



Evaluation and Management of Gastrointestinal Bleeding

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ABSTRACT

Introduction: Gastrointestinal Bleeding (GIB) is a common problem encountered in the emergency department and in the primary care setting which refers to loss of blood from anywhere into the GI tract and is visible in the form of hematemesis, melena, or haematochezia. Accurate diagnosis of GIB relies on prompt resuscitation, initial risk evaluation, followed by appropriate definitive investigation which enables specific interventions. Pantoprazole and antacids were considered effective in the management and to improve the outcome. This review provides a practical diagnostic guide for clinicians who encounter patients with suspected GIB.

Objectives: Evaluation and management of gastrointestinal bleeding.

Methodology: A prospective and longitudinal study in which 175 subjects were enrolled who met the study criteria from Sagar Hospitals. Therapeutic related data with follow ups were carried out which was assessed and evaluated by a suitable statistical tool.

Results: In this study, among 175 individuals the prevalence of males was larger than that of females, with 65.7% of males and 34.3% of females. Gastrointestinal bleeding was more common in patients who were older than 60 years of age (51.4%). Laboratory parameters such as haemoglobin and BUN levels were evaluated, of which, 20.6% of subjects with abnormal haemoglobin were brought to normal. Various drugs were prescribed such as proton pump inhibitor, prokinetic agents, H2 receptor blockers, antacids and laxatives, of which antacids and PPIs (pantoprazole) was considered effective with a good recovery rate.

Conclusion: Patient characteristics were evaluated and this study concluded that the patients social habits had an impact on how severe their medical state was, as well as the test results showed that BUN values were raising and haemoglobin and platelets values had drastically decreased. Accurate clinical diagnosis is crucial in determining the investigation of choice and specific intervention. According to this study, it was found that PPIs and antacids are beneficial in the management of GIB. This review provides a practical diagnostic guide for clinicians who encounter patients with suspected GIB.

Keywords: Antacids, Gastrointestinal Bleeding, and Proton pump inhibitors, Non-steroidal anti-inflammatory drugs.

INTRODUCTION

The gastrointestinal tract plays a crucial role in the digestion and absorption of nutrients as well as elimination of waste products. It is also susceptible to a wide range of diseases and conditions, including functional and structural GI diseases, which can have a significant impact on a person's health and well-being. Some of the common symptoms of GI diseases include abdominal pain, bloating, constipation, diarrhea, and vomiting. Treatment for GI diseases depends on the underlying cause and may include lifestyle changes, medication, or surgery. It is important to consult a healthcare professional if you are experiencing any symptoms related to your GI tract.¹GI bleeding refers to the loss of blood from anywhere in the gastrointestinal tract. It can manifest in several forms depending on the rate of blood loss and may be classified as Overt, Occult, or Obscure. Overt GI bleeding, also known as acute GI bleeding, is visible and can be present in the form of hematemesis, melena, or haematochezia. Obscure GI bleeding is defined as bleeding that persists or recurs without an obvious aetiology after colonoscopy, esophagogastroduodenoscopy, and radiologic evaluation of small bowel¹⁻².

The clinical evaluation of GI bleeding depends on the hemodynamic status of the patient and the suspected source of bleeding. In most circumstances, the standard of care for the initial diagnostic evaluation of acute GI bleeding is endoscopy/colonoscopy as recommended by guidelines from the American College of Gastroenterology. The most commonly used endoscopic studies are upper endoscopy, colonoscopy, sigmoidoscopy, and endoscopic retrograde cholangiopancreatography. Laboratory diagnosis includes haematological tests such as haemoglobin, haematocrit, and prothrombin time. Liver function tests, serum creatinine, and blood urea nitrogen are often used as a measure of hydration status as well as serving as indicators for renal function³.

Patients admitted to the hospital with acute upper GI bleeding are typically treated with a PPI to prevent re-bleeding, the major goal of therapy in gastrointestinal bleeding. Prokinetic such as metoclopramide or erythromycin are used to empty the stomach of retained blood or clots to improve endoscopic visualization. Eradication of H pylori can reduce the risk of re-bleeding. The recommended eradication regimen is the 'Triple therapy' with PPI, clarithromycin, and amoxicillin or bismuth⁴.



Non pharmacotherapy includes Warm baths are mostly used which includes patient sitting in a tub of warm water that is filled just enough to cover the legs which may help to ease the swelling and reduce irritation caused by haemorrhoids, applying ice or cold packs to the haemorrhoids may also help relieve pain and inflammation. It is recommended to engage in moderate exercise for at least 30 minutes per day, such as walking, jogging, cycling, or swimming. Drinking plenty of water is also important to help prevent constipation and maintain adequate hydration. Using moist wipes or a bidet instead of dry toilet paper can also help to reduce irritation and prevent further damage to the hemorrhoids.

