

## The prevalence of acute upper gastrointestinal bleeding and the factors causing hemorrhage as observed at a tertiary health care centre in Karachi, Pakistan

Aftab Ahmed, Lutuf Ali, Lal Shehbaz, Shua Nasir, Syed Raza Hussain Rizvi, Muhammad Zaeghum Aman, Zain Ali

### Abstract

**Object:** The aim of our study is to determine the prevalence of esophageal varices in patients presenting with complaint of acute upper gastrointestinal bleeding at a tertiary health care centre in Karachi, Pakistan.

**Method:** The type of study is a cross sectional study, conducted for a period of six months from April 2015 to September 2015 at a tertiary care centre in Karachi Pakistan. The patient population consisted of 120 patients, who presented to the accident and emergency department with complaints of acute upper gastrointestinal bleeding, after taking a detailed history and performing comprehensive clinical examination, the patients data was collected in a pre designed proforma, and after taking a duly informed consent all patients underwent upper gastrointestinal endoscopy to find out the cause for bleeding, data was analyzed using SPSS version 23.

**Results:** Out of the total study population of 120 patients, 71(59.16%) were males and 49(40.83%) were females, having a mean age of  $47.8 \pm 12$  years, with an age range of 20 – 80 years. 73(60.83%) patients presented with combined hematemesis and melena while 26(21.66%) presented with melena alone as the initial presentation and 21(17.5%) presented with hematemesis alone as the initial presentation of upper gastrointestinal bleeding episode. 60(50%) patients had bleeding from esophageal varices as the source of hemorrhage as observed on upper gastrointestinal endoscopy.

**Conclusion:** According to the results of our study the most common cause for acute upper gastrointestinal bleeding in our setup was oesophageal varices.

**Keywords:** Oesophageal varices, gastric and duodenal ulcer, upper GI bleed, hematemesis, oesophagitis.

**Abbreviations:** GI= gastrointestinal, NSAID= Non steroidal anti inflammatory drug, Hep B= Hepatitis B, HBV= Hepatitis B virus, HCV= Hepatitis C virus

### Introduction:

One of the common presentations with an increased morbidity and mortality at the accident and emergency department is acute gastrointestinal bleeding, it might manifest as hematemesis<sup>1</sup> or melena or both, and may have a rare presentation as hematochezia. In the United States the incidence of upper Gastrointestinal bleeding is 102 per 100,000 and a mortality rate of 5.57%.<sup>2,3</sup> There are three clinical predictors which are independent of each other for the high mortality in these patients, these are co morbidities, in-

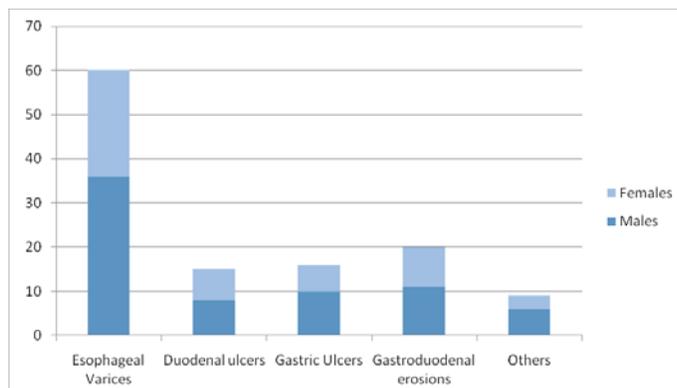
creasing age, and hemodynamic compromise (as evidenced by tachycardia or hypotension).<sup>4</sup> The causes of upper gastrointestinal hemorrhage could be due to peptic ulcer disease, oesophageal varices with or without portal hypertensive gastropathy, Gastro duodenal erosions, Mallory Weiss tears, Erosive oesophagitis, neoplasm of the gastrointestinal tract and other causes such as angiodysplasia, aortoenteric fistulas, hemobilia, hereditary hemorrhagic telangiectasia, uremia and various coagulation disorders.<sup>5</sup> The causes vary throughout the different parts of the world,

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Table 1: Endoscopic findings as seen in the patients presenting with acute upper gastrointestinal bleeding

Causes of hemorrhage	Male	Female	Total frequency (%)
Esophageal varices	36	24	60 (50%)
Duodenal ulcers	8	7	15 (12.5%)
Gastric ulcers	10	6	16 (13.33%)
Gastroduodenal erosions	11	9	20 (16.66%)
Gastric neoplasm	2	00	02 (1.66%)
Mallory Weiss tear	2	1	03 (2.5%)
Esophagitis	2	1	03 (2.5%)
Coagulopathy	00	1	01 (0.83%)
Total	71 (59.16%)	49 (40.83%)	120 (100%)



