

Assessment of the Causes and Outcomes of Upper Gastrointestinal Tract Bleeding Patients in Aswan University Hospital

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ABSTRACT

Background: Gastrointestinal (GI) bleeding is a potentially life threatening abdominal emergency that remains a common cause of hospitalization. Bleeding from the upper gastrointestinal tract is approximately five times more common than from the lower gastrointestinal tract bleeding and seems to be more common in men and the elderly.

Aim: Identify various cause and outcomes of upper gastrointestinal tract bleeding patients in Aswan University Hospital by follow-up the patients and their different fates on the numerous lines of treatment.

Methodology: This study included 100 patients who were complaining of upper gastrointestinal tract bleeding and selected from patients in Aswan University Hospitals.

Results: The results of the current study showed that the most common causes of upper GIT bleeding are the variceal causes representing 57% of causes of GIT bleeding, followed by non-variceal causes representing 43% of causes of GIT bleeding. The most common cause of the variceal bleeding is the esophageal varices alone representing (40%) of the causes of variceal bleeding followed by combined esophageal and gastric varices representing (12%) and the gastric varices alone representing (5%) of the causes of upper GIT bleeding.

Conclusion: The endoscopic therapy was successful in most cases. The recurrence rate of bleeding was significantly high among patients with variceal bleeding. The patients with variceal bleeding have fewer treatment-related complications and better survival rates when they are treated by band ligation,

Keywords: Upper Gastrointestinal, Tract Bleeding

INTRODUCTION

Acute gastrointestinal (GI) bleeding is a potentially life threatening abdominal emergency that remains a common cause of hospitalization ⁽¹⁾. Upper gastrointestinal tract (GIT) bleeding is defined as bleeding derived from a source proximal to the ligament of Treitz ⁽²⁾. Bleeding from the upper gastrointestinal tract is approximately five times more common than from the lower gastrointestinal tract bleeding and seems to be more common in men and the elderly ⁽³⁾.

Gastrointestinal tract bleeding can be acute or chronic bleeding. Acute bleeding can be manifested by symptoms as hematemesis, melena, and hematochezia. Blood may be bright red or it may be old and take on the appearance of coffee grounds. The signals indicating chronic gastrointestinal tract bleeding include overall weakness, dyspnea, and syncope. These mentioned symptoms, in particular, lead to the suspicion of hypochromic anemia developing in consequence of chronic bleeding ⁽⁴⁾.

Causes of upper gastrointestinal bleeding (UGIB) include: Peptic ulcer disease, esophageal and gastric varices, hemorrhagic gastritis, esophagitis, duodenitis, Mallory-Weiss tear, angiodysplasia, upper gastrointestinal malignancy, portal hypertensive gastropathy, gastric polyps. Gastric varices occur in around 20% of patients with portal hypertension (PH) ⁽⁵⁾. They are normally identified at a time of bleeding and are associated with a more severe hemorrhage, require more transfusion and have a higher mortality than esophageal bleeding ⁽⁶⁾.

Various clinical features can be helpful in predicting outcomes for patients with upper gastrointestinal tract bleeding. End points, other than mortality, include recurrent bleeding during the same hospitalization, prolonged hospital stay, and surgery for bleeding. Repeated bleeding within 72 hours of the initial bleeding episode is a marker for increased morbidity and mortality.

Other independent risk factors for poor outcome include age older than 60 years, ongoing bleeding, and hypotension on presentation. A number of these risk factors have been grouped together in order to improve predictive ability. The criteria using the mnemonic BLEED is helpful (Ongoing Bleeding, Low systolic blood pressure, Elevated prothrombin time, Erratic mental status (change in mental status), and Comorbid Disease (other than bleeding) requiring admission to intensive care unit (ICU) as acute myocardial infarction (MI)).

Evidence of any one of the BLEED criteria places the patient in a poor outcome category. This outcome predictor applies to both lower and upper gastrointestinal bleeding. Other risk or provocative factors for upper gastrointestinal bleeding include anticoagulation therapy and coagulopathy with elevated prothrombin time or thrombocytopenia. Aspirin and other non-steroidal anti-inflammatory drugs are associated with gastrointestinal ulceration and bleeding ⁽⁷⁾.

A major goal of treatment of upper gastrointestinal tract bleeding is to stop active bleeding and prevent

recurrent bleeding. The patient resuscitation includes fluid administration, blood transfusion, cardiorespiratory support, and treatment of significant comorbid diseases, such as sepsis or coronary artery disease. The major forms of therapy include: Pharmacologic therapy (proton pump inhibitors, somatostatin analogue (octreotide) and vasopressin / terlipressin), endoscopic therapy, angiographic therapy, surgical therapy⁽⁸⁾.

