Original Article

Frequency of esophageal varices in patients with upper gastrointestinal bleeding

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ABSTRACT

Objective: To calculate the frequency of esophageal varices in patients with upper gastrointestinal bleeding.

Methodology: It is a cross sectional study. One hundred patients of upper GI bleeding were included in the study. After initial history and clinical examination, upper GI endoscopy was performed to assess the cause of bleeding and all the relevant data was entered in the specific proforma designed by authors.

Results: One hundred patients (56 male and 44 females) of upper GI hemorrhage were included. Fifty three patients had esophageal varices while 12 patients had duodenal ulcer, 14 had gastric ulcer, 16 had Gastroduodenal erosions, two patients had erosive esophagitis, one patient had Mallory Weiss tear, one had gastric carcinoma and one had coagulopathy.

Conclusion: Esophageal varices are the most common cause of upper GI bleeding in this area where this study was conducted.

KEY WORDS: Hematemesis, Melena, Esophageal varices, Gastric ulcer, Duodenal ulcer, Esophagitis, Coagulopathy.

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INTRODUCTION

Upper gastrointestinal (GI) hemorrhage is a serious event associated with significant morbidity and mortality. It remains a common cause for admission to hospitals worldwide. Bleeding from gastrointestinal tract is manifested by both hematemesis and melena or either alone. Upper GI hemorrhage may rarely present in the form of hematochezia.

Hematemesis is vomiting of gross blood.[1] The annual incidence of upper GI hemorrhage in United States is approximately 102/100,000[2] with a mortality of 5.57%.[3] Three independent clinical predictors of death in patients hospitalized for upper GI hemorrhage are; increasing age, comorbidities and hemodynamic compromise (tachycardia or hypotension).[4]

Upper GI hemorrhage may originate from a number of sources such as.[5]

1. Peptic ulcer disease.
2. Esophageal varices & portal hypertensive

gastropathy.
3. Mallory Weiss tear.
4. Gastro-duodenal erosions.
5. Erosive esophagitis.
6. Gastric neoplasms.
7. Others as angiodysplasia, Dieulafoy's lesion, aortoenteric fistula, hemobilia, hereditary hemorrhagic telangiectasia, uremia and coagulation disorders.

The multifactorial etiology of upper GI bleeding varies widely between different geographical areas of the world. Two most common causes of the bleeding are peptic ulcer and esophageal varices and of the two the esophageal varices are the most common cause of upper GI bleeding in Pakistan.[6] Esophageal varices are dilated submucosal veins that develop in patients with underlying portal hypertension. The most common cause of portal hypertension is cirrhosis of liver. More recent data suggest that the proportion of cases because of peptic ulcer disease has declined.[7]

Variceal hemorrhage is associated with more substantial morbidity and mortality than other causes of upper GI bleeding, as well as higher hospital costs. Variceal bleeding stops spontaneously in over 50 percent of patients, but the mortality rate approaches 70-80% in those with continued bleeding.[8] Each episode of variceal hemorrhage is associated with a 30 percent risk of mortality. The risk of rebleeding is high (60 to 70 percent) until gastroesophageal varices are obliterated.[9] One year survival after variceal hemorrhage can be poor. Three independent predictors of bleeding are the severity of the liver disease, the size of the varices and the presence of red markings on the varices.[10]

The study which was part of FCPS Dissertation was conducted to find out the frequency of esophageal varices in upper GI bleeding; a common medical emergency in our part of the country. Prevention and early treatment of chronic hepatitis and cirrhosis reduces the potentially fatal complications like esophageal varices.

METHODOLOGY

This descriptive cross sectional study was conducted in the emergency department and the department of medicine Nishtar Hospital Multan. Duration of data collection was six months starting from March 9, 2007 to September 8, 2007. One hundred patients of upper GI bleeding were included. Non-probability purposive sampling technique was used. All the adult patients presenting with upper gastrointestinal bleeding in the form of hematemesis or melena were included. Exclusion criteria were when there was a source of bleeding in the upper or lower airway, patient not fit for endoscopy due to some medical problems like severe cardiac or respiratory illness or hemodynamically unstable, non-cooperative patient as those with the advanced hepatic encephalopathy, patients who refused hospital admission for further investigations and treatment.

