Endoscopic Evaluation of Upper Gastrointestinal Bleeding in Patients Presenting with Hematemesis within 24 Hours of Admission

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ABSTRACT

OBJECTIVE: To evaluate with endoscopy the common causes of upper gastrointestinal bleeding in patients presenting with hematemesis within 24 hours of admission.
DESIGN: A cross sectional observational study.
SETTING: Medical unit III, LUMHS Jamshoro.
DURATION: Six months from 1st Jul, 2014 - 31st Dec, 2014.
METHODS: One hundred cases of hematemesis were included in the study. Patients who refused endoscopy and those on NSAIDs, anticoagulants & steroids were excluded from study. Upper gastrointestinal endoscopy was performed within 24 hours of admission.
RESULTS: Out of 100 patients selected, 51 (51%) were males and 49 (49%) females. Majority of patients were between 30-60 years with mean age of 43.97 years ±SD 7.8. Variceal bleed was the most common cause n=54 (54%) followed by peptic ulcer disease (PUD) n=20 (20%). Esophagitis was noted in ten (10%) patients, gastric erosions in nine (9%), tumors of upper gastrointestinal tract in six (6%) and Mallory-Weiss tear was responsible in only one (1%) cases.
CONCLUSION: Variceal bleeding secondary to portal hypertension is the most frequent cause of bleeding in upper gastrointestinal tract. Increased prevalence of hepatitis B virus (HBV) and hepatitis C virus (HCV) in this part of the world has resulted in increased incidence of liver cirrhosis and portal hypertension highlighting the importance of prevention of HBV and HCV.

KEY WORDS: Upper gastrointestinal bleeding, Varices, Peptic ulcer disease, Endoscopy, Hepatitis.

INTRODUCTION

Acute upper gastrointestinal bleeding (UGIB) is a life threatening condition that results in 250,000-300,000 hospitalizations and 15000-30000 deaths/year in USA[1]. Patients with UGIB presents with hematemesis, malena or hematochezia[2,3]. The occurrence of UGIB in all age groups is two fold higher in men than women; nevertheless the fatality rate is identical in both gender[4]. The epidemiology of various causes of UGIB is changing in recent years. With the beginning of 20th century, peptic ulcer disease (PUD) rose in frequency to become one of the most common causes of UGIB. In Pakistan, the incidence of UGIB due to PUD is nearly half as compared with esophageal varices, resulting from liver cirrhosis due to HBV and HCV[5]. Varices are identified in 30% cases of compensated Liver cirrhosis and 60% with decompensated cirrhosis[6].

Upper gastrointestinal endoscopy (UGIE) is a diagnostic modality of choice for acute UGIB as it permits early detection and prognostic evaluation of source of hemorrhage. UGIE should be performed urgently in patients with hemodynamic instability and high risk endoscopic findings (varices, ulcer with active bleeding or a visible vessel) who benefit from endoscopic hemostatic therapy[7, 8]. The prognostic knowledge gained from the procedure can considerably lessen the use of health resources even if the lesion is not amenable to particular endoscopic treatment[9].

American society of gastrointestinal endoscopy (ASGE) described several danger signs which are linked with higher mortality such as recurring bleeding, requirement for endoscopic hemostasis or surgery, age over 60, severe co-morbidity, active bleeding, hypotension, RBC transfusion equal to or greater than 6 units and severe coagulopathy[4].

Risk assessment in patients with acute UGIB depends on degree of hemorrhage and general health of the patient[10]. By utilizing clinical variables, various scoring tools have been prepared to assist the triage of patients suffering from acute UGIB, identifying individuals who require urgent endoscopic assessment,

forecasts the risk of unfavorable outcome and help in guiding treatment[11]**.** The top risk evaluation tool is Rockall score derived from a large review of patients who were treated for acute UGIB in England[11]. The Rockall scoring system utilizes clinical features and endoscopy to spot patients at risk of adversative outcome following acute UGIB. The range of score is 0-11 points for total score and 0-7 for clinical score. Patients with total score of less than 2 following endoscopy are classified as low risk. Patients having clinical score of zero prior to endoscopy are regarded to be at less risk[12].