Graph 1: Endoscopic findings in the patients presenting with acute upper gastrointestinal bleeding

whereas the two most common causes are peptic ulcer disease and oesophageal varices, which are also seen most commonly in our region.<sup>6</sup> Oesophageal varices are defined as dilatation of the sub mucosal veins, that develop due to portal hypertension, and the most common cause of that is cirrhosis of liver. The recent data suggests that these are more common than peptic ulcer disease whose incidence is decreasing.<sup>7</sup> Variceal bleed is an acute emergency having a high mortality and morbidity as well as increased hospital costs, it stops on its own in more than half of the cases but it has high mortality of up to 70 – 80% in those having a continuous bleed.<sup>8</sup> Each subsequent episode of variceal bleed imparts a 30% risk of mortality, and the risk of rebleeding without obliteration of the varices is 60-70%,<sup>9</sup> predictors of bleeding are the extent of liver damage, size and presence of markings on the varices.<sup>10</sup> The aim of our study is to determine the prevalence of esophageal varices in patients presenting with complaint of acute upper gastrointestinal bleeding at a tertiary health care centre in Karachi, Pakistan.

**Materials and Methods:**

The type of study is a cross sectional study, conducted for a period of six months from April 2015 to September 2015 at a tertiary care centre in Karachi Pakistan. The patient population consisted of 120 patients, selected via non probability purposive sampling technique, who presented to the accident and emergency department with complaints of acute upper gastrointestinal bleeding (hematemesis or melena), patients having source of bleeding other than the upper gastrointestinal tract, such as from the airways, were excluded. Also patients who were unfit for endoscopy, having severe cardiac or respiratory co morbid, having unstable hemodynamics, those who did not give consent, and those having advanced stage of hepatic encephalopathy were excluded from the study. After taking a detailed history and performing comprehensive clinical examination, the patients data was collected in a pre designed proforma, having variables such as age, gender, duration and amount of hematemesis, precipitating factors such as use of anti inflammatory drugs, alcoholism and use of anticoagulant medications were also noted, and after taking a duly informed consent all patients underwent upper gastrointestinal endoscopy (both therapeutic and diagnostic) to find out the cause for bleeding. The endoscopic procedure was performed after desensitizing the gag reflex by using a 4% Xylocaine solution, no sedatives were used, biopsy samples were taken whenever there was a suspicion of malignancy. Data was analyzed using SPSS version 23, for numerical data descriptive statistics were used such as mean and standard deviations for age data, while frequencies and percentages were utilized for categorical data such as gender, presence of varices and other causes of hemorrhage.

**Results:**

Out of the total study population of 120 patients, 71(59.16%) were males and 49(40.83%) were females, having a mean age of 47.8 ± 12 years, with an age range of 20 – 80 years. 73(60.83%) patients presented with combined hematemesis and melena while 26(21.66%) presented with melena alone as the initial presentation and 21

(17.5%) presented with hematemesis alone as the initial presentation of upper gastrointestinal bleeding episode. 60(50%) patients had bleeding from esophageal varices as the source of hemorrhage as observed on upper gastrointestinal endoscopy. 60(50%) patients that is 36 males and 24 females had a variceal bleed, jaundice was present in 24(40%) and other signs of cirrhosis of liver were also present in patients such as splenomegaly, distention of the abdomen, gynecomastia, ascites, spider nevi, loss of hairs. 35(58.33%) patients were tested positive for the presence of anti Hepatitis C antibodies while 20(33.33%) were tested positive for Hep B surface antigen respectively. The viral markers were negative in the remainder of the patients, who were diagnosed with alcoholic liver cirrhosis. Hypotension, pallor and tachycardia were present in 25 patients, and 4 patients had hypertensive gastropathy. 15(12.5%) patients had duodenal ulcers, having a positive history of abdominal pain during hunger pangs, and relief from symptoms upon consumption of food, 8 patients were using anti inflammatory medicine (NSAIDs) for chronic pain. None of the patients in the duodenal ulcer group consumed alcoholic beverages, and signs of hemodynamic instability were present in 8 patients, while the remainder of the patients from the duodenal ulcer group were hemodynamically stable. 16 (13.33%) patients were diagnosed as having gastric ulcers, who gave a positive history of pain in the epigastric region, tenderness in the epigastric region. 5 patients from the group were using NSAIDs for osteoarthritis, and 6 patients showed signs of hemodynamic instability (such as hypotension and tachycardia). 20(16.66%) of the patients were diagnosed as having gastroduodenal erosions, out of them 14 patients were ingesting NSAIDs on a regular basis for chronic pain of various causes, they presented with acute onset hematemesis with epigastric pain and tenderness, other causes for acute gastrointestinal hemorrhage are listed in Table 1, out of the three patients with Mallory Weiss tear, the two male patients were alcoholics and the female was a 20 year old bulimic patient. The 2 patients who had biopsy proven gastric carcinoma, had history

of weight loss and pain in the epigastric region along with the hematemesis. Histopathologic analysis was done from the endoscopic samples collected as biopsy specimen. The patient with coagulopathy was found to be taking warfarin for her cardiac co morbidities (mitral stenosis & atrial fibrillation). Graph 1 depicts the prevalence in a bar chart format.

