The Causes of Upper Gastrointestinal Bleeding in the National Referral Hospital: Evaluation on Upper Gastrointestinal Tract Endoscopic Result in Five Years Period

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ABSTRACT

Backgrounds: *Gastrointestinal bleeding such as hematemesis or melena are common conditions in clinical practice and endoscopic service. The mortality rate due to gastrointestinal bleeding is relatively high. In this study, we evaluate the causes of hematemesis melena for the last 5 years and the factors associated with the bleeding.*

Methods: *The study was done retrospectively. We obtained data from medical record of patients that performed endoscopy of upper gastrointestinal tract in Division of Gastroenterology, Department of Internal medicine, Cipto Mangunkusumo hospital (Jakarta, Indonesia) during the period of 2001 to 2005.*

Results: *Of 4.154 patients who underwent upper gastrointestinal tract endoscopy from 2001 to 2005, we found that 837 patients (20.1%) were due to upper gastrointestinal bleeding. They were 552 male (65.9%) and 285 female patients (34.1%). Mean age of male patients was 52.7 ± 15.82 years, while for female patients was 54.46 ± 17.6 years. Of 837 patients who came due to hematemesis were 150 patients (17.9%), melena were 310 patients (37.8%), both melena and hematemesis were 371 patients (44.3%), 557 cases (66.5 %) due to non varices. Endoscopic results showed that 280 cases (33.4%) were due to esophageal varices. In general, this study had demonstrated that esophageal varices was the most frequent cause of upper gastrointestinal bleeding. We found 229 cases of esophageal varices were coincidence with portal hypertensive gastropathy. While ulcer was found in 225 cases (26.9%) and most of them were gastric ulcer (51.1%). Of gastrointestinal bleeding caused by esophageal varices, most were grade III in 138 cases (49.3%). The incidence of bleeding of bleeding were found more frequently in patients age group of 40 - 60 years (389 cases; 46.5%), > 60 years (305 cases; 36.2%), < 40 years (242 cases; 16.8%). The causes of bleeding in patients whose age > 60 years, most were caused by ulcer (37.4%). In this study, we also found that cancer as the cause of gastrointestinal bleeding in 26 cases (3.1%). Gastrointestinal cancer comprised of gastric cancer in 15 cases (57.7%), duodenal cancer in 7 cases (26.9%), and esophageal cancer in 4 patients (15.4%).*

Conclusion: *The most frequent cause of upper gastrointestinal bleeding was esophageal varices and usually had reached stage III. The non variceal cause of bleeding was gastric cancer. Upper gastrointestinal malignancy was also found to be the etiology of bleeding in this study.*

Keywords: *upper gastrointestinal bleeding, endoscopy*

INTRODUCTION

Upper gastrointestinal bleeding is a common emergency condition that makes patient goes to hospital. The prevalence and incidence of hematemesis are still high. The patients usually come to hospital and complain of bloody emesis or black stool. These conditions require special attention since the first management in emergency room.

Medical terms that are commonly used for gastrointestinal bleeding are hematemesis and melena.

Hematemesis is defined as "coffee ground" or bloody emesis, while melena as black stool. Dark color of stool depends on gastric acid concentration and contact between the blood and acid. In massive bleeding there is not enough time for blood to mix with gastric acid, thus, there is fresh red colored blood in the stool.[1]

In general, the cause of gastrointestinal bleeding can be divided into 2 groups; variceal and non variceal bleeding. Upper gastrointestinal bleeding may occur due to ulcer in gastrointestinal tract such as erosion, or bleeding ulcer. Other causes include rupture of the blood vessel like variceal rupture in the esophagus, fundus and gastric cardia or Mallory-Weis tear in distal esophagus.[1] In addition, carcinoma of esophagus, gaster and duodenum can also cause upper gastrointestinal bleeding.

The incidence of gastrointestinal bleeding presented as hematemesis or melena are common condition in endoscopic services. Data from our hospital demonstrated that almost 25% cases that performed upper gastrointestinal endoscopy were due to upper gastrointestinal bleeding.[2] The frequent causes of the bleeding were esophageal varices rupture, gastric and duodenal ulcer. Besides, erosive gastritis was also the etiology of gastrointestinal bleeding specially in patients who used NSAID. The mortality rate due to upper gastrointestinal bleeding was still high reaching almost 26% based on study done in our hospital.[3]

In this study, we evaluate the causes of hematemesis melena in the last 5 years and related factors to the incidence of upper gastrointestinal bleeding.

METHODS

This is a retrospective study by collecting data from medical records of patients who underwent upper gastrointestinal endoscopy in the last 5 years (2001-2005) in Endoscopy unit, Division of Gastroenterology, Department of Internal Medicine in Cipto Mangunkusumo hospital, Jakarta, Indonesia.