Another useful risk assessment tool is Blatchford scoring system (BSS). It is very valuable for differentiating among high and low risk group of patients suffering from UGIB, prior to endoscopy[13]. It utilizes only clinical and laboratory features and has no endoscopic factor. The BSS varies from 0-23, the majority of patients having score of six and above require intervention[14]

Upper gastrointestinal endoscopy is an effective initial diagnostic modality for locating site and cause of the bleeding. As bleeding esophageal varices stays the most frequent source of hematemesis in our society due to high prevalence of hepatitis B & hepatitis C, we undertook this study to evaluate different causes of acute upper G.I. bleeding endoscopically.

METHODOLOGY

Study Design: A cross sectional observational study.

Place & Duration: This study was conducted at Medical unit III, LUMHS Jamshoro, from 1st Jul, 2014 - 31st Dec, 2014.

Study Population: Patients who presented with hematemesis within 24 hours of admission.

Sample size: Total sample size was 100.

Sample Technique: Non probability purposive sampling

Inclusion criteria:
1. Patients presenting with hematemesis
2. Patients with a history of upper gastrointestinal bleed in the past 24 hours
3. Age between 30-60 years

Exclusion Criteria:
1. Patients with history of hematemesis >24 hours
2. Patients on anticoagulants, NSAIDs, Steroids.
3. Bleeding diathesis like D.I.C., Leukemia, thrombocytopenia
4. Advanced cardio respiratory disease, CVA, Renal disease, Advanced malignancies
5. Patients who refuses endoscopy

Data Collection Procedure: Hundred cases of acute UGIB were enrolled for the study after meeting inclusion criteria. Patients were collected from medical wards and after getting informed consent were sub-

jected to detailed history taking and physical examination. Data such as age, sex & clinical presentations were recorded. Patients were asked about bleeding (hematemesis, malena or both), history of drugs linked with UGIB (NSAIDs, steroids, anticoagulants), dysphagia and history of peptic ulcer disease, hepatitis and coagulation disorders. Presence of any underlying disease was also recorded. Each patient was then examined for signs of chronic Liver disease like pallor, Jaundice, palmer erythema and spider Nevei. Abdomen was examined for epigastric tenderness, splenomegaly, ascites and caput medusae. Blood samples were withdrawn for full blood count, LFT, coagulation profile, HBsAg, anti HCV, anti helicobacter pylori antibodies. Ultrasound of abdomen was also done in every patient. All patients were then undergone for UGIE, performed by a senior endoscopist having ≥ 05 years endoscopic skills experience. Olympus-XQ 30 video endoscope was used. Endoscopic findings were recorded and etiologies noted. All data entered in a proforma.

Data Analysis: For data analysis special package for social sciences (SPSS) version 16.0 was used. Categorical variables presented as frequencies and percentages. Age presented as mean ±SD. Confidence interval will be calculated for categorical variables for proportion.

RESULTS

This study was done on 100 patients in whom hematemesis was the primary presenting complaint. Both sexes were almost equally represented in our study; there were 51 males (51%) and 49 females (49%). The age range was 30-60 years with mean age of 43.97 ± 7.8 SD. Figure I show the age distribution of the patients and table I shows the mean age with SD.

The causes of hematemesis as seen on UGIE are shown in figure II. The most common cause was esophageal varices n=54 (54%) followed by peptic ulcer disease n=20 (20%).

Table II show the proportions and confidence interval for all causes of hematemesis. PUD represented 1/5th of all causes of hematemesis with a confidence interval (95%) of 12-28%. Esophageal varices reported more than half of the causes (54%) and a confidence interval of 44-64%.

Furthermore, all the causes of hematemesis were stratified on the basis of age and sex of the patients so to control the effect of these variables on the outcome (i.e. causes of hematemesis). Table III & IV show causes of hematemesis according to age & sex respectively.

The first age group (30-40 years) had the highest

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number of patients (n=47). Out of this majority belong to varices (44.7%). Figure III show the causes of hematemesis in this age group.

The second age group (41-50) comprised of 37 patients. Varices were again the most common cause of hematemesis (67.5%) followed by PUD (16.2%). Figure IV show the causes of hematemesis in this age group.

The third age group (51-60) comprised of 16 patients and varices represented the most common cause (50%) followed by tumors and Esophagitis (18.8% each). Figure V show the causes of hematemesis in this age group.