AIM OF THE WORK

Identify various causes and outcomes of upper gastrointestinal tract bleeding patients in Aswan University Hospital by follow-up the patients and their different fates on the numerous lines of treatment.

PATIENT AND METHODS

This study included 100 patients who were complaining of upper gastrointestinal tract bleeding and selected from patients in Aswan University Hospitals.

Inclusion criteria

Patients with upper gastrointestinal tract bleeding (1st or recurrent bleeding) in Aswan University Hospital.

Exclusion criteria

Shock, peritonitis, fulminant colitis, perforated viscus, severe cardiac decompensation, coma, anticoagulation, acute myocardial infarction, cardiac arrhythmias or recent myocardial ischemia.

Procedure

100 patients with upper GIT bleeding were included in this study. The patients were grouped as following:

- The variceal group patients: contains 35 males (61.4%) and 22 females (38.6%), while
- Non-variceal group patients: contains 19 males (44.2%) and 24 females (55.8%).

METHODS

All patients were subjected to the following:

Full history taking, full physical examination including abdominal examination, laboratory investigations included:

Complete blood count (CBC), liver function, [alanine transaminase (ALT), aspartate transaminases (AST)] serum bilirubin and serum albumin, international normalizing ratio (INR), prothrombin time (PT), renal function test, abdominal ultrasonography, upper endoscopy.

All these data were analyzed for follow up of the upper gastrointestinal tract bleeding patients on the different lines of treatment and their fates later on. Outcomes of these patients are followed by the number of recurrent attacks of bleeding.

Statistical analysis

Recorded data were analyzed using the statistical package for social sciences, version 20.0 (SPSS Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean± standard deviation (SD). Qualitative data were expressed as frequency and percentage.

The following tests were done:

- Independent-samples t-test of significance was used when comparing between two means.
- Chi-square (χ^2) test of significance was used in order to compare proportions between two qualitative parameters.
- The confidence interval was set to 95% and the margin of error accepted was set to 5%. The p-value was considered significant as the following:
 - Probability (P-value)
 - P-value <0.05 was considered significant.
 - P-value <0.001 was considered as highly significant.
 - P-value >0.05 was considered insignificant.

RESULTS

This study was carried out on 100 patients who were complaining of Upper GIT bleeding.

Table (1): Demographic data for all group study.

		Mean±SD / N	Median / %	Interquartile range
Age		54.49±14.85	56.50	(49-65)
Sex	Male	54	54.0%	
	Female	46	46.0%	

Table (1) shows that the mean of age of upper GIT bleeding patients about (54.49) with standard deviation about (14.85). The majority of patients are males (54%), but the females are (46%).

Table (2): Characteristic data for all group.

		N	%
Presentation	Hematemesis	36	36.0%
	Melena	20	20.0%
	Hematemesis and Melena	44	44.0%
Cirrhotic	Not Cirrhotic	37	37.0%
	Cirrhotic	46	46.0%
	Newly diagnosed	17	17.0%

Table (2) shows the most common presentation of upper GIT bleeding is hematemesis and melena together (44%), but hematemesis alone is (36%), melena alone is (20%).

The Upper GIT bleeding patients who are known to be cirrhotic are 46%, but the patients who are accidentally diagnosed on presentation as cirrhotic are 17% and the patients who are without liver cirrhosis are 37%. (Table 2).

Table (3): Causes of bleeding for all groups

		N	%
Variceal or not	Variceal	57	57.0%
	Non Variceal	43	43.0%
Cause of bleeding	Esophageal varices	40	40.0%
	Fundal varices	5	5.0%
	Esophageal and Fundal varices	12	12.0%
	Associated portal HTN gastropathy with any of above	43	43%
	Gastritis	20	20.0%
	Duodenal and Gastric ulcer	11	11.0%
	Angiodysplasia	4	4.0%
	Gastric ulcer	2	2.0%
	Duodenal ulcer	3	3.0%
	Adenocarcinoma	2	2.0%
	Esophageal cancer	1	1.0%

Table (3) shows that the most common cause of upper GIT bleeding is the variceal bleeding representing (57 patients) (57%) of causes of upper GIT bleeding, but the non-variceal bleeding representing (43 patients) (43%) of causes of upper GIT bleeding.

The esophageal varices alone are the most common cause of variceal bleeding representing (40 patients) (40%) of the causes of upper GIT bleeding followed by combined esophageal and gastric varices representing (12 patients) (12%) and the gastric varices alone representing (5 patients) (5%) of the causes of upper GIT bleeding (Table 3).

The most common cause of non-variceal bleeding is the gastritis representing (20 patients) (20%) of causes of upper GIT bleeding, followed by gastric and duodenal ulcer representing (11 patients) (11%) of causes of upper GIT bleeding (Table 3).

