

# A STUDY OF CLINICAL CHARACTERS, ACCURACY OF ENDOSCOPY IN DIAGNOSIS AND EFFICACY OF ENDOSCOPIC TREATMENT IN PATIENTS PRESENTING WITH UPPER GI BLEEDING

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## ABSTRACT

### BACKGROUND

Acute Gastrointestinal (GI) haemorrhage is a common clinical problem with diverse manifestations. Patients may present with both haematemesis and melaena, an ageing patient population with an increased prevalence of associated medical comorbidities has kept the mortality figures largely unchanged for the past thirty years, despite technological advances in endoscopy and other minimally-invasive procedures, the hospital mortality rate has remained at about 10% in the past 30 years.

### MATERIALS AND METHODS

Proposed to study the clinical characters, accuracy of endoscopy in diagnosis and efficacy of endoscopic treatment in patients presenting with upper GI bleeding to Surgery Department in KIMS, Hubli, during the period of 2014-2016. The study was a prospective descriptive study among patients who presented with acute upper gastrointestinal bleeding.

### RESULTS

The male-to-female ratio was 3.9:1. Oesophageal varices were the leading cause of upper GI bleeding in both sexes. Other causes, duodenal ulcers, gastric ulcers and gastric cancer were commonly seen in males, whereas gastric erosions were seen equally in both sexes. Alcoholic liver disease is commonest cause of portal hypertension in upper GI bleeding followed by extrahepatic portal hypertension and noncirrhotic portal hypertension.

### CONCLUSION

Upper GI endoscopy serves as the mainstay in the diagnosis of upper gastrointestinal bleeding and its therapeutic applications are effective in all cases. It is therefore recommended that early endoscopy should be performed preferably within 24 hours of the onset of bleeding.

### KEYWORDS

Gastrointestinal Haemorrhage, Diagnostic Techniques, Endoscopy.

**HOW TO CITE THIS ARTICLE:** Basur BN, Sangana BP, Chandran A. A study of clinical characters, accuracy of endoscopy in diagnosis and efficacy of endoscopic treatment in patients presenting with upper GI bleeding. J. Evid. Based Med. Healthc. 2017; 4(61), 3667-3671. DOI: 10.18410/jebmh/2017/731

### BACKGROUND

Acute Gastrointestinal (GI) haemorrhage is a common clinical problem with diverse manifestations. Such bleeding may range from trivial to massive and can originate from virtually any region of the GI tract including the pancreas, liver and biliary tree.<sup>1</sup> Haematemesis and melaena are the most common presentations of acute upper gastrointestinal bleeding and patients may present with both symptoms. Occasionally, a brisk upper gastrointestinal bleeding may present as haematochezia. Upper gastrointestinal bleeding is a disorder with both high morbidity and mortality.<sup>1</sup> Bleeding from upper gastrointestinal tract is approximately four times

as common as bleeding from the lower gastrointestinal tract. Despite technological advances in endoscopy and other minimally-invasive procedures, the hospital mortality rate has remained at about 10% in the past 30 years. All patients who develop acute gastrointestinal bleeding need urgent assessment. Almost, all should be admitted as an emergency to hospital. Patients who present with haematemesis tend to have more severe bleeding than those who present with melaena alone.<sup>2,3,4</sup>

The use of various endoscopic techniques, medical therapies and visceral angiography has progressively diminished the role of surgery in the emergent management of upper gastrointestinal bleeding. Nevertheless, operative intervention still represents the most definitive intervention and remains the final therapeutic option for many bleeding lesions of the upper gastrointestinal tract. The main factors predicting death include increasing age, comorbidity and endoscopic findings. Mortality is extremely low in patients under 40 years old, but thereafter increases steeply with advancing age. Patients who have severe comorbidity,

Financial or Other, Competing Interest: None.

Submission 30-06-2017, Peer Review 07-07-2017,

Acceptance 18-07-2017, Published 28-07-2017.

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DOI: 10.18410/jebmh/2017/731



particularly renal insufficiency, hepatic failure or disseminated malignancy have a poor prognosis. Hospital admissions maybe needed for gastrointestinal bleeding in many of these and death is often due to the disease progression rather than bleeding.<sup>5,6</sup> The history and physical examination provide crucial information for the initial evaluation of a patient presenting with gastrointestinal tract haemorrhage. Alcohol abuse and cirrhosis should suggest portal hypertension and oesophageal varices as a source for the bleeding. A history of recent Nonsteroidal Anti-Inflammatory Drug (NSAID) abuse should elicit concern about bleeding from gastric ulcer.