TABLE I: MEAN AGE AND STANDARD DEVIATION OF THE SUBJECTS

		Age (Years)
No.	Valid Missing	100 0
Mean		43.97
SD		7.81

FIGURE I:
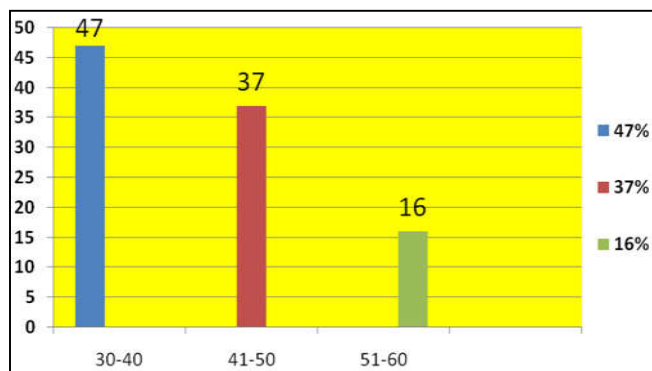### AGE DISTRIBUTION OF THE SUBJECTS (n=100)

FIGURE II: CAUSES OF HEMATEMESIS IN PATIENTS STUDIED (n=100)
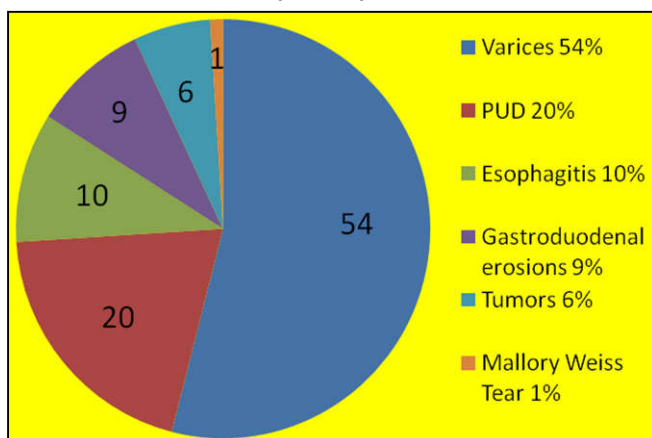

TABLE II: CATEGORICAL VARIABLES, PROPORTIONS AND CONFIDENCE INTERVALS FOR DIFFERENT CAUSES OF HEMATEMESIS

Cause	% (Proportions)	Confidence Interval (95%)
Peptic Ulcer	20 (0.20)	12-28
Esophageal Varices	54 (0.54)	44-64
Esophagitis	10 (0.10)	4-16
Gastro duodenal erosions	9 (0.09)	3-15
Tumors	6 (0.06)	1-11
Mallory Weiss Tear	1 (0.01)	0-3