During the period of 5 years, there were 4,154 patients who underwent upper gastrointestinal endoscopy. Of 4,154 patients, there were 837 patients (20.15%) who were indicated for endoscopy due to upper gastrointestinal bleeding.

Of 837 patients who had upper gastrointestinal bleeding presented as hematemesis, melena or both were evaluated. The evaluation included age, sex, endoscopy indication, and endoscopic results.

Endoscopic diagnosis was made based on evaluation of esophageal, gastric and duodenal mucosa according to the OMED criteria.

Endoscopic evaluation based on luminal content; the presence of fresh blood, clotting and hematin or clean lumen. Evaluation of mucosa included the presence of protruding lesion, flat lesion, or excavated lesion as the source of bleeding. Evaluation of ulcer included the number of ulcer, the form of ulcer or the presence of bleeding stigmata based on FORREST classification. Active ulcer hemorrhage is defined if there was spurting vessel or oozing of blood (Ia). Recent bleeding was defined if there was visible vessel (IIa) covered by clotting (IIb) or hematin in the base of ulcer (IIc).

Evaluation of esophageal varices included size of varices, the presence of red color sign in the surface of ulcer indicating recent bleeding. Classification of size of varices was based on size and form of varices.

Evaluation of gastric mucosa included luminal content and mucosal condition. Evaluation of mucosa to observe the presence of protruding, flat and excavated lesion. The presence of erosion or ulcer was also evaluated. Evaluation of erosion was based on the number andlocation of erosion. Patients with liver cirrhosis were evaluated for portal hypertensive gastropathy indicated by the presence of mosaic-like pattern, scarlatina-like pattern and cherry red spots.

In this study, if the source of bleeding was not found, then it was considered as not found which meant we didn't find the source of bleeding.

STATISTICAL ANALYSIS

Descriptive data analysis was done to observe age distribution, age group, sex, indications, and various endoscopic results by using statistic software.

RESULTS

Of 4,154 patients who underwent upper gastrointestinal endoscopy during the period of 2001-2005, we found 837 patients (20.15%) had upper gastrointestinal bleeding. The patients consists of 552 male (65.9%) and 285 female (34.1%). Mean of age in the male group was 52.7 years (± 15.82), while in the female group was 54.46 years (± 17.6).

Of 837 patients, there were 150 patients (17.9%) who complained of hematemesis, 310 patients (37.8%) complained of melena, and 371 patients (44.3%) complained of both melena and hematemesis.

Endoscopic Result

From 837 patients who underwent upper gastrointestinal endoscopy, we found 557 patients (66.5%) were due to non variceal cause and the rest in 280 patients (33.5%) due to variceal cause as seen in table 1. In general this study had demonstrated that esophageal varices are the most frequent cause of upper gastrointestinal bleeding; 280 cases (33.4%). Of all cases due to variceal bleeding, most of them were esophageal varices grade III; 138 cases (49.3%). Esophageal varices grade II accounted for 61 cases

(21.8%), while grade IV 50 cases (17.9%), grade I 20 cases (7.1%), gastric varices 6 cases (2.1%) and obliterated varices 5 cases (1.8%).

In patients with upper gastrointestinal bleeding due to non variceal causes, we found ulcer in 225 cases (26.9%), erosive gastritis in 219 cases (26.2 %), no localization in accordance with operational definition of study in 38 cases (4.5%), esophagitis in 20 cases (2.4%), and portal hypertensive gastropathy in 15 cases (1.8%). Most of ulcers were gastric ulcer in 115 cases (51.1%). The rest were duodenal ulcer in 78 cases (34.7%), gastric ulcer and duodenal ulcer in 22 cases (9.8%) and esophageal ulcer in 10 cases (4.4%).

Table 1. Diagnosis of upper gastrointestinal endoscopy on indication of hematemesis, melena, or both

Diagnosis	Number of patients	Percentage (%)
Varices	280	33.5
Peptic ulcer	225	26.9
Erosive gastritis	219	26.2
Not found	38	4.5
Esophagitis	20	2.4
Portal hypertensive gastropathy**	15	1.8
Polyp	11	1.3
Cancer	26	3.1
Miscellaneous*	3*	0.4

Miscellaneous*: Hemangioma, diverticulosis. Portal hypertensive gastropathy**: found in coincidence with esophageal varices in 229 cases (27.4%)

Table 2. Grade and type of varices on endoscopic evaluation of upper gastrointestinal bleeding

Varices type	Number of cases (Percentage)
Esophageal varices grade 1	20 (7.1)
Esophageal varices grade 2	61(21.8)
Esophageal varices grade 3	138 (49.3)
Esophageal varices grade 4	50 (17.9)
Gastric varices	6 (2.1)
Obliterated varices	5 (1.8)
Total	280 (100)

In this study, portal hypertensive gastropathy in coincidence with esophageal varices were found in 229 cases (27.4%).