In the management of a patient with acute upper gastrointestinal bleeding, the priority is to support the circulation rather than to identify the source of bleeding. Endoscopy is undertaken once resuscitation has been achieved. At least, one large bore cannula is inserted in a substantial vein. The rate of infusion depends on the severity of shock. Crystalloids should be used rather than colloids (such as dextrans). If blood transfusion is required, the aim is to maintain a haemoglobin concentration of 10 grams per deciliter (10 g/dL). In patients with suspected liver disease, the use of normal saline should be avoided because of the risk of precipitating ascites after resuscitation endoscopy is undertaken. In most cases, this is done electively on the next available routine list, but within 24 hours of admission, only a minority of profusely bleeding patients need emergency endoscopy.<sup>7</sup>

Surgery is the best way of stopping active ulcer bleeding and preventing rebleeding, but it carries a high morbidity and mortality. It is now reserved for cases in which endoscopic treatment has failed. Surgical treatment for acute variceal bleeding including oesophageal transection with devascularisation and portacaval shunt is rarely done because of unacceptable mortality. It has been replaced by endoscopic therapy and Transjugular Intrahepatic Portosystemic Shunt (TIPS). However, shunts may precipitate encephalopathy.<sup>7,8</sup>

The aim of the study is to obtain clinical characters, accuracy of endoscopy in diagnosis and efficacy of endoscopic treatment in patients presenting with upper GI bleeding to our department in KIMS, Hubli.

## MATERIALS AND METHODS

All patients presenting with upper GI bleeding either haematemesis or melaena attending Surgical Department in KIMS, Hubli, will be taken as sample size. A total of seventy nine (79) patients were included in the study.

As soon as the patient is admitted, a detailed history regarding the haematemesis duration, number of episodes, amount, colour, character and melaena will be recorded and also history regarding symptoms of nausea, vomiting, dysphagia, regurgitation, heartburn, abdominal pain, appetite, weight gain or loss and recent changes in bowel habits prior to the bleed.

Past history of haematemesis and melaena, any endoscopy and endoscopic treatment, ingestion of drugs will be enquired and previous histories of cardiovascular,

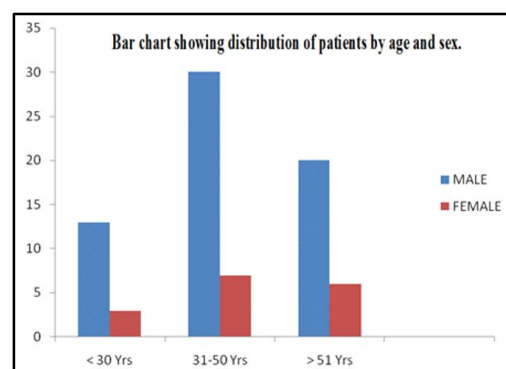
respiratory, renal, liver diseases and jaundice will be thoroughly evaluated. Special emphasis will be obviously laid upon the habit of consumption of alcohol by the patient.

A detailed examination including patient's mental status, general appearance and condition of skin will be done. Pulse rate, BP, peripheral oedema, signs of cardiac failure and liver failure will also be noted. Examination of the abdomen for any area of tenderness, palpable masses, ascites, hepatomegaly, splenomegaly and rectal examination will be carried out. Based on clinical data obtained, a provisional diagnosis will be made.

Investigations such as CH, RFT, S. electrolytes, PT-INR, blood grouping and Rh typing, LFT and abdominal scan were done as and when wanted. These patients will be then submitted to oesophagogastroduodenoscopy using a fiberoptic instrument.

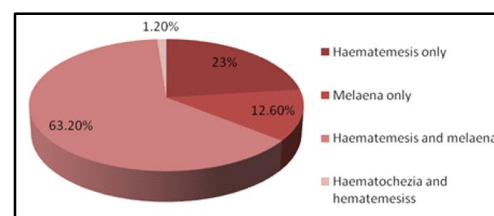
## RESULTS

The patients' mean age was 44.85 years with a standard deviation of 15.38. The oldest patient was 86 years old and the youngest was 18 years old. The peak age groups were 31-50 years, which included 37 patients (46.8%). Age group less than 31 years had 16 patients (20.2%). The age group more than 50 years accounted for about 26 patients (32.9%). There were a total of 63 males and 16 females (20.2%). The male-to-female ratio was 3.9:1.



**Figure 1. Bar Chart Showing Distribution of Patients by Age and Sex**

Most of the patients presented with both haematemesis and melaena (63.2%), haematemesis only presented in 23% of patients and melaena only presented in minority of patients (12.6%), one patient presented with haematochezia and haematemesis. Haematemesis and/or melaena presented in 98.7% of all patients with acute upper GI bleeding. History of previous bleeding in 11 patients (13.9%).



