

ORIGINAL ARTICLE

THE PATTERN AND OUTCOME OF UPPER GI BLEEDING AT ST. PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE, ADDIS ABABA

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ABSTRACT

Introduction: Upper gastrointestinal bleeding (UGIB) is a common medical emergency associated with significant morbidity and mortality. The presentation of bleeding depends on the amount and location of hemorrhage and the endoscopic profile varies according to different etiology. Despite advancements in medical intervention, UGIB still carries considerable morbidity, mortality and economic burden on health care system. At present, there is limited epidemiological data on GIB and associated mortality in Ethiopia.

Objective: To assess the pattern, clinical and endoscopic profile; management and outcome of GIB patients admitted to St. Paul's Hospital Millennium Medical College

Methods: A cross-sectional retrospective study was done from January 2018 to May 2018. Of 208 patients who presented to Saint Paul's Hospital Millennium Medical College (SPHMMC) with gastrointestinal bleeding (GIB) in one-year period, 128 patients fulfill the inclusion criteria. A structured questionnaire was used to assess the demographic data, endoscopic diagnosis and outcome of GI bleeding patients. Data was analyzed by using SPSS version 23 and Statistical analysis was performed by using chi-square test and P-value less than 5% is considered as significant.

Result: The mean (SD) age of patients was 35 (± 14.37). Majority (83.6%) of them were males with a male to female ratio of 5:1. Varices is the most common cause of UGIB seen in 46.1% (59), followed by peptic ulcer disease 24.2% (31), esophagitis 3.9% (5), gastritis 6.3% (8), Duodenitis 3.1% (4) and malignancy 4.7% (6). Ten patients (7.8%) had both varices and ulcer. The proportion of death in this study was 17.2%.

Conclusions: In the present study, variceal bleed was the most common cause of UGIB, followed by peptic ulcer bleed. Overall mortality was 17.2% of cases.

INTRODUCTION

Gastrointestinal bleeding (GIB) is a potentially fatal, time-critical presenting complaint in the emergency department (ED). It's classified as upper GI bleeding (UGIB) and lower GI bleeding (LGIB). It's called upper GI bleeding (UGIB) when the bleeding is due to lesions located above the ligament of Treitz such as from the esophagus, stomach and duodenum. If the lesions are located beyond ligament of Treitz that's called lower GI bleeding (LGIB). Hematemesis, melena or both and hematochezia are the presenting symptoms (1). The annual incidence of hospitalization for acute GIB is >500,000 discharges in the United States (2).

GIB is more frequent in men than women and increases with age (2,3). Bleeding from the upper gastrointestinal tract (GIT) is about four times as common as bleeding from the lower GIT (2). The etiology of acute UGIB can be divided into variceal and non-variceal causes, as the two have different treatment algorithms and prognosis.

The main sources of non-variceal bleeding are peptic ulcers, esophagitis, drug-induced mucosal damage, vascular anomalies, traumatic and post-operative lesions, and tumors. Variceal UGIB is caused by the sequelae of portal hypertension such as varices of the esophagus, stomach, duodenum, and portal hypertensive gastropathy.

Globally, the overall mortality of acute UGIB is around 5% to 10%, and occurs more in variceal than non-variceal etiologies (4,5). The primary diagnostic test for evaluation of UGIB is endoscopy. Early endoscopy and endoscopic appearance of certain lesions helps to guide care and thereby reduce the costs and duration of hospitalization (6).

Epidemiological data are important for gaining an insight into the etiology, outcome, and management and to recommend preventive healthcare measures for GIB. However, no epidemiological surveys have been performed with regards to GIB in Ethiopia.

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This study is intended to assess the magnitude, causes, and outcomes of GIB in one of the major endoscopy centers in Ethiopia at Saint Paul's Hospital Millennium Medical College (SPHMMC).

PATIENTS AND METHODS

A retrospective cross-sectional study is carried out at one of the tertiary hospitals in Ethiopia, St. Paul's Hospital Millennium Medical College. SPHMMC is the 2nd largest hospital in the capital city. Gastroenterology and Hepatology unit is one of the units in the Department of Internal Medicine. The unit is training fellows, doing diagnostic and therapeutic endoscopy. The Endoscopy unit is WEO and ESGE accredited center for endoscopy training. For more information visit (www.sphmmc.edu.et). Data collection was conducted from January 2018 to May, 2018.

