blood group and Rh typing	Frequency (N=100)	Percent (%)
A positive	12	12.0
AB positive	5	5.0
B positive	27	27.0
O positive	56	56.0

#### IV. Discussion

Observations drawn from upper gastrointestinal endoscopic study of 100 successive patients in this study found males to have higher upper GI bleeding than females in the ratio of 3:1, similar to the study series of Kashyap R et al<sup>8</sup> with male to female ratio of 3:1 and Jaka H et al<sup>9</sup> which shows male to female ratio of 2.1:1. The study also show a significant association with different causes of upper GI bleeding namely esophageal varices, gastric ulcer and duodenal ulcer(p value <0.05).

The mean age is reported variably in different studies. In the present study, mean age was 43.82±9.57 and it ranges from 24 years to 64 years which is similar to studies reported from Nepal Gurung et al<sup>10</sup>. Previously done studies from India have showed similar age profile of the patients. There was a significant difference in the distribution of age across different causes of upper gastrointestinal bleed (p<.05). The median age for esophageal varices was 46 years and that of patients with both gastric ulcer & duodenal ulcer was 41 years.

In the present study, 28 % patients presented with hematemesis, 39 % of patients presented with isolated melena, and 33% patients presented with complains of hematemesis and melena. In a similar Indian study melena was the presenting complaint in 95.06% and hematemesis was present in 43.09%. Both hematemesis and melena were seen in 41.78%.Less number of recurrent bleeding cases found in this study may be due to first attack being adequately managed leaving negligible chances of recurrent bleed. Also change of dietary habits, abstaining from alcohol and NSAID abuses decreased re-bleeding. First attack leading to death or difficulty reaching hospital in time may have decreased number of patients having next episode. Still the number

of recurrent cases is a concern owing to its number and need better management from the treating doctor who referred the case for diagnostic upper gastrointestinal endoscopy.

The present study shows 60% of upper gastrointestinal bleeding were smokers and alcohol consumption was reported in 58% of the patients. History of NSAID intake was reported among 28% patients with upper gastrointestinal bleeding which was higher than the study conducted by Panigrahi PK et al<sup>11</sup>. stating that alcoholism and NSAID intake constituted 26%. Our study showed that alcohol use have statistically significant association with esophageal varices and gastric ulcer ( $p<.05$ ). Smoking was significantly associated with duodenal ulcer ( $p<.05$ ). History of NSAID intake was not significantly associated with different causes of upper gastrointestinal bleeding whereas a history of non-steroidal anti-inflammatory drugs (NSAIDs) ingestion prior to the onset of bleeding was significantly associated with the cause of the bleeding episode ( $P<0.001$ ).

Our Study shows that majority (56%) of upper gastrointestinal bleeding belongs to O positive blood group (table 10). The proportion of B positive was 27% and that of A positive and AB positive were 12% and 5% respectively which is in line with Bayan K et al<sup>12</sup>. Which states that blood group O was found to have higher frequency in the patient group than in the control group ( $P=0.004$ ). Rh positivity was also higher in patients than in controls ( $P=0.007$ ). H. pylori positivity was similar between blood groups among patients. The rebleeding and mortality rates between blood groups were also similar.

## V. Conclusion

Acute upper GI Bleed is a common medical emergency with significant morbidity and mortality. This study concludes that esophageal varices is the most common cause of upper GI bleeding followed by duodenal ulcer. and more common in males than females. With endoscopic management the length of the hospital stay can be shortened there by improving the quality of life. Early endoscopy that is within 24 hours improves the patients' outcome in terms of morbidity, mortality and duration of stay in hospital. It would hence justify more equipment to the endoscopy unit, 24 hour emergency endoscopy and training of more doctors in endoscopy so as to help in early diagnosis and treatment of this condition.

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