Table (4): Treatment and outcome between variceal or not groups.

		Variceal or not				Fisher's Exact test of significance	
		Variceal (57)		Non Variceal (43)		P-Value	Sig.
		N	%	N	%		
Treatment	Banded	42	73.7%	0	0.0%	<0.001	HS
	Sclerotherapy	6	10.5%	0	0.0%		
	Banded & Sclerotherapy	8	14.0%	0	0.0%		
	Medical	0	0.0%	37	86.0%		
	Surgery	0	0.0%	2	4.7%		
	Argon Plasma Coagulation	0	0.0%	4	9.3%		
	Banded & Sclerotherapy & APC	1	1.8%	0	0.0%		
Recurrence	No Recurrence	27	47.4%	33	76.7%	0.025	S
	Died	5	8.8%	5	11.6%		
	once	12	21.1%	3	7.0%		
	Twice	9	15.8%	2	4.7%		
	3 times	2	3.5%	0	0.0%		
	4 times	1	1.8%	0	0.0%		
	6 times	1	1.8%	0	0.0%		

Table (4) shows that the most common methods used for treatment of variceal upper GIT bleeding patients are the band ligation of varices representing (73.7%).

The most common methods used for treatment of non-variceal upper GIT bleeding patients are the medical treatment representing (86%) (Table 4).

The recurrence of upper GIT bleeding of the variceal group is higher (25 patients) (43.9%) than that of the non-variceal group (5 patients) (11.6%) (Table 4).

Table (5): Treatment strategy vs. recurrence groups.

	Recurrence						Test of sig.	
	Died		Recurrence		No recurrence		P-Value	Sig.
	N	%	N	%	N	%		
Banded (42)	4	9.5%	20	47.6%	18	42.9%	0.004 ^(C)	S
Sclerotherapy (6)	0	0.0%	1	16.7%	5	83.3%	0.822 ^(F)	NS
Banded and Sclerotherapy (8)	1	12.5%	4	50.0%	3	37.5%	0.261 ^(F)	NS
Medical (37)	2	5.4%	5	13.5%	30	81.1%	0.004 ^(C)	S
Surgery (2)	1	50.0%	0	0.0%	1	50.0%	0.279 ^(F)	NS
Argon Plasma Coagulation (4)	2	50.0%	0	0.0%	2	50.0%	0.045 ^(F)	S
Banded, Sclerotherapy and APC (1)	0	0.0%	0	0.0%	1	100%	1.00 ^(F)	NS

^(F) Fisher's exact test of significance.

^(C) Chi-Square test of significance.

Table (5) shows that the patients of upper GIT bleeding who were treated by band ligation (43 patients) showed high recurrence rate of bleeding (20 patients) (47.6%), while those who were treated by the injection sclerotherapy (6 patients) showed low recurrence rate of bleeding (1 patients) (16.7%) while those who were treated by band ligation, injection sclerotherapy and APC (1 patients) showed no recurrence of bleeding. The patients who were treated by the medical therapy (37 patients) showed low recurrence rate of bleeding (5 patients) (13.5 %).

DISCUSSION

Upper gastrointestinal bleeding (UGIB) is the most common gastroenterological emergency. Despite major advances in diagnosis and treatment, UGIB remains a serious problem in clinical practice, with a mortality of 3%-14%, unchanged in 10 years ⁽⁹⁾.

Causes of UGIB can be grouped into two categories: variceal (esophageal or gastric varices) and non-variceal (peptic ulcer, erosive gastritis, reflux esophagitis, Mallory-Weiss syndrome, tumors, etc.). Emergency upper gastrointestinal endoscopy is the standard procedure recommended for both diagnosis and treatment of UGIB ⁽¹⁰⁾.

Since many hospitals do not have permanent emergency endoscopy call departments, most patients presenting with UGIB receive medical treatment before being sent to specialized centers that can perform endoscopy. International guidelines recommend the administration of medication empirically, before undergoing endoscopy. If there is a suspicion of variceal hemorrhage, the treatment with vasoactive agents (e.g. somatostatin, octreotide, terlipressin, etc.) and antibiotics is recommended ⁽¹¹⁾.

Administration of vasoactive agents can stop bleeding in up to 70-80% of cases, thereby reducing mortality ⁽¹²⁾. In cases of non-variceal bleeding, treatment with proton pump inhibitors is indicated ⁽¹³⁾. Their administration reduces the endoscopic lesion stage and sometimes the requirement for endoscopic therapy ⁽¹⁴⁾.

Therefore, it is very important to guide the diagnosis towards a variceal or non-variceal bleeding before performing endoscopy. There are authors who suggested that the presence of clinical signs of cirrhosis, hematochezia, hematemesis of fresh blood, alcohol consumption are indicators of variceal hemorrhage ⁽¹⁵⁾.