We also found that cancer as the etiology in 26 cases (3.1%) of all cases of gastrointestinal bleeding which performed upper gastrointestinal endoscopy. The frequent cancer lesions subsequently were gastric cancer in 15 cases (15.4%), duodenal cancer in 4 cases (15.4%). In this study, there was no significant difference of mean age between group of patients with cancer and no cancer (p=0.114). Besides, sex was not different significantly between those 2 groups (p = 0.221).

In this study, we found 11 cases of polyp consisted of gastric polyp (54.5%) and the rest were duodenal polyp in 5 cases (45.5%).

The incidence of bleeding was more frequently found in age group of 40-60 years; 389 cases (46.5%). In age group of > 60 years we found 305 cases (36.2%), < 40 years were 141 cases (16.8%). If we observed the etiology of bleeding in patients whose age > 60 years, most were ulcer (50.9%) as seen in table 3.

In patients with esophageal varices, ligation or sclerotheraphy were done immediately in 126 cases (45%), while in the rest of cases these procedures were performed later.

Table 3. Age distribution in patients with peptic ulcer

Age group (years)	Number of cases	Percentage (%)
< 40	21	9.4
40-60	89	39.7
≥ 60	114	50.9
Total	224	100.0

DISCUSSION

Upper gastrointestinal bleeding is a common cause that makes patient goes to the doctor. Endoscopic evaluation is required to identify the source of bleeding. The high prevalence of chronic hepatitis B and increasing number of hepatitis C in Indonesia in the end make the incidence of liver cirrhosis is also increasing. Thus, if there were patients who come to hospital due to gastrointestinal bleeding, we should always consider rupture of esophageal varices as the etiology.

In this study, we found incidence of upper gastro intestinal bleeding were more frequent in male (66.3%). This result was in accordance with study done by Zaltman et al. who found incidence in male patients was 68.7%.[4] Rockel et al found that incidence of upper gastrointestinal in male was twice than in female.[5]

If we observed on patients age, 36.2% of them were more than 60 years old. It showed upper gastrointestinal bleeding was relatively frequent in elderly patients. This data supported the reference that mentioned higher risk of bleeding in patients > 60 years old.[6] Patients whose age > 60 years increased mortality risk. On the other hand, most of diagnosis which made in those patients were peptic ulcer and varices.

In this study, we found the symptom of hematemesis only was found in 17.9% patients, while Zaltman et al found 30.1%.This indicated that patients who came to our hospital were late because most of patients with hematemesis came after melena occurred (44.3%).

In this study, we found peptic ulcer whether in gaster or duodenum or both or combination of each location was found in 224 cases (26.8%). The number of incidence of ulcer was lower than study done by

Zaltman et al in one of hospital in Brazil; South America which found incidence of ulcer was 39.77%. However, if we compare to other study by Mahadeva in UK had found the incidence of peptic ulcer was as low as 21 % from 872 patients who underwent endoscopy on indication of upper gastrointestinal bleeding.[7]

The incidence of varices in this study is higher (33.5%) compare to study done by Zaltman which found only 18.75% of cases. In this study, rupture of esophageal varices is the main cause of upper gastrointestinal bleeding. Esophageal varices is usually caused by liver cirrhosis due to chronic nfection of hepatitis B virus or hepatitis C virus. This had considered the high prevalence of chronic hepatitis B in Indonesia. If we looked further, it was clearly shown that about half of cases of variceal bleeding were due to grade 3 varices. This finding is in accordance with the fact that the bigger size of varices will increase the risk of bleeding.[8]

Further evaluation of peptic ulcer showed that incidence of peptic ulcer was less than 50% as non variceal cause of gastrointestinal bleeding. This also demonstrated that the incidence of peptic ulcer was lower than other local centers which had got 50 - 70% of patients with peptic ulcer as non variceal cause of bleeding.[9] If we analyzed furthermore, patients with peptic ulcer were those whose age was more than 60 years old. This showed that age was important factor to be considered in determine the cause of gastrointestinal bleeding.

In this study, we also found that gastrointestinal cancer as the cause of upper gastrointestinal bleeding reached 3.1%. This data demonstrated the importance of endoscopy as diagnostic tool in gastrointestinal bleeding.

CONCLUSIONS

In this retrospective study, we found that esophageal varices is the most frequent cause of patients who came to our national referral hospital. Band ligation or sclerotheraphy could be performed immediately in most of cases. The cause of bleeding could be identified in almost all cases.

This study had proven that endoscopy is an important diagnostic tool that should be performed immediately to identify the cause of upper gastrointestinal bleeding to determine appropriate treatment for the patients. Thus, death due to upper gastrointestinal bleeding can be prevented.

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