Avoid alcohol since it irritates the intestine, excessive drinking can lead to varices and swollen blood vessels that might burst and cause significance haemorrhaging, Avoid smoking because nicotine and other substances can make ulcers more likely. Caffeine, spicy foods, citrus operate as possible irritants and can irritate your GI tract. Caffeine is present in chocolate, tea, coffee, soda, and other drinks, and it must be avoided because it also causes gastric secretions. Getting enough fiber makes it simpler to pass the faeces and keeps them soft. Fruits, vegetables, prune juice, high-fiber cereals and whole grains are examples of food high in fiber⁵.

MATERIALS AND METHODS

Study site:

The study was conducted in the Gastroenterology Department of Sagar hospitals, Bengaluru.

Study design:

A Prospective and Longitudinal study.

Sample size:

A total of 175 patients from the Gastroenterology Department of Sagar hospitals, who met the study criteria and consented to participate were included in the study.

Study period:

The study was conducted over a period of 06 months starting from January 2022 to July 2022.

Ethical approval:

Ethical committee clearance was obtained from Institutional Ethical Committee (IEC) of Sagar hospitals-Bengaluru.

Study criteria:

Inclusion criteria:

- Patient reported with gastrointestinal bleeding
- Patients aged above or equal to 18 years
- Patients admitted to in-patients department

Exclusion criteria:

- Pregnant and lactating women
- Patients aged less than 18 years
- Patients admitted to out-patients department

Study materials:

Data Collection Form and Patient Consent Form

Source of data:

The source of data included,

- Interaction with patients
- Patient case notes
- Treatment chart
- Laboratory reports

Study procedure:

1. Patient enrolment:

Patients reported with Gastrointestinal bleeding were admitted to the Gastroenterology Department of Sagar hospitals, Bengaluru. The study was conducted on 175 patients who met the inclusion and exclusion criteria.

2. Method of data collection:

A prospective and longitudinal study was conducted in Gastroenterology department of Sagar hospitals Bengaluru. The patients who have met the inclusion and exclusion criteria were enrolled. Data collection form were prepared to assess patient demographic details such as age, sex, gender, etc and other various parameters such as complete blood count, blood urea nitrogen, abdominal ultrasound, endoscopy reports were used to assess the overall condition. Therapeutic related data such as drug names, dosages, route of administration, duration and other information such as life style modifications were used to assess the management in gastrointestinal bleeding. Data were evaluated by using suitable statistical tools. Follow ups were carried out from the day of admission to the day of discharge.

3. Statistical Methods:

Descriptive statistical analysis has been carried out in the present study. Chi-square test, frequency and percentage were drawn and charts were used to represent the data. Microsoft Word and Excel are used to generate tables and graphs respectively. Chi-square test significance was shown with a p-value <0.05 i.e., at a 5% level Of significance.

4. Statistical Software:

The statistical software namely IBM SPSS version 28 was used for the analysis of the data and the drawn charts.

RESULTS

Distribution of subjects according to gender

Table 1: Distribution of subjects according to gender

Gender	Frequency in no. (175)	Percentage (%)
Female	60	34.3
Male	115	65.7
Total	175	100.0

Subjects were distributed according to gender. Among 175 subjects, the males were 115(65.7%) and females were 60(34.3%). Here it indicates that males have higher prevalence rate than females.

Distribution of subjects according to age

Table 2: Distribution of subjects according to age group

Age group	Frequency in no. (175)	Percentage (%)
<29	14	08
30-59	71	40.6
>60	90	51.4
Total	175	100.0

From the distribution of subjects according to age, a greater number of patients were identified at the age group of >60 years (51.4%) and least were found in age group of less than 29 years (08%).

Distribution of subjects according to alcohol habit

Table 3: Distribution of subjects according to alcoholic habit

Alcohol	Frequency in no. (175)	Percentage (%)
Yes	108	61.7
No	67	38.3
Total	175	100

Subjects were distributed according to alcohol consumption habit. In total study population, it was observed that 61.7% were alcoholic and 38.3% were non alcoholic.

Distribution of subjects according to smoking habit

Table 4: Distribution of subjects according to smoking habits

Smoking	Frequency in no. (175)	Percentage (%)
Yes	102	58.3
No	73	41.7
Total	175	100

Subjects were distributed according to smoking habit. In total study population, it was observed that 58.3% were smokers and 41.7% were non-smokers.