On the other hand, the use of non-steroidal, anti-inflammatory drugs (NSAIDs), of antiplatelet drugs, as well as the presence of ulcer dyspepsia indicate non-variceal sources ⁽⁴⁾.

This study was conducted to identify various causes and outcomes of upper gastrointestinal tract bleeding patients in Aswan University Hospital by follow up the patients and their different fates on the numerous lines of treatment.

To achieve this aim, this study was conducted on one hundred patients with upper GIT bleeding and divided into 2 groups: variceal group: included 57 patients with GIT bleeding and non-variceal group: included 43 patients with GIT bleeding.

Results of the present study showed that the upper gastrointestinal bleeding occur more common in males (54%) than females (46%). This is in agreement with **Ather et al.** ⁽¹⁶⁾, who showed that the incidence of upper GIT bleeding is more common in males (58.3%) than females (41.7%).

The results of the current study showed that the most common presentation of upper GIT bleeding is

hematemesis and melena together (44%), but hematemesis alone is (36%), melena alone is (20%). This is in agreement with **Sankar *et al.*** ⁽¹⁷⁾, who showed that the majority of the patients, (52%) presented with both hematemesis and melena, (33.5%) of the patients presented with hematemesis alone, and (14.5%) of the patients had only melena.

The results of the current study showed that the most common causes of upper GIT bleeding are the variceal causes representing 57% of causes of GIT bleeding, followed by non-variceal causes representing 43% of causes of GIT bleeding. The most common cause of the variceal bleeding is the esophageal varices alone representing (40%) of the causes of variceal bleeding followed by combined esophageal and gastric varices representing (12%) and the gastric varices alone representing (5%) of the causes of upper GIT bleeding. The most common cause of non-variceal bleeding is the gastritis representing (20%) of causes of upper GIT bleeding, followed by gastric and duodenal ulcer representing (11%) of causes of upper GIT bleeding.

The results of this study agreed with the results of **Elwakil *et al.*** ⁽¹⁸⁾, who studied 1000 patients who presented by upper GIT bleeding and were subjected to complete clinical evaluation, emergency upper gastrointestinal endoscopy and therapeutic interventions as indicated. The variceal causes of bleeding were the most common, representing 70.1% of causes of GIT bleeding followed by non-variceal causes (29.9%). But **Elwakil *et al.*** ⁽¹⁸⁾, showed that the esophageal varices alone represented 17.8% of causes of variceal bleeding, while combined esophageal and gastric varices represented 39.5% and isolated gastric varices 12.8%. The gastric lesions were the most common causes of non-variceal bleeding.

The results of the current study showed that the recurrence of upper GIT bleeding of the variceal group is higher (43.9%) than that of the non-variceal group (11.6%). This is in agreement with **Elwakil *et al.*** ⁽¹⁸⁾, who said that the recurrence of bleeding occurred in 19.4% of variceal group in comparison to 6.1% of non-variceal group.

The results of the current study showed that the mortality rate of the variceal group (8.8%) was less than that of the non-variceal group (11.6%). But **Elwakil *et al.*** ⁽¹⁸⁾, said that mortality was found in 4.3% of variceal group in comparison to 1.5% of non-variceal group.

The results of the current study showed that the patients of upper GIT bleeding who were treated by band ligation showed high recurrence rate of bleeding (47.6%), while those who were treated by the injection sclerotherapy showed low recurrence rate of bleeding (16.7%) while those who were treated by band ligation, injection sclerotherapy and APC showed no

recurrence of bleeding. But **Dai *et al.*** ⁽¹⁹⁾, showed that the overall rebleeding rate in the endoscopic variceal ligation group was 21.7%, while the rebleeding rate in the endoscopic injection sclerotherapy group was 33.1%.

CONCLUSION

The most common cause of upper GIT bleeding was the variceal bleeding. The esophageal varices are the most common cause of variceal bleeding. The endoscopic therapy was successful in most cases. The recurrence rate of bleeding was significantly high among patients with variceal bleeding. The patients with variceal bleeding have fewer treatment-related complications and better survival rates when they are treated by band ligation, injection sclerotherapy and APC than when they are treated by band ligation. The second common cause of upper GIT bleeding was non-variceal bleeding. The most common cause of non-variceal bleeding was the gastritis followed by gastric and duodenal ulcer. In patients with gastritis and bleeding peptic ulcers and signs of recent bleeding, treatment with PPI decreased the rate of recurrent bleeding and the need for surgery.

RECOMMENDATIONS

Testing for *H. pylori* is recommended in all patients with peptic ulcer bleeding with cessation of smoking and NSAIDs.

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