FIGURE III: CAUSES OF HEMATEMESIS IN AGE GROUP 30-40 YEARS (n=47)
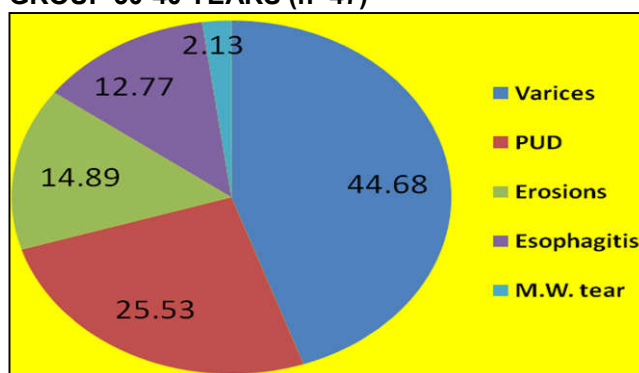

FIGURE IV: CAUSES OF HEMATEMESIS IN AGE GROUP 41-50 YEARS (n=37)
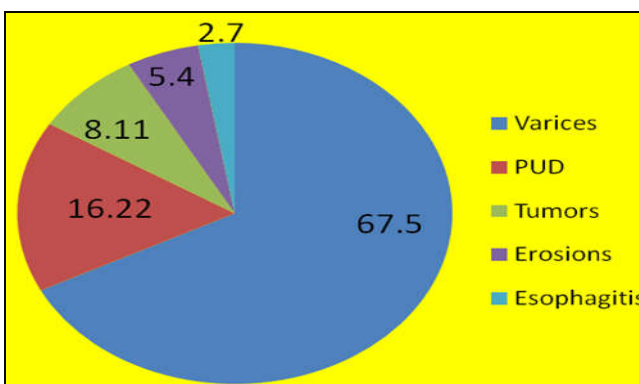

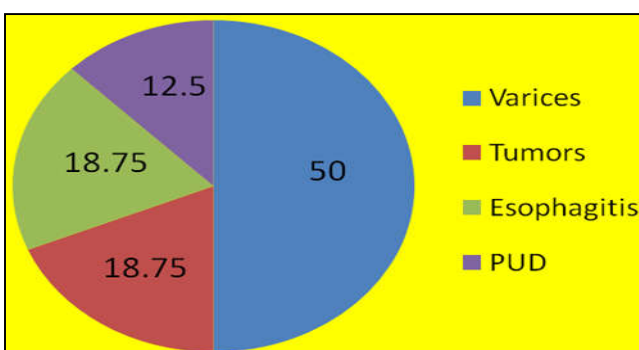### FIGURE V: CAUSES OF HEMATEMESIS IN AGE GROUP 51-60 YEARS (n=16)

TABLE III: CAUSES OF HEMATEMESIS LISTED AGE WISE (n=100)

Age (years)	No.	PUD	Varices	Gastro duodenal erosions	Esophagitis	Tumors	Mallory Weiss Tear
30-40	47	12	21	7	6	0	1
41-50	37	6	25	2	1	3	0
51-60	16	2	8	0	3	3	0
Total	100	20%	54%	9%	10%	6%	1%

TABLE IV: CAUSES OF HEMATEMESIS LISTED GENDER WISE (n=100)

Gender	No.	PUD	Varices	Gastro duodenal erosions	Esophagitis	Tumors	Mallory Weiss Tear
Male	51	9	28	5	4	5	0
Female	49	11	26	4	6	1	1
Total	100	20%	54%	9%	10%	6%	1%

DISCUSSION

Acute UGIB is frequent and life threatening situation and requires timely evaluation and adamant medical treatment to prevent adverse outcomes[14]. It has a multifactorial etiology that fluctuates broadly among various geographical regions of the world. The epidemiological study of these cases in Pakistan is yet to be organized. In the previous twenty years the introduction of state of art UGIE has noticeably enhanced the diagnostic and curative modalities in the treatment of UGIB[9]. Despite advances in early diagnosis and management of this common emergency, the case death rate remains unaffected to 7-10%. The reason behind this may possibly be that nowadays patients are older and have higher numbers of co-morbidities as compared to the past[14].

No morbidity or mortality was reported in relation to endoscopic examination in our study. This study revealed varices as a cause in > 1/2 and PUD in 1/5th cases. In a study from Rawalpindi done in 2001 by Hussain T et al[9], variceal bleed was the most common cause of UGIB (35.2%) followed by PUD (21.6%). Another study from Peshawar done in 2006 by Khan et al[15], reported variceal bleed (45.7%) and PUD (31.4%) as the most common causes of UGIB.

Gastro intestinal Endoscopic bleeding survey by ASGE on upper GIT involving 2225 patients revealed that 6 pathological entities were responsible for most bleeding episodes. These include duodenal ulcer, Gastric ulcer, acute gastritis, variceal bleed, Esophagitis and Mallory Weiss tear. Survey on these 2225 patients revealed that PUD was the most common cause and varices were present in only 15.4% of cases[16,17] compared to 54% in our study. The higher incidence of variceal bleed in our study is due to higher rate of chronic infection with HBV and HCV leading to end stage liver disease. Lower incidence of PUD as a cause of UGIB in this study could be because of frequent use of proton pump inhibitors (PPI) and H_2 blockers by medical practitioners in patients with symptoms of dyspepsia[18].

Augmented number of patients with Esophagitis (10%), Gastro duodenal erosions (9%) and Mallory Weis tear (1%) in this study are due to gastro esophageal reflux disease (GERD) and use of NSAIDs. NSAIDs are a main reason of morbidity and mortality resulting in deaths of 1200 patients / year in UK[19].

CONCLUSION

Esophagogastroduodenoscopy is the only reliable tool for correctly determining the etiology of UGIB. We observed esophageal varices as the main cause of UGIB in our setup which is similar to those in local literature but different from those in western literature. Predominance of varices as a cause of acute UGIB reflects high prevalence of CLD due to viral hepatitis.

RECOMMENDATIONS

These observations necessitate proper multicenter epidemiological survey in order to prevent the transmission of HBV and HCV. Vaccination against HBV can significantly reduce the burden of CLD as well as UGIB and effectively combat the adverse outcomes of bleeding.

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