From 208 patients who were admitted to the internal medicine ward and/or coming for endoscopy from January 2017 to December 2017 with Hematemesis, melena, hematochezia or combination of these 128 patients were recruited in the study. Patient of whom charts lost, which lack the necessary information and patients didn't come back to the hospital within one-month period after bleeding and not reachable via phone call were excluded from the study.

By using structured questionnaire information regarding demographic data, clinical presentation, presence of co morbidity, hemodynamic status, transfusion requirement, timing of endoscopy, endoscopic finding, their management and length of hospital stay were gathered from patient's chart. Outcome at one month is also assessed from patient's chart if they came back within one-month period, if not their condition was followed via phone call after verbal consent.

statistical analyses

Data analysis was performed using the statistical package for social sciences (SPSS) version 23. The mean \pm standard deviation (SD), median and ranges were calculated for continuous variables, whereas proportions and frequency tables were used to summarize categorical variables. Ethical clearance was obtained from the college institution review board (IRB) and verbal consent was taken from patient or guardian during phone call.

RESULTS

From the total of 128 patients, 107 (83.6%) were males and 21 (16.4%) were females. The mean age of patients with GIB was 35 ± 14 . Most patients with -- GIB presented with Hematemesis (48%), both Hematemesis and melena in 41%, melena only in 9% and hematochezia in 2%.

Table 1: Baseline characteristic of patients with gastrointestinal bleeding.

Baseline characteristics	Frequency	Percentage
Gender : male	107	83.6
Female	21	16.4
Age:		
< 20	17	13.3
21-30	42	32.8
31-40	36	28.1
41-50	16	12.5
51-60	8	6.3
>60	9	7.0
Address		
In Addis Ababa	39	30.5
Out of Addis Ababa	89	69.5
Presenting symptom		
Hematemesis	61	47.7
Melena	11	8.6
Hematemesis and melena	53	41.4
hematochezia	3	2.3
Hemodynamic status		
Stable	96	75
Unstable	32	25
Comorbidity		
Liver disease	74	57.8
Diabetes mellitus	4	3.1
Malignancy other than HCC	3	2.3
Other	12	12.4
No comorbidity	35	27.3

* hemodynamic instability is defined as: systolic blood pressure less than 90 mmHg or pulse rate of greater than 100 bpm. *

Ninety-three patients (72.6%) had co-morbidity. Liver disease is the most common co-morbidity found in 74 patients (57.8%). From liver disease chronic viral hepatitis is the most common cause found in 27 patients (36.5%) followed by hepatosplenic schistosomiasis evidenced by periportal fibrosis on ultrasound 19 (25.6%), chronic liver disease of unknown cause 17 (22.9%) and alcoholic liver disease found in 11 (14.8%) patients.

Table 2: Causes of upper gastrointestinal bleeding.

Cause of bleeding	Frequency	Percentage
Varices	49	38.3
Varices and ulcer	10	7.8
Peptic ulcer disease		
Duodenal ulcer	18	14.1
Gastric ulcer	3	2.3
Erosive mucosal disease		
Esophagitis	5	3.9
Gastritis	8	6.3
Duodenitis	4	3.1
Mallori-Weiss tear	2	1.6
Malignancy	6	4.7
Normal	9	7.0
Endoscopy not done	14	10.9
Total	128	100.0

For 114 (89%) of the patients had upper GI endoscopy within a mean (SD) of 5.5 (\pm 6.4) days of the initial bleeding. For the rest 14 patients (10.9%) endoscopy was not done because 10 patients died before endoscopy and 4 patients discharged after medical management and appointed for outpatient endoscopy. *Helicobacter pylori* test was positive in 12 patients (57.1%) with PUD.

Patient management and outcome

Sixty-one patients (47.6%) were transfused with one or more units of blood and blood components. Ninety-five (74.2%) of the patients were managed medically and thirty-three (25.8%) were managed both endoscopically and medically. Band ligation was done for thirty-two patients (28.1%). Adrenaline injection for two patients, histoacryl injection for one patient and hemoclip applied for one patient.