A total of one hundred patients of upper GI bleeding were included in the study during the data collection period of six months. The patients of upper GI bleeding were diagnosed clinically on the basis of hematemesis and melena. These patients were admitted through the emergency department and the medical outdoors of Nishtar Hospital Multan. Informed consent regarding admission and further treatment was taken. The provisional diagnosis was made by taking history, which included the duration and amount of hematemesis and color of the vomitus. Precipitating factors like NSAIDs use, alcohol ingestion or the use of anticoagulants were investigated. Complete general physical examination was performed. Alimentary, respiratory, cardiovascular, and central nervous system were examined including examination for epigastric tenderness and signs of chronic liver disease. Patients then underwent upper GI endoscopy which served both diagnostic and therapeutic purposes.

Endoscopic evaluation of patients with upper GI hemorrhage was done by the endoscopy department of Nishtar Hospital, Multan. Procedure was done using 4% Xylocaine throat spray. No sedating premedication was used. For gastric ulcer with suspicion of malignancy, biopsies were taken from the ulcer edge and were sent for histopathology.

Statistical Package for Social Science (SPPS) version 10 was used to analyze data. Descriptive statistics for numerical data i.e. age was calculated as mean ± SD, while categorical data i.e. gender, esophageal varices and other causes of upper GI bleeding were calculated as frequencies and percentages. As this was a descriptive study so test of significance was not used and level of significance (p- value) was not estimated.

RESULTS

A total of one hundred 56 (56%) male and 44 (44%) female patients were included in the study. Mean age was 47.46 years (SD ±11.79) with age range of 19- 80 years. Sixty one (61%) patients presented with both hematemesis and melena while 22 (22%) patients had only melena and 17 (17%) patients had hematemesis alone.

Fifty three (53%) patients 31 male and 22 female had variceal bleeding. All patients with variceal bleeding had the provisional etiological diagnosis of cirrhosis of liver. Jaundice was present in 21 (39.6%) patients. All patients had one or other signs of cirrhosis in the form of splenomegaly, abdominal distention /ascites, gynecomastia, spider nevi, loss of normal distribution of hair and decreased area of liver dullness. Serology for viral markers showed that 31(58.5%) patients were positive for anti HCV antibodies and 18 (34.0%) patients were positive for hepatitis B surface antigen. In the remaining 04 (07.5%) patients, viral markers were negative. One of them had Wilson's disease and three were alcoholics. Three patients had portal hypertensive gastropathy along with esophageal varices. Hypotension, tachycardia and pallor were present in 22 patients while the remaining were hemodynamically stable.

Twelve (12%) patients were suffering from duodenal ulcer (06 males; 06 females). 09 patients gave the history of duodenal ulcer with hunger pains and relief of symptoms with food and antacids while in other patients no such history could be obtained. Three of the symptomatic patients were using NSAIDs for osteoarthritis. None of the patients was alcoholic. Hypotension, pallor and tachycardia were present in six patients while the remaining were hemodynamically stable.

Gastric ulcer was present in 14 patients (14%), 08 males and 06 females. Six patients gave the history of epigastric pain. Mild epigastric tenderness was present in five patients. Three patients (two males & one female) were using aspirin for osteoarthritis. In four patients upper GI bleeding caused hypotension and tachycardia.

Acute gastroduodenal erosions were present in 16 out of 100 patients (09 males, 06 females). Eleven (11) patients had the history of NSAIDs ingestion for various reasons. Onset of hematemesis was sudden with mild epigastric pain and tenderness. Erosive esophagitis was diagnosed in 02 patients. One patient was eighty year old osteoporotic female that was using alendronte and other was 56 year old male who was diabetic and was using aspirin. Mallory Weiss tear was responsible for hematemesis in one patient (1%). She was 20 year old female patient. She had prolonged retching and vomiting due to hyperemesis gravidarum before the onset of hematemesis.

Carcinoma of the stomach was responsible for hematemesis in one male patient (1%). This patient was 52 years old and had a history of hematemesis, loss of weight and epigastric pain. Clinical examination revealed marked weight loss and mild epigastric tenderness. Endoscopy showed a gastric ulcer with suspicion of malignancy which was proved on histopathology.

One female patient aged 52 years, who presented with hematemesis and melena, had diffuse oozing of blood from stomach. Her cause of bleeding was coagulopathy. She was taking warfarin for mitral stenosis and atrial fibrillation.

DISCUSSION

Bleeding from upper gastrointestinal tract is a common medical emergency that carries a considerable morbidity and mortality. Early endoscopy is the gold standard approach in the diagnosis and management of the upper GI hemorrhage because of its high diagnostic accuracy and ability to perform therapeutic procedures in the setting of active bleeding. Causes of upper GI hemorrhage varies in different parts of world that is mainly due to variable prevalence of cirrhosis of liver, alcohol consumption, smoking pattern and prevalence of H. pylori.