**Figure 2. Pie Diagram Showing Mode of Presentation of Upper Gastrointestinal Haemorrhage**

Oesophagogastroduodenoscopy (OGD) was used as a standard diagnostic tool. Out of 79 patients who presented with upper GIT bleeding, OGD was done in 75 of them. Oesophageal varices were found to be the leading cause of upper GI bleeding. 48 patients had varices (64%), of which duodenal ulcers were found in 6 patients (8%), gastric ulcers were found in 6 cases (8%) and gastric erosion in 6 cases (8%), gastric malignancy was found in 3 patients (4%), OGD was normal in 3 patients (4%). Other diagnoses were reported in 3 cases (4%) of upper GI bleeding. These included a case of gastric polyp, a case of Mallory-Weiss tear and a case of corrosive oesophageal injury. OGD was not done in 4 cases (5%).

The pie chart summarises these findings, highlighting varices as a major cause of UGIB. Most of the patients with upper bleed were between 31 to 50 yrs. of age. In our study, portal hypertension and varices were most common in age group of 31-40 yrs. of age. In this age group, the incidence of PHT and varices was 40% (19 cases out of 48). Peptic ulcers were commonest in patients who were above 50 years of age. This age group contributed 7 cases (58.3%), followed by erosive gastritis between 30-60 yrs. 4 cases (66.6%), gastric cancer found in the age group of 40-70 yrs. of age, 1 case of Mallory-Weiss syndrome seen in 75 yrs. old patient, corrosive oesophageal injury found in 70 yrs. old patient.

Oesophageal varices were the leading cause of upper GI bleeding in both sexes. In males, it accounted for 63.5% of all males with upper GI bleeding, and in females, it accounted for 50% of all females with upper GI bleeding. Other causes duodenal ulcers, gastric ulcers and gastric cancers were commonly seen in males, whereas gastric erosions were seen equally in both sexes.

In this study, oesophageal varices being the most common presentation of upper GI bleed was clinically graded using upper GI endoscope depending on size and anatomical location. Among all varices, oesophageal varices were most common seen in 46 patients (95.8%). In oesophageal varices, most of them (45.8%) presented as grade 3, followed by 10 patients (20.8%) with grade 2 oesophageal varices and 5 patients (10.4%) with grade 1 varices, one patient presented with grade 4 disease. Combined oesophageal and fundal varices were found in 8 patients, 16.8% presentation in all varices. Isolated fundal varices were seen only in 4.2% of patients. Alcoholic liver disease is commonest cause of portal hypertension in upper GI bleeding consisting 34 patients (70.83%), followed by extrahepatic portal hypertension consisting 8 patients (16.67%) and noncirrhotic portal hypertension 2 patients (4.17%). 4 patients (8.33%) were not diagnosed the cause of PTH.

Sl. No.	Disease	Number of Cases	Percentage
1.	Varices	48	64
2.	Gastric erosion	6	8
3.	Gastric ulcer	6	8
4.	Duodenal ulcer	6	8
5.	Malignancy	3	4

6.	Mallory-Weiss syndrome	1	1.3
7.	Gastric polyp	1	1.3
8.	Corrosive oesophageal injury	1	1.3
9.	Normal study	3	4
<b>Total</b>		<b>75</b>	<b>100</b>

**Table 1. Aetiological Incidence**

Out of 48 patients with variceal bleeding, 29 (60.4%) patients are managed conservatively, 14 (29.2%) patients managed endoscopically and 5 (10.4%) patient managed with surgery. Out of 48 patients with variceal bleeding, 14 (29.2%) patients managed endoscopically, among which 10 (71.4%) patients undergone banding, 3 (21.42%) patients undergone sclerotherapy and one patient undergone both banding and sclerotherapy injection. Peptic ulcer disease was the second most common cause of upper GI bleeding in present study. Causes of peptic ulcer disease are in 4 cases (33.33%) alcohol consumption, in 2 cases (16.67%) drug induced, in 2 cases both alcohol consumption and drug induced and in 4 cases (33.33%) causes were not found.