Distribution of subjects according to type of GI bleeding

Table 5: Distribution of subjects according to type of Gastrointestinal bleeding (GIB)

GIB	Frequency in no. (175)	Percentage (%)
Lower(L)	56	32
Upper(U)	114	65.1
U+L	05	2.9
Total	175	100.0

Subjects were being distributed according to the source of Gastrointestinal bleeding, among which 65.1% was diagnosed with upper GI bleeding and 32% was diagnosed with lower GI bleeding.

Distribution of subjects according to haemoglobin level

Table 6: Distribution of subjects according to haemoglobin level

Haemoglobin (mg/dl)	After in no. (175) and percentage (%)			Total	p- value	
	Normal	Low	High			
Before	12-17	69(39.4)	04(2.3)	01(0.6)	74(42.3)	< 0.001
	<12	36(20.6)	63(36)	0(0)	99(56.6)	
	>17	0(0)	0(0)	02(1.1)	02(1.1)	
Total	105(60)	67(38.3)	03(1.7)	175(100)		

Among 175(100%) patients who were enrolled in the study, 20.6% of patients who had their Hb level below normal range were brought to normal with treatment and 36% of patients were still under progression of cure and had their Hb levels lower than normal range. And 39.4% who had Hb in normal range before treatment continued to have their Hb in normal range.

Distribution of subjects according to BUN level

Table 7: Distribution of subjects according to BUN level

Blood Urea Nitrogen (BUN) (mmol/L)	Gastrointestinal bleeding in no. (175) and percentage (%)			Total
	Lower (L)	Upper (U)	U+L	
2.1-8.5	47(26.9)	64(36.6)	02(1.1)	113(64.6)
>8.5	09(5.1)	50(28.6)	03(1.7)	62(35.4)
Total	56(31)	114(66.2)	05(2.8)	175(100)

Among 175 subjects, 35.4% of study population had higher BUN level, 28.6% of them had Upper GI bleeding and 5.1% of them had Lower GI bleeding.



Distribution of subjects according to proton pump inhibitors prescribed

Table 8: Distribution of subjects according to proton pump inhibitors (PPIs) prescribed

Proton Pump Inhibitors	No. of patients on treatment in no. (175) and percentage (%)	Not given with treatment in no. (175) and percentage (%)	Total patients (100%)
Pantoprazole	113 (64.6)	62 (35.4)	175
Omeprazole	01 (0.6)	174 (99.4)	175
Rabeprazole	03 (1.1)	172 (98.9)	175

From our study, it was observed that 64.6% of subjects were prescribed with pantoprazole, 1.1% of subjects were prescribed with rabeprazole and 0.6% of subjects with omeprazole.

DISCUSSION

Gender:

Table 1 represents that, in the current study, a total of 175 patients were involved out of which 115 were males and 60 were females giving 65.7% and 34.3% respectively. In our study Gastrointestinal bleeding is more common in men than women because of vascular diseases and diverticulosis and also they are more likely to use alcohol and tobacco. Similar findings were found in the study conducted by Longstreth GF, in which patients with multiple hospitalizations revealed rates of 128.3% in males and 65.8% in females.

Age:

Table 2 represents the distribution of subjects according to age and it is found to be higher number of patients fall under >60 years age group which accounts 51.4%. In our study elderly people of age group >60 years are at more risk of gastrointestinal bleeding as they are more likely to use prescription or (OTC) over the counter aspirins or non-steroidal anti-inflammatory drugs (NSAIDs) and anticoagulants as well as higher prevalence of H.pylori, haemorrhoids, peptic ulcer disease and colorectal cancers. Similar findings were found in the study conducted by Salijoughian M. conducted a study that showed similar results in which 35-40% of all cases of GI haemorrhages occur in elderly patients.

Alcohol:

Table 3 showed that the subjects were distributed according to alcohol consumption habit. In total study population 108 patients were consuming alcohol accounting for 61.7%. In our study patients with high alcohol consumption are widely at risk for GI bleeding, heavy episode of drinking can damage the mucous cells in the stomach and accelerates the development of gastritis which induces inflammation and lesions. Strate L L, Singh P, Boylan MR, Piawah S, Cao Y and Chan AT conducted a study that showed similar results, that alcohol

consumption was associated with an increased risk of major gastrointestinal bleeding.

Smoking:

Table 4 represents the distribution of subjects according to smoking habits. In total study population it was observed that 102 subjects were smokers which accounts for 58.3%. In our study the risk of developing GI bleeding increases significantly in individual who smoke cigarette and its active ingredients can cause mucosal cell death, decreases blood flow in the GI mucosa and is associated with delay in the healing process of ulcers. Similar study by Li LF, Chan RL, Lu L, Shen J, Zhang L and Wu WK concluded that cigarette smoking is the main risk factor for the induction of inflammatory diseases such as ulcers and crohn's disease and its active ingredients impair the fundamental structure of gastrointestinal tract.