The two most common causes of the bleeding are peptic ulcer and esophageal varices. Esophageal variceal bleeding was the most common cause of

Table-I: Endoscopic diagnosis of patients with upper GI bleeding.

Serial No.	*Causes of upperGI hemorrhage*	*Male*	*Female*	*Total*	*Percentage*
1	Esophageal varies	31	22	53	53%
2	Gastric ulcers	08	06	14	14%
3	Duodenal ulcers	06	06	12	12%
4	Gastroduodenal erosions	09	07	16	16%
5	Mallory Weiss tear	-	01	02	01%
6	Gastric carcinoma	01	-	01	01%
7	Esophagitis	01	01	02	02%
8	Coagulopathy	-	01	01	01%

upper GI bleeding in this study, but it is seen that variceal bleeding is a quite uncommon cause of upper GI bleeding in the Western population. In the United States, the percentage of variceal bleeding varies from 5% to 30%[11] of the total cases of upper GI bleeding in different areas and bleeding peptic ulcers account for above 50%.[12]

In Pakistan, infectious diseases are common and viral hepatitis has high prevalence rate. In Pakistani adults, HBV is responsible for 30% cases of acute viral hepatitis.[13] The carrier rate of hepatitis B surface antigen is 1.5-2.1%.[14,15] Among these patients one third were positive for HBeAg with a potential of high degree of infectivity and progression of the disease.

Similarly seroprevalence of HCV infection was found in 4-12.5%[16] of the healthy persons in our population. This is considerably higher when compared to the developed countries like USA where the seroprevalence of HCV infection is 1.6% [17] and that of HBV is 0.2%.[18] In a study conducted in Malaysia Lakhwani MN et al showed that peptic ulcer disease was the most common cause of upper GI bleeding accounting for 83.6% and esophageal varices accounted for only 10.9% and this was due to low prevalence of chronic hepatitis in the Malaysian population.[19]

However, increased frequency of esophageal varices in this study is not contrary to the local literature of Pakistan. In another study, 552 patients of upper GI bleeding were evaluated to find out the cause of bleeding. Esophageal varices accounted for the majority of the lesions causing upper GI bleeding (44%). Peptic ulcer disease was the second commonest accounting for 19.7% of cases.[20]

In yet another study, consecutive 892 patients presenting with gastrointestinal bleeding were included. Source of active bleeding was defined by endoscopy. Esophageal variceal bleed was the main finding (580 patients), followed by gastric erosions (133 patients).[21] These studies also highlighted that esophageal varices are real problem within our area but the scope has changed in the western world.

The second common cause of bleeding was the peptic ulcer disease and it should not be overlooked. Increasing smoking, increased use of NSAIDs and high prevalence of H. pylori is responsible for increase in number of peptic ulcers. It accounted for 26 cases in this study (including both gastric and duodenal ulcers). The figure is high in United States where it accounts for more than 50% cases of upper GI bleeding[12] which is due to high prevalence of H. pylori and also due to low prevalence of liver cirrhosis and esophageal varices. In a study in Pakistan by Hassan SR et al showed that 34% of patients with epigastric pain but normal gastric mucosa on endoscopy were positive for H. pylori antibodies.[22] Like chronic hepatitis, infection with H. pylori is causing increase in peptic ulcer where its association is 85-90%.[23] H. pylori should be tested and then eradicated in every patient of peptic ulcer disease particularly with bleeding complications so as to minimize the recurrences.

Another common cause was Gastroduodenal erosions which was mainly due to NSAIDs use. In general, patients are poorly informed of their adverse effects and many patients take more of these drugs when they feel abdominal pain which puts oil into the fire. These drugs should not be taken empty stomach; and H_2- receptor antagonists or proton pump inhibitors should be prescribed with them if prescribed for longer time.[24]

Another point to note is the patient of upper GI bleeding due to coagulopathy. She was using warfarin without any monitoring of her clotting profile and this necessitates the regular monitoring of Prothrombin time in patients with warfarin therapy to avoid any potentially fatal events like this.

CONCLUSIONS

It is important to realize that gastrointestinal bleeding is a difficult and challenging problem and needs prompt attention. Esophageal variceal hemorrhage is devastating complication of portal hypertension and is a leading cause of disability and death in patients with upper GI bleeding. Because outcomes are poor, once variceal bleeding has occurred, prevention of chronic hepatitis and cirrhosis is extremely important.

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Authors Contribution:

Muhammad Burhan Pasha and Muhammad Mujtaba Hashir were involved in Data analysis and interpretation. Ahmed Khurshid Pasha and Muhammad Bilal Pasha, Amjad Ali Raza and Munazza Fatima did drafting and final approval of the manuscript for publication.