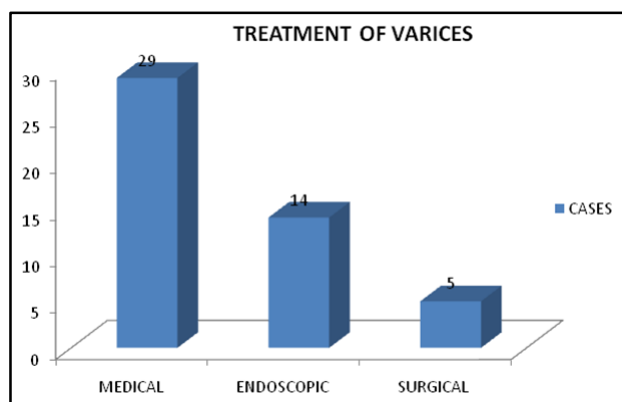
Sl. No.	Aetiology	Percentage
1.	Alcoholic liver disease	34 (70.83%)
2.	Extrahepatic portal hypertension	8 (16.67%)
3.	Noncirrhotic portal hypertension	2 (4.17%)
4.	Not detected	4 (8.33%)
<b>Total</b>		<b>48 (100%)</b>

**Table 2. Aetiology of Portal Hypertension**

Most patients were submitted to a conservative medical treatment only (73.5%) consisting of fluid replacement with intravenous normal saline or lactated Ringer's solution, parenteral H<sub>2</sub> receptor antagonists or proton pump inhibitors and eventually blood transfusions. 16 (20.2%) patients managed endoscopically and 5 (6.3%) patient managed with surgery.

Out of 79 patients with upper GI bleeding, 16 (20.2%) patients managed with endoscopic methods among which 10 (62.5%) patients undergone banding, 4 (25%) patients undergone sclerotherapy, one patient undergone adrenaline injection and one patient undergone both banding and sclerotherapy injection.

Emergency surgery was carried out in one patient, who had bleeding duodenal ulcer and whose endoscopic therapy (adrenaline injection) was failed. Duodenotomy with bleeder ligation with feeding jejunostomy was done. Four patients were submitted to elective surgical procedures, one was chronic calcific pancreatitis with portal hypertension, splenectomy with sleeve gastrectomy with distal pancreatectomy done and three cases were extrahepatic portal vein obstruction among which one underwent splenectomy with devascularisation of stomach and two underwent splenectomy with proximal splenorenal shunt.



**Figure 3. Bar Diagram Showing Different Modalities of Treatment of Oesophageal Varices**

The clinical outcome of patients was defined in terms of blood transfusion requirement, rebleeding, need for emergency surgery, length of hospital stay and mortality and it was assessed using the Rockall scoring system. The Rockall's score was calculated in 75 (96%) patients. Of these, 36 (48%) patients had Rockall score <3 (low-risk group), whereas 39 (52%) had Rockall score 3-8 (medium-risk group) and no patients had >8 (high-risk group), respectively.

On admission, the mean haemoglobin level of patients with acute upper GI bleeding was 8.01 g/dL, minimum haemoglobin level was 2 g/dL and maximum haemoglobin was 14 g/dL. The mean number of units of blood transfused was 2.01, the range being between no blood transfusion and maximum of 13 units and standard deviation was 2.38. Rebleeding was reported in 7.6% of the patients (6/79). Two patients were duodenal ulcer with active oozing and 4 patients were with oesophageal varices.

In patients admitted with acute upper GI bleeding, the mean hospital stay was 10.2 days, the minimum hospital stay was 2 days, the maximum was 70 days and standard deviation was 12. The hospital stay was prolonged in patients who had gastroesophageal varices. Out of 48 patients with varices, 5 (10.5%) had a hospital stay of 14-27 days and 4 patients (8.3%) had a hospital stay more than 27 days.

Out of 6 patients who had hospital stay more than 27 days, one patient with duodenal ulcer, one patient with gastric ulcer and 4 patients with varices. In gastric erosive patients, 4 patients had hospital stay less than 14 days and two patients had hospital stay 14-27 days. Patients with normal endoscopy who did not undergo endoscopy and other endoscopic finding patients had hospital stay less than 14 days. 68 patients (86%) were discharged home, 4 patients (5%) were referred to higher centre, out of which, 3 cases were metastatic gastric cancer, one was carcinoma of lung. Three patients (3.8%) went home against medical advice, one patient was absconded and 3 patients died giving a mortality rate of 3.8%.

The overall mortality was 3.8%. All 3 patients were alcoholic liver disease with portal hypertension with oesophageal varices, 2 patients died due to hypovolaemic shock and one due to septicaemia with hepatic

encephalopathy. Four patients were referred to higher centre for further management, out of which 3 were gastric cancer and one was lung cancer. One patient with corrosive oesophageal injury was absconded.