One-month mortality rate in this study was 17.2% (22). Ten patients (45.5%) died of sepsis with or without organ failure, four patients (18.2%) died because of uncontrolled bleeding, three patients (13.6%) died because of hepatic encephalopathy and cause of bleeding for five patients (22.7%) cause of death was not known. Mortality rate was higher in patients with variceal cause of bleeding, hemodynamically unstable and those who required blood transfusion.

DISCUSSION

Upper GI bleeding is one of the common reasons for patients to visit our hospital and need gastroenterologist consultation.

In our study, 83.6% of upper GI bleeding patients were males which give male to female ratio of 5:1. Similar male predominance of UGIB patients was also reported in an Egyptian and Sudanese studies (7,8). This is well explained by higher prevalence of viral hepatitis and schistosomiasis in males because of gender specific behavioral patten and occupational activities may expose males more often to viral hepatitis and schistosomiasis(9,10).

Majority of the patients with upper GI bleeding in our study were in age range between 21-41 years, with a mean age of 35 \pm 14. This is consistent with other studies in Africa and other developing countries (8,9). However, it is lower than the age reported in the developed world and could just reflect generally higher life expectancy in the west and difference in etiology of UGIB (5).

72.7% of upper gastrointestinal bleeding patients in our study have co-morbidities. Liver disease was the most common co-morbidity identified, seen in 57.8% of patients. Similar co-morbidity rates of co-morbidity was reported in patients hospitalized with UGIB in UK and mortality was higher in patients with co-morbid illnesses(11). Co-morbidity is one of the important criteria for risk assessment after acute upper GI hemorrhage in Rockall score. A study done in India also showed higher mortality rate in UGIB patients with co-morbid illnesses (1).

In this study, varices were the common cause of UGIB which was seen in 59 patients (46.1%) followed by peptic ulcer disease seen in 16.4% of patients with UGIB. This is consistent with other studies in developing countries(1,7) but in contrary to the findings of most western studies where peptic ulcer disease is identified as a commonest cause of GIB (11,12). This discrepancy may be because of the high prevalence of chronic liver disease as a result of the endemic nature of hepatitis B infection and schistosomiasis in Ethiopia and other African countries(9,10).

A systematic review done on the initiation of proton pump inhibitor (PPI) prior to endoscopy in UGIB patients revealed PPI therapy significantly reduced stigmata's of recent hemorrhage and endoscopic therapy at index endoscopy(13). In our study all patients presented to the hospital with upper GI bleeding got medical management such as PPI plus or minus antibiotics. Guidelines recommend doing early endoscopy (within 24 hours) for most patients with UGIB (6) and in 76% of Canadian cohort and 50% of UK study the first endoscopy was done within 24 hours(5,11).

In our study endoscopy was done within 5.5 (\pm 6.4) days of the initial bleeding which is later than guidelines recommendation. This can be because, most of our patients came from outside of Addis Ababa after long distance travel and delay in referral. In the Canadian registry, endoscopic therapy was performed for 37% of upper GI bleeding patients(5) which is higher than our study which is 25.8%. this can be well explained by the universal use of PPI and delay in the first endoscopy in our study, both can decrease stigmata's of recent hemorrhage and need for endoscopic therapy.

The proportion upper GI bleeding patients who died within one month in our study was 17.2% which is lower than studies from centers with no therapeutic endoscopy and higher than studies in developed world where early endoscopy can be done for every bleeding patient and advanced endoscopic interventions are available (5,11). Sepsis, uncontrolled bleeding and hepatic encephalopathy are most common causes of death and mortality rate was higher in patients with variceal cause of bleeding, hemodynamically unstable and those who required blood transfusion.

It is known that early intensive resuscitation in patients with upper GI bleeding to correct hemodynamic instability, hematocrit and coagulopathy decreased mortality (14). In our study only 47.6% of patients got blood and blood component transfusion. This and the higher prevalence of co-morbid illnesses may explain the higher mortality in other studies (1).

Conclusion and recommendation

In this study, varices (46.1%) were the most common cause of GIB followed by peptic ulcer-related bleed (16.4%) and overall mortality was 17.2%.