#### Discussion:

One of the common medical emergencies having a high mortality and morbidity rate is acute upper gastrointestinal bleeding, the gold standard for diagnosing the cause of the hemorrhage is upper gastrointestinal endoscopy, which is both therapeutic and diagnostic. There are various causes for acute upper GI bleed, but the two most common causes are peptic ulcer and oesophageal varices, in our study the most common cause for upper gastrointestinal bleeding was found to be oesophageal varices, but oesophageal variceal bleeds are an uncommon finding in the west, in United States the number of cases are from 5% to 30%<sup>11</sup> of the total cases of upper GI hemorrhage while in some parts of the world hemorrhage from the peptic ulcers account for over 50% of cases of upper GI bleed.<sup>12</sup> The prevalence of viral hepatitis is high in Pakistan, in the adult population Hepatitis B virus is responsible for 30% of the cases of viral hepatitis,<sup>13</sup> and the carrier rate is 1.5 to 2.1% in our population.<sup>14,15</sup> The prevalence of Hepatitis C virus infection via serology is found to be from 4% to 12.5%,<sup>16</sup> which is very high as compared to the prevalence of 1.6% in the United States (of HCV) and of HBV 0.2%.<sup>18</sup> According to a study by Lakhwani MN et al which was conducted in Malaysia, they observed that in their study population peptic ulcer accounts for 83.6% and esophageal varices account for 10.9% of the cases of acute upper gastrointestinal bleeding on account of the lower incidence of chronic hepatitis in the Malaysian population.<sup>19</sup> In another study from Pakistan which evaluated 552 patients of upper gastrointestinal bleeding, the found oesophageal varices to be the major cause in 44% of patients followed by peptic ulcer having a prevalence of 19.7%.<sup>20</sup> In a study involving

892 patients which included endoscopy data of the patients having GI bleed, 580 patients were found to have a oesophageal varices and 133 patients were found to have gastric erosions.<sup>21</sup>

Factors such as increased smoking, the over use of NSAIDs and high prevalence of *H. pylori* infection are the main causes for such a high prevalence of peptic ulcer in our population, in our study 31 patients were found to have ulcers (both duodenal and gastrointestinal), the number of cases of upper GI bleed due to ulcers is as high as 50% in the United States due to the high prevalence of *H. Pylori*. According to a study by Hassan SR et al there is a prevalence of 34% when it comes to patients with epigastric pain with normal endoscopic findings and a positive *H.pylori* antibody test,<sup>22</sup> the association of *H.pylori* infection with peptic ulcer is 85 to 90%,<sup>23</sup> and hence it should be eradicated in all the patients who are diagnosed with peptic ulcers so as to minimize the complications. In our study the majority of the patients with Gastroduodenal erosions were using NSAIDs for a long period of time, patients were uneducated when it comes to the use and abuse of NSAIDs and its complications, as for the use of NSAIDs either proton pump inhibitors or H2 receptor blockers should be co administered to prevent the side effect of gastric erosions.<sup>24</sup>

### Conclusion:

Our study suggest the most common cause for acute upper gastrointestinal bleeding in our set-up was oesophageal varices. Prevention and early detection and treatment of chronic hepatitis and cirrhosis leads to a reduction in oesophageal varices and mortality of these patients due to the complications. Also abuse of NSAIDs should be stopped, and patients should be informed about the possible complications of long term NSAID use.

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### Role and contribution of authors:

Dr. Aftab Ahmed, Resident Emergency Medicine Ziauddin University Hospital, concept, analysis, data collection, layout

Dr Lutuf Ali, Resident Emergency Medicine Ziauddin University Hospital, write-up, data collection, final layout

Dr Lal Shehbaz, Registrar Emergency Medicine Ziauddin University Hospital, data collection, final layout

Dr Shua Nasir, Registrar Emergency Medicine Ziauddin University Hospital, data collection, final layout

Dr. Syed Raza Hussain Rizvi, Professor and Head of Department Neurosurgery, Jinnah Postgraduate Medical Centre, proof reading, final review, mentor

Dr Muhammad Zaeghum Aman, Final Layout. Data entry

Dr Zain Ali. House officer, Final Layout. Data entry

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