## DISCUSSION

Upper gastrointestinal bleeding is one of the important causes of admission in surgical intensive care unit requiring critical care and immediate intervention. The commonest causes of acute upper gastrointestinal tract bleeding include peptic ulcer disease, ruptured oesophageal varices and gastroduodenal erosive lesions. Upper GI endoscopy is the only useful tool to evaluate all kind of upper GI bleed. Upper GI endoscopy is helpful in identifying the bleeding site and to assess the rate and amount of bleeding. It is handy as a therapeutic interventional device most of the time.<sup>9,10</sup>

In the present study consisting total of 79 patients, majority of the patients presenting with upper GI bleed were males (79.8%), whereas female patients were only 20.2%. The mean age of presentation was  $44.85 \pm 15.38$  yrs.

In the present study, most of the patients presented with both haematemesis and melaena (63.2%), haematemesis only presented in 23% of patients and melaena only presented in minority of patients (12.6%), one patient presented with haematochezia and haematemesis.

Upper GI endoscopy has been reported to be an effective initial diagnostic modality to localise the site and cause of bleeding in almost 85-90% of patients. In the present study, the site of bleeding could be detected accurately in 96% of patients, which is similar to that reported in other studies.

In the present study, the commonest cause of upper GI bleed was found to be oesophageal varices as seen in 56% of the total patients.

The majority of patients in the present study were treated non-surgically by either medical or endoscopic treatment. Surgery was performed in only 6.3% of patients for upper GI bleeding. Therapeutic endoscopy has recently become the primary modality employed in the management of upper gastrointestinal bleeding, and over the past 20 years, the need for urgent surgery has diminished and appears restricted to salvage-type procedures for the unstable exsanguinating patient or when endoscopic therapy combined with pharmacological intervention fails to secure permanent haemostasis.<sup>11,12</sup>

Endoscopic therapy is a well-established procedure in the management of GI bleeding and can be used as an effective tool for selected patient's endoscopic therapy with either band ligation or injection sclerotherapy is an integral component of the management of acute variceal bleeding and of the long-term treatment of patients after a variceal bleed.<sup>13</sup>

This study shows the value of endoscopy in upper GI bleed as not only a diagnostic tool, but also helped in therapeutic intervention especially in patients with variceal bleed. In the present study, endoscopic management was the second most common modality of treatment in 20.2% of the total patients consisting of endoscopic sclerotherapy 4 (5%), banding 10 (12.6%), adrenaline injection 1 (1.6%)

and both banding and sclerotherapy 1 (1.6%) of the total patients.

In agreement with other studies, the need for blood transfusion in the present study was identified as a risk factor for death in upper GI bleeding. In this study, blood transfusion requirement increased with higher Rockall scores probably implying that those with higher scores are more likely to be sicker with higher blood transfusion requirement.

The overall length of hospital stay in the present study was higher compared to other studies. In the present study, patients who underwent surgical treatment stayed longer in the hospital stay than those who had either medical or endoscopic treatment. The length of hospital stay also increased with higher Rockall scores probably implying that those with higher scores are sicker with more comorbid disease or adverse outcomes.

Rebleeding rates have been reported in literature to occur in roughly 20-30% of patients and is associated with a high risk of death. In the present study, rebleeding was noted in 3.8%, a figure which is significantly low compared to that found in previous studies.

Further study is needed to confirm this observation. Rebleeding is associated with increased mortality. Therefore, timely identification and aggressive management of patients at high risk for continued bleeding or rebleeding have become the major focus of upper GI bleeding therapy.

Emergency surgery was seldom necessary. Emergency surgery was carried out in one patient who had bleeding duodenal ulcer and whose endoscopic therapy (adrenaline injection) was failed.<sup>13</sup>

The overall mortality rate in our patient population was 3.8%, which is somewhat lower than the 10% reported in most western studies. Mortality rate was significantly higher in patients with variceal bleeding and shock.

## CONCLUSION

Endoscopy is essential in the initial evaluation and management of upper gastrointestinal bleeding. In this study, UGI endoscopy provided accurate diagnosis in most of the patients. The most common cause of UGI bleeding was oesophageal varices. The majority of patients in the present study were treated non-surgically by either medical or endoscopic treatment. Therapeutic endoscopy has recently become the primary modality employed in the management of upper gastrointestinal bleeding. Endoscopic therapy can be used as an effective tool for selected patients. This concludes that upper GI endoscopy serves as the mainstay in the diagnosis of upper GI bleeding and its therapeutic applications are effective in all cases. It is therefore recommended that early endoscopy should be

performed preferably within 24 hours of the onset of bleeding.

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