Type of Gastrointestinal bleeding:

Table 5 shows the distribution of subjects according to type of GI bleeding. Here majority of patient were diagnosed with upper gastrointestinal bleeding of 114 subjects accounting for 65.1% and patients with lower gastrointestinal bleeding were 56 subjects accounting for 32% overall content says that the incidence rate of upper gastrointestinal bleeding was higher than lower gastrointestinal bleeding.

Haemoglobin:

Table 6 shows the distribution of subjects according to haemoglobin level. Here it was observed that 20.6% of patients who had their haemoglobin level less than 12mg/dl were brought to normal range with treatment and 36% of patients were still under progression of cure and 39.4% who had haemoglobin in normal range before treatment continued to have their haemoglobin in normal range. This was due to the blood loss which has occurred because of bleeding in the digestive tract such as from ulcers, cancers or haemorrhoids. Tomizawa M, Shinozaki F, Hasegawa R, Shirai Y, Moto Yoshi Y and Sugi Yama T, conducted a study which concluded that haemoglobin was lower in patients with gastrointestinal bleeding and identifies patients at risk for hemodynamic crisis.

Blood urea nitrogen (BUN):

Table 7 shows the distribution of subjects according to BUN level, it was observed that 35.4% of study population had higher BUN level in which 50 patients had upper GI bleeding accounts for 28.6% and 9 patients had lower GI bleeding accounting for 5.1%. In our study upper gastrointestinal bleedings have higher BUN compared to lower gastrointestinal bleedings. The level of BUN in blood increases following digestion of a high volume of blood as protein in the digestive system. The source of voluminous GI bleeding is mostly above the treitz ligament and therefore blood has more time for absorption and catabolism in the digestive tract. Similar findings were found in a study conducted by Tomizawa M, Shinozaki F, Hasegawa R, Shirai Y, Moto yoshi Y and Sugiyama T, which



showed that increased BUN was associated with severe upper GI bleeding than lower GI bleeding.

Proton pump inhibitors (PPIs):

Table 8 represents the distribution of subjects according to proton pump inhibitors prescribed. In the total study population it was observed that 64.6% of subjects were prescribed with pantoprazole and 1.1% of subjects were prescribed with rabeprazole. Pantoprazole was commonly prescribed for acid suppression and maintain the gastric PH which was sufficient to prevent mucosal bleeding in patients with ulcers and erosions it was even well tolerated at highly doses.

Treatment:

Table 8 shows the distribution of subjects according to the treatment given from the total study population it was observed that 86.2% of patients were prescribed with antacids and laxatives, overall content says that antacid regimen was effective in the prevention of GI bleeding by forming ulcer adherent complex thereby protecting ulcer from acid, pepsin and bile salts thus allowing it to heal. 19.4% of patients were prescribed with prokinetic agents to improve gastrointestinal motility and there was a decreased need for repeat endoscopy. 17.2% of patients were prescribed with vasopressin analogues, it was primarily used in oesophageal varices to control bleeding from gastritis and to help control haemorrhage in some patients by lowering the portal pressure. 8.6% patients were prescribed with anti-inflammatory agent such as mesalazine which acts by decreasing the inflammation and symptoms associated with ulcerative colitis by blocking the activity of cyclooxygenase and lipoxygenase thereby reducing the production of prostaglandins. 8.6% patients were prescribed with antispasmodics such as Hyoscine butyl bromide was used to address gastrointestinal symptoms who experience epigastric pain and their anticholinergic properties help in the relaxation of gastrointestinal smooth muscles to lessen the severity of symptoms. 4% of patients were prescribed with H2 receptor blockers to reduce the gastric acidity and was frequently used in gastritis, inflamed stomach and to treat peptic ulcers.

CONCLUSION

Patients characteristic were assessed and evaluated, study showed that prevalence of males was more than female. More number of patient were identified with GI bleeding in the age group greater than 60 years old as older patients are more prone and organs dysfunction occurs according to the age progression. The outcome of the study was to assess the treatment of GI bleeding. The study also explored the use of several drugs in the treatment of GI bleeding. These included proton pump inhibitors (PPIs), antacids, and prokinetic agents. Overall, the study aimed to improve the understanding and treatment of GI bleeding by providing clinicians with relevant laboratory data and exploring the use of various drugs in the management of this condition.

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