REFERENCE

1. Anand D, Gupta R, Dhar M, Ahuja V. Clinical and endoscopic profile of patients with upper gastrointestinal bleeding at tertiary care center of North India. *J Dig Endosc.* 2014;5(04):139–43.
2. Peery AF, Dellon ES, Lund J, Crockett SD, McGowan CE, Bulsiewicz WJ, et al. Burden of gastrointestinal disease in the United States: 2012 update. *Gastroenterology.* 2012;143(5):1179–87.
3. Loperfido S, Baldo V, Piovesana E, Bellina L, Rossi K, Groppo M, et al. Changing trends in acute upper-GI bleeding: a population-based study. *Gastrointest Endosc.* 2009 Aug;70(2):212–24.
4. Van Leerdam ME, Vreeburg EM, Rauws EAJ, Geraedts AAM, Tijssen JGP, Reitsma JB, et al. Acute upper GI bleeding: did anything change?: Time trend analysis of incidence and outcome of acute upper GI bleeding between 1993/1994 and 2000. *Am J Gastroenterol.* 2003;98(7):1494–9.
5. Barkun A, Sabbah S, Enns R, Armstrong D, Gregor J, Fedorak RNN, et al. The Canadian Registry on Nonvariceal Upper Gastrointestinal Bleeding and Endoscopy (RUGBE): Endoscopic Hemostasis and Proton Pump Inhibition are Associated with Improved Outcomes in a Real-Life Setting. *Am J Gastroenterol.* 2004 Jul;99(7):1238–46.
6. Barkun AN, Bardou M, Kuipers EJ, Sung J, Hunt RH, Martel M, et al. International consensus recommendations on the management of patients with nonvariceal upper gastrointestinal bleeding. *Ann Intern Med.* 2010;152(2):101–13.
7. El Badry M, Eltaweel NH, Moussa A. Endoscopic Findings in Patients with Upper Gastrointestinal Bleeding in Upper Egypt: A Single Centre Study. *Afro-Egyptian J Infect Endem Dis.* 2020;10(2):183–91.
8. Mohammad NA, MUSAAD A, AHMED E, AZIZ MA. Acute Gastrointestinal Bleeding In Third World Countries With Few Resources: A Study Of 1347 Patients In Specialized Centre. *Endoscopy.* 2019;51(

Aggressive Resuscitation, intensive care unit admission, early endoscopy and management of sepsis and hepatic encephalopathy should be given emphasis in managing patients with UGIB. We recommend having a large scale multicenter national study to understand the burden of GI bleeding and policy makers should give priority for GI bleeding, expand endoscopic service and scale up of treatment centers.

Strength

As to the investigator's knowledge, this is the first study done on GI bleeding in Ethiopia. It's done at the endoscopy training center accredited by WEO and ESGE

Limitation

Since this is retrospective cross-sectional study and many patients are excluded from the study because of poor documentation it may be difficult for generalizability.

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Competing Interest:

The authors declare that this manuscript was approved by all authors in its current form and that no competing interest exists.

9. Gebreselassie L. Prevalence of specific markers of viral hepatitis A and B among an Ethiopian population. *Bull World Health Organ.* 1983;61(6):991.
10. Legesse L, Erko B, Hailu A. Current status of intestinal Schistosomiasis and soiltransmitted helminthiasis among primary school children in Adwa Town, Northern Ethiopia. *Ethiop J Heal Dev.* 2010;24(3).
11. Hearnshaw SA, Logan RFA, Lowe D, Travis SPL, Murphy MF, Palmer KR. Acute upper gastrointestinal bleeding in the UK: patient characteristics, diagnoses and outcomes in the 2007 UK audit. *Gut.* 2011;60(10):1327–35.
12. Hreinsson JP, Kalaitzakis E, Gudmundsson S, Björnsson ES. Upper gastrointestinal bleeding: incidence, etiology and outcomes in a population-based setting. *Scand J Gastroenterol.* 2013 Apr;48(4):439–47.
13. Sreedharan A, Martin J, Leontiadis GI, Dorward S, Howden CW, Forman D, et al. Proton pump inhibitor treatment initiated prior to endoscopic diagnosis in upper gastrointestinal bleeding. *Cochrane Database Syst Rev.* 2010;(7).
14. Baradarian R, Ramdhaney S, Chapalamadugu R, Skoczylas L, Wang K, Rivilis S, et al. Early intensive resuscitation of patients with upper gastrointestinal bleeding decreases mortality. *Am J Gastroenterol.* 2004;